

# Program in Chronological Order

Scroll to the title and select a [Blue](#) link to open a paper. After viewing the paper, use the bookmarks to the left to return to the beginning of the Table of Contents.

\* Author Name – Corresponding Author • \* Following Paper Title – Paper not Available

## Thursday, 3 September 2009

ThPL1: 08:30-09:30 Grand Ballroom - Salon D  
**Opening Ceremony & Plenary Lecture I**  
**Chair:** Bin He, *Univ. of Minnesota*

08:30-09:30 ThPL1.1  
**MR Imaging of Brain Function: Challenges, Opportunities and Questions** ..... \*  
*Glover, Gary H.\* (Stanford University)*

ThKN1L: 09:40-11:10 Grand Ballroom - Salon A  
**Theme Keynote I**  
**Chair:** Nitish Thakor, *Johns Hopkins Univ.*  
**Co-Chair:** Dominique Durand, *Case Western Res. Univ.*

09:40-10:25 ThKN1L.1  
**Useful Signals from Motor Cortex** ..... \*  
*Schwartz, Andrew\* (University of Pittsburgh)*

10:25-11:10 ThKN1L.2  
**Toward Cognitive NeuroProsthesis** ..... \*  
*Principe, Jose\* (University of Florida)*

ThA01: 09:40-11:10 Conrad B  
**1.1.1 Time-Frequency and Time-Scale Analysis I (Oral Session)**  
**Chair:** Sergio Cerutti, *Pol. di Milano*

09:40-09:55 ThA01.1  
**Time-Varying Spectrum Estimation of Heart Rate Variability Signals with Kalman Smoother Algorithm** ..... 1-4  
*Tarvainen, Mika\* (University of Kuopio); Georgiadis, Stefanos (University of Kuopio);  
Lipponen, Jukka (University of Kuopio); Hakkarainen, Marko Juhani Filemon (University of Kuopio);  
Karjalainen, A (University of Kuopio)*

09:55-10:10 ThA01.2  
**Analysis and Processing of Heart Rate Variability by Time-Frequency Representation:  
Quantification of the Pedaling Frequency Modulation** ..... 5-8  
*Meste, Olivier\* (UNSA-CNRS); Blain, Gregory (University of Nice Sophia Antipolis); Bermon, Stephane (Inst. IM2S)*

10:10-10:25 ThA01.3  
**Sleep Staging Classification Based on HRV: Time-Variant Analysis** ..... 9-12  
*Mendez, Martin Oswaldo (politecnico di Milano); Matteucci, Matteo (Politecnico di Milano); Cerutti, Sergio  
(Politecnico di Milano); Aletti, Federico\* (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano)*

10:25-10:40 ThA01.4  
**New Approach in Features Extraction for EEG Signal Detection** ..... 13-16  
*Guerrero-Mosquera, Carlos\* (Universidad Carlos III de Madrid);  
Navia Vazquez, Ángel (University Carlos III of Madrid)*

10:40-10:55 ThA01.5  
**A Semi-Automated Method for Epileptiform Transient Detection in the EEG of the Fetal Sheep Using  
Time-Frequency Analysis** ..... 17-20  
*Walbran, Anita Charlotte\* (The University of Auckland); Unsworth, Charles Peter (University of Auckland);  
Gunn, Alistair Jan (University of Auckland); Bennet, Laura (The University of Auckland)*

10:55-11:10 ThA01.6  
**Denoising of Multiscale/Multiresolution Structural Feature Dictionaries for Rapid Training of a Brain Computer Interface** ..... 21-24  
*Ince, Nuri Firat\* (University of Minnesota); Tadipatri, Vijay Aditya (University of Minnesota); Goksu, Fikri (University of Minnesota); Tewfik, Ahmed (University of Minnesota)*

ThA02: 09:40-11:10 Conrad C  
**1.4.1 Biomedical Signal Pattern Classification (Oral Session)**  
**Chair:** Dimitrios I. Fotiadis, *Univ. of Ioannina*  
**Co-Chair:** Jacques Duchêne, *UTT*

09:40-09:55 ThA02.1  
**Seizure Prediction for Epilepsy Using a Multi-Stage Phase Synchrony Based System** ..... 25-28  
*James, Christopher\* (University of Southampton); Gupta, Disha (University of Southampton)*

09:55-10:10 ThA02.2  
**Signal Processing Challenges for Single-Trial Analysis of Simultaneous EEG/fMRI** ..... 29-30  
*Sajda, Paul\* (Columbia University)*

10:10-10:25 ThA02.3  
**Nonlinear Chaotic Component Extraction for Postural Stability Analysis** ..... 31-34  
*Snoussi, Hichem (UTT); Hewson, David J\* (Université de technologie de Troyes); Duchêne, Jacques (UTT)*

10:25-10:40 ThA02.4  
**Revealing the Metabolic Profile of Brain Tumors for Diagnosis Purposes** ..... 35-38  
*Kounelakis, Michail G. (Technical University of Crete); Zervakis, Michalis\* (Technical University of Crete, Greece); Postma, Geert J. (Radboud University); Buydens, Lutgarde M.C. (Radboud University); Heerschap, Arend (University Medical Center Nijmegen); Kotsiakos, Xenofon (General Hospital of Chania)*

10:40-10:55 ThA02.5  
**Adaptive Time-Frequency Matrix Features for T Wave Alternans Analysis** ..... 39-42  
*Ghoraani, Behnaz\* (Ryerson University); Krishnan, Sridhar (Ryerson University); Selvaraj, Raja J. (University Health Network); Chauhan, Vijay S. (University Health Network)*

10:55-11:10 ThA02.6  
**Analysis of Doppler Ultrasound Signals: Ophthalmic Arterial Disorders Detection Case** ..... 43-46  
*Ubeyli, Elif Derya\* (TOBB Econ and Technology Univ)*

ThA03: 09:40-11:10 Grand Ballroom - Salon B  
**2.1.1 Minisymposium: Medical Imaging – New Biomarkers and Clinical Perspective I**  
**Chair:** Yi Wang, *Cornell Univ.*

09:40-10:10 ThA03.1  
**Molecular and Functional Imaging of Cancer** ..... 47-49  
*Bhujwala, Zaver\* (The Johns Hopkins University School of Medicine)*

10:10-10:40 ThA03.2  
**Brain Imaging Developments Based on in Vivo MRS** ..... 50-52  
*Chen, Wei\* (University of Minnesota)*

10:40-11:10 ThA03.3  
**Magnetic Source MRI: A New Quantitative Imaging of Magnetic Biomarkers** ..... 53-56  
*Wang, Yi\* (Cornell University); de Rochefort, Ludovic (Cornell University); Liu, Tian (Cornell University); Kressler, Bryan (Cornell University)*

ThA04: 09:40-11:10 Duluth Room  
**2.5.1 E/MEG Source Imaging** (Oral Session)  
**Chair:** Xiaoxiao Bai, *Yale Univ.*  
**Co-Chair:** Barry Van Veen, *Univ. of Wisconsin*

09:40-09:55	ThA04.1
<b>The Study of Brain Activity During the Observation of Commercial Advertising by Using High Resolution EEG Techniques</b> .....	<b>57-60</b>
<i>Babiloni, Fabio*</i> (University of Rome); <i>Astolfi, Laura</i> (University of Rome); <i>Vecchiato, Giovanni</i> (University of Rome Sapienza)	
09:55-10:10	ThA04.2
<b>State-Space Multivariate Autoregressive Models for Estimation of Cortical Connectivity from EEG</b> .....	<b>61-64</b>
<i>Cheung, Bing Leung Patrick</i> (University of Wisconsin); <i>Riedner, Brady</i> (University of Wisconsin); <i>Tononi, Giulio</i> (University of Wisconsin); <i>Van Veen, Barry*</i> (University of Wisconsin)	
10:10-10:25	ThA04.3
<b>Accurate Reconstruction of Brain Activity and Functional Connectivity from Noisy MEG Data</b> .....	<b>65-68</b>
<i>Owen, Julia*</i> (UCSF); <i>WIPF, David</i> (UCSF); <i>Attias, Hagai Thomas</i> (Golden Metallic Inc.); <i>Sekihara, Kensuke</i> (Tokyo Metropolitan University); <i>Nagarajan, Srikantan S.</i> (University of California, San Francisco)	
10:25-10:40	ThA04.4
<b>Solving of L0 Norm Constrained EEG Inverse Problem</b> .....	<b>69-72</b>
<i>Xu, Peng</i> (Univ of Electr Science and Tech of China); <i>Lei, Xu</i> (University of Electronic Science and Technology of China); <i>Hu, Xiao</i> (University of California, Los Angeles); <i>Yao, Dezhong*</i> (University of Electronic Science and Technology of China)	
10:40-10:55	ThA04.5
<b>High-Resolution Cortical Dipole Layer Imaging Based on Noise Covariance Matrix</b> .....	<b>73-76</b>
<i>Hori, Junichi*</i> (Niigata University)	
10:55-11:10	ThA04.6
<b>Dynamic Solution to the EEG Source Localization Problem Using Kalman Filters and Particle Filters</b> .....	<b>77-80</b>
<i>minguez, javier*</i> (Zaragoza University); <i>Antelis, Javier M.</i> (University of Zaragoza)	

ThA05: 09:40-11:10 Marquette V  
**2.7.5 Biomedical Image Registration** (Oral Session)  
**Chair:** Christian Roux, *TELECOM Bretagne - INSERM*  
**Co-Chair:** Metin Gurcan, *The Ohio State Univ.*

09:40-09:55	ThA05.1
<b>Registration of Prone and Supine Ct Colonography Scans Based on Correlation Optimized Warping and Canonical Correlation Analysis</b> .....	<b>81-84</b>
<i>Wang, Shijun*</i> (National Institutes of Health); <i>Yao, Jianhua</i> (National Institutes of Health); <i>Liu, Jiamin</i> (NIH); <i>Petrick, Nicholas</i> (U.S. Food and Drug Administration); <i>Summers, Ronald</i> (National Institutes of Health)	
09:55-10:10	ThA05.2
<b>Quantitative Comparison of High-Resolution MRI and Myelin-Stained Histology of the Human Cerebral Cortex</b> .....	<b>85-89</b>
<i>Osechinskiy, Sergey*</i> (University of California, Irvine); <i>Kruggel, Frithjof</i> (University of California, Irvine)	
10:10-10:25	ThA05.3
<b>Registration of Low Dose Bi-Planar Acquisitions for Motion Analysis</b> .....	<b>90-93</b>
<i>Jerbi, Taha*</i> (LaTIM, Telecom Bretagne); <i>Burdin, Valérie</i> (TELECOM Bretagne - INSERM U650); <i>Stindel, Eric</i> (Université de Bretagne Occidentale); <i>Roux, Christian</i> (TELECOM Bretagne - INSERM)	

10:25-10:40 ThA05.4  
**An Automatic Deformable Registration Method to Evaluate Parotid Glands Shrinkage During Radiotherapy Treatment in Tomotherapy** ..... 94-97  
*Faggiano, Elena (Politecnico di Milano and IBFM-CNR); Fiorino, Claudio (Scientific Institute San Raffaele); Broggi, Sara (Scientific Institute San Raffaele); Cattaneo, Giovanni Mauro (Scientific Institute San Raffaele); Calandrino, Riccardo (Scientific Institute San Raffaele); Cerutti, Sergio\* (Politecnico di Milano); Rizzo, Giovanna (National Research Council (CNR))*

10:40-10:55 ThA05.5  
**A Multicore Based Parallel Image Registration Method** ..... 98-101  
*yang, lin\* (University of Medical and Dentistry of New Jersey); gong, leiguang (IBM); zhang, hong (umdnj); yim, peter (umdnj); Foran, David J. (UMDNJ-Robert Wood Johnson Medical School and The Cancer Institute of New Jersey)*

10:55-11:10 ThA05.6  
**Retinal Image Registration Based on Salient Feature Regions** ..... 102-105  
*Zheng, Jian (Institute of Automation Chinese Academy of Sciences); Tian, Jie\* (Chinese Academy of Sciences); Dai, Yakang (Chinese Academy of Science); Deng, Kexin (Institute of Automation Chinese Academy of Sciences); Chen, Jian (Institute of Automation)*

ThA06: 09:40-11:10 Conrad A  
**3.2.1 Optical Sensors I** (Oral Session)  
**Chair:** Gang Yao, *Univ. of Missouri*  
**Co-Chair:** Joseph Culver, *Washington Univ. School of Medicine*

09:40-09:55 ThA06.1  
**Detection of Circulating Melanoma Cells in Human Blood Using Photoacoustic Flowmetry** ..... 106-109  
*Weight, Ryan (Kansas City University of Medicine and Biosciences); Dale, Paul (University of Missouri); Viator, John\* (University of Missouri)*

09:55-10:10 ThA06.2  
**Polarization in Low Coherence Interferometry** ..... 110-113  
*Jiao, Shuliang\* (University of Southern California)*

10:10-10:25 ThA06.3  
**Engineering NIR Dyes for Fluorescent Lifetime Contrast** ..... 114-117  
*Berezin, Mikhail\* (Washington University); Lee, Hyeran (Washington University); Akers, Walter (Washington University); Guo, Kevin (Washington University); Goiffon, Reece (Washington University); Achilefu, Samuel (Washington University School of Medicine); Almutaiti, Adah (University of California San Diego); Fréchet, Jean (University of California, Berkeley)*

10:25-10:40 ThA06.4  
**Optical Reflectance Spectroscopy for Detection of Human Prostate Cancer** ..... 118-121  
*Sharma, Vikrant (International Techlink Group Corp.); Kashyap, Dheerendra (University of Texas at Arlington); Mathkar, Aditya (University of Texas at Arlington); Narvenkar, Sweta (University of Texas at Arlington); Bensalah, Karim (University of Texas Southwestern Medical Center at Dallas); Kabbani, Wareef (University of Texas Southwestern Medical Center at Dallas); Tuncel, Altug (University of Texas Southwestern Medical Center at Dallas); Cadeddu, Jeffrey (University of Texas Southwestern Medical Center at Dallas); Liu, Hanli\* (University of Texas at Arlington)*

10:40-10:55 ThA06.5  
**Experimental Validation of an Optical System for Interrogation of Dermally-Implanted Microparticle Sensors** ..... 122-125  
*Long, Ruiqi\* (Texas A&M University); McShane, Mike (Texas A&M University)*

10:55-11:10 ThA06.6  
**Multivariate Regression and Discreminant Calibration Models for a Novel Optical Non-Invasive Blood Glucose Measurement Method Named Pulse Glucometry** ..... 126-129  
*Yamakoshi, Yasuhiro (yusys Co., Ltd.); Ogawa, Mitsuhiro\* (yu.sys Corp.); Yamakoshi, Takehiro (Kanazawa University); Tamura, Toshiyo (Chiba University); Yamakoshi, Ken-ichi (Kanazawa University)*

ThA07: 09:40-11:10 Marquette VII  
**12.1.1 Recent Advances in Therapeutic Ultrasound** (Oral Session)  
**Chair:** Joo Ha Hwang, *Univ. of Washington*  
**Co-Chair:** Gerald Ross Harris, *Food and Drug Administration*

09:40-10:10		ThA07.1
	<b>Current Status of Clinical High-Intensity Focused Ultrasound</b> .....	<b>130-133</b>
	<i>Hwang, Joo Ha* (University of Washington); Crum, Lawrence (University of Washington)</i>	
10:10-10:25		ThA07.2
	<b>Ultrasound Mediated Drug Delivery: The Effect of Microbubbles on a Gel Boundary</b> .....	<b>134-136</b>
	<i>Caskey, Charles* (University of California at Davis)</i>	
10:25-10:40		ThA07.3
	<b>Monitoring and Guidance of HIFU Beams with Dual-Mode Ultrasound Arrays</b> .....	<b>137-140</b>
	<i>Ballard, John Robert* (University of Minnesota); Casper, Andrew (University of Minnesota); Ebbini, Emad (University of Minnesota)</i>	
10:40-10:55		ThA07.4
	<b>MR-Guidance of HIFU Therapy</b> .....	<b>141-144</b>
	<i>Butts Pauly, Kim* (Stanford University); Rieke, Viola (Stanford University); Holbrook, Andrew (Stanford University); Grissom, Will (Stanford University); Chen, Jing (Stanford University)</i>	
10:55-11:10		ThA07.5
	<b>FDA Regulation of Clinical High Intensity Focused Ultrasound (HIFU) Devices</b> .....	<b>145-148</b>
	<i>Harris, Gerald Ross* (Food and Drug Administration)</i>	

ThA08: 09:40-11:10 Marquette VIII  
**11.3.1 Career Development in Biomedical Engineering** (Oral Session)  
**Chair:** Jie Zhang, *Medical School, Univ. of Minnesota*  
**Co-Chair:** Semahat Demir, *National Science Foundation*

09:40-09:55		ThA08.1
	<b>Career Development of Biomedical Engineers in Medical Device Industry</b> .....	<b>149-150</b>
	<i>Ni, Quan* (Inspire Medical Systems); Pu, Yachuan (University of Minnesota, Guidant Incorporation.)</i>	
09:55-10:10		ThA08.2
	<b>Ten Year Experience of a PhD in the Medical Device Industry</b> .....	<b>151-152</b>
	<i>Daum, Douglas* (Boston Scientific)</i>	
10:10-10:25		ThA08.3
	<b>The Road Less Traveled: Combining an MD and PhD to Establish a Research Program in Biomedicine</b> .....	<b>153</b>
	<i>Cressman, Erik* (University of Minnesota)</i>	
10:25-10:40		ThA08.4
	<b>Bench to Bedside: Motivation for University Industry Partnership</b> .....	<b>154-156</b>
	<i>Thakor, Nitish* (Johns Hopkins University)</i>	
10:40-10:55		ThA08.5
	<b>Perspectives in Patent Law: Overview, Careers, and Controversies</b> .....	<b>157-162</b>
	<i>Davis, Clara* (Hollingsworth &amp; Funk)</i>	

ThA09: 09:40-11:10 Marquette II  
**5.1.1 Cardiovascular Pulmonary Mechanics (Ventricular, Vascular, CFD)** (Oral Session)  
**Chair:** Paul Iaizzo, *Univ. of Minnesota*  
**Co-Chair:** Frits Prinzen, *Cardiovascular Res. Inst. Maastricht*

09:40-09:55		ThA09.1
	<b>The Development of Transcatheter Heart Valves: Opportunities and Challenges</b> .....	<b>163-165</b>
	<i>Laske, Timothy Gerard* (Medtronic); Eberhardt, Carol Elsa (Medtronic); Denton, Melissa (Medtronic)</i>	

09:55-10:10	ThA09.2
<b>Imaging or Imagination of Cardiac Mechanics? .....</b>	<b>166-169</b>
<i>Prinzen, Frits* (Cardiovascular Research Institute Maastricht)</i>	
10:10-10:25	ThA09.3
<b>Pulmonary Mechanics: A System Identification Perspective .....</b>	<b>170-172</b>
<i>Bates, Jason H T* (University of Vermont, College of Medicine)</i>	
10:25-10:40	ThA09.4
<b>How to Measure Peripheral Pulmonary Vascular Mechanics .....</b>	<b>173-176</b>
<i>Chesler, Naomi* (University of Wisconsin); Argiento, Paola (Second University of Naples); Vanderpool, Rebecca (University of Wisconsin); D'Alto, Michele (Second University of Naples); Naeije, Robert (Erasmus University Hospital)</i>	
10:40-10:55	ThA09.5
<b>How to Measure Pulmonary Vascular and Right Ventricular Function .....</b>	<b>177-180</b>
<i>Chesler, Naomi* (University of Wisconsin); Roldan, Alejandro (University of Wisconsin); Vanderpool, Rebecca (University of Wisconsin); Naeije, Robert (Erasmus University Hospital)</i>	
10:55-11:10	ThA09.6
<b>Potentials and Limitations of Ventricular Torsion As Indicator of Cardiac Function .....</b>	<b>181-184</b>
<i>Arts, Theo* (Maastricht University); Delhaas, Tammo (Maastricht University); Prinzen, Frits (Cardiovascular Research Institute Maastricht)</i>	

ThA10: 09:40-11:10	Grand Ballroom - Salon C
<b>6.3.2 Neural Prostheses II (Oral Session)</b>	
<b>Chair:</b> James Weiland, <i>Univ. of Southern California</i>	
<b>Co-Chair:</b> Mark Humayun, <i>Univ. of Southern California</i>	

09:40-09:55	ThA10.1
<b>Real-Time Implementation of Biofidelic SA1 Model for Tactile Feedback .....</b>	<b>185-188</b>
<i>Russell, Alexander F* (Johns Hopkins University); Armiger, Robert (Johns Hopkins University Applied Physics Laboratory); Vogelstein, R. Jacob (Johns Hopkins University); Bensmaia, J (Johns Hopkins University); Etienne-Cummings, Ralph (Johns Hopkins University)</i>	
09:55-10:10	ThA10.2
<b>Optimal Design of Neural Stimulation Current Waveforms .....</b>	<b>189-192</b>
<i>Halpern, Mark Edward* (NICTA Victoria Res. Lab.)</i>	
10:10-10:25	ThA10.3
<b>Use of Muscle Thickness Change to Control Powered Prosthesis: A Pilot Study .....</b>	<b>193-196</b>
<i>Guo, Jing-Yi* (The Hong Kong Polytechnic University); Xie, Hong-Bo (The Hong Kong Polytechnic University)</i>	
10:25-10:40	ThA10.4
<b>Combined Direct Current and High Frequency Nerve Block for Elimination of the Onset Activity .....</b>	<b>197-199</b>
<i>Kilgore, Kevin* (MetroHealth Medical Center); Foldes, Emily (Case Western Reserve University); Ackermann, D. Michael (Case Western Reserve University); Bhadra, Niloy (Case Western Reserve University)</i>	
10:40-10:55	ThA10.5
<b>Realization of a 15-Channel, Hermetically-Encased Wireless Subretinal Prosthesis for the Blind .....</b>	<b>200-203</b>
<i>Kelly, Shawn* (Boston VA Healthcare System); Shire, Douglas (Boston VA Healthcare System); Chen, Jinghua (Massachusetts Eye and Ear Infirmary); Doyle, Patrick (Boston VA Research Institute); Gingerich, Marcus (Boston VA Healthcare System); Drohan, William (Boston VA Healthcare System); Theogarajan, Luke (University of California); Cogan, Stuart (EIC Laboratories, Inc.); Wyatt, John (Massachusetts Institute of Technology); Rizzo, Joseph F. (Boston VA Healthcare System)</i>	
10:55-11:10	ThA10.6
<b>Inductive Link Design for Miniature Implants .....</b>	<b>204-209</b>
<i>Troyk, Philip (Illinois Institute of Technology); Rush, Alexander* (Illinois Institute of Technology)</i>	

ThA11: 09:40-11:10	Marquette I
<b>6.13.1 Diagnostic &amp; Evaluation Techniques for Neurological Disorders I (Oral Session)</b>	
<b>Chair:</b> William Zev Rymer, <i>Northwest. &amp; Rehab Inst. of Chicago</i>	
<b>Co-Chair:</b> Gert Cauwenberghs, <i>Univ. of California San Diego</i>	

09:40-09:55	ThA11.1
<b>Block-Box Instrumented Toy: A New Platform for Assessing Spatial Cognition in Infants</b> .....	<b>210-213</b>
<i>Taffoni, Fabrizio (Campus Bio-Medico University); Formica, Domenico* (Campus Bio-Medico University); Campolo, Domenico (Campus Bio-Medico University); Keller, Flavio (Campus Bio-Medico University); Guglielmelli, Eugenio (Campus Bio-Medico University)</i>	
09:55-10:10	ThA11.2
<b>Feature Selection for Classification Based on Fine Motor Signs of Parkinson's Disease</b> .....	<b>214-217</b>
<i>Brewer, Bambi* (Univ of Pittsburgh); Pradhan, Sujata (University of Washington); Delitto, Anthony (University of Pittsburgh); Carvell, George (University of Pittsburgh)</i>	
10:10-10:25	ThA11.3
<b>An Integrated Motion Capture System for Evaluation of Spinal Muscular Atrophy Patients</b> .....	<b>218-221</b>
<i>Gamarnik, Viktor (Columbia University); Pan, Shu (Columbia University); Malke, Jared (Columbia University); Chiu, Casey (Columbia University, Pennsylvania State University); Koo, Benjamin (Columbia University Medical Center); Montes, Jacqueline (Columbia University); Yeager, Keith (Columbia University); Marra, Jonathan (Columbia University); Dunaway, Sally (Columbia University Medical Center); Montgomery, Megan (Columbia University); Strauss, Nancy E. (Columbia University); De Vivo, Darryl (Columbia University); Kaufmann, Petra (Columbia University); Morrison, Barclay (Columbia University); Konofagou, Elisa* (Columbia University)</i>	
10:25-10:40	ThA11.4
<b>A Preliminary Study of Action Potential Propagation in Paretic Muscle of Stroke Survivors</b> .....	<b>222-223</b>
<i>Schieber, John (Rehabilitation Institute of Chicago); Suresh, Nina (Rehabilitation Institute of Chicago); Rymer, William Zev (Northwest. &amp; Rehab Inst of Chicago); Zhou, Ping* (Northwestern University &amp; Rehab Inst of Chicago)</i>	
10:40-10:55	ThA11.5
<b>Analyzing 180 Degree Turns Using an Inertial System Reveals Early Signs of Progress in Parkinson's Disease</b> .....	<b>224-227</b>
<i>Salarian, Arash* (Oregon Health &amp; Science University); Zampieri, Cristiane (Oregon Health &amp; Science University); Horak, Fay (Oregon Health &amp; Science University); Carlson-Kuhta, Patricia (Oregon Health &amp; Science University); Nutt, John (Oregon Health &amp; Science University); Aminian, Kamiar (Ecole Polytechnique Federale)</i>	
10:55-11:10	ThA11.6
<b>An Entropy-Based Approach to Predict Seizures in Temporal Lobe Epilepsy Using Scalp EEG</b> .....	<b>228-231</b>
<i>Shahidi Zandi, Ali* (The University of British Columbia); Dumont, Guy (University of British Columbia); Javidan, Manouchehr (University of British Columbia &amp; Vancouver General Hospital)</i>	

ThA12: 09:40-11:10	Marquette VI
<b>7.5.1 Drug Delivery (Oral Session)</b>	
<b>Chair:</b> SuPing Lyu, <i>Medtronic, Inc.</i>	
<b>Co-Chair:</b> Ronald A. Siegel, <i>Univ. of Minnesota</i>	

09:40-10:10	ThA12.1
<b>Top-Down and Bottom-Up Fabrication Techniques for Hydrogel Based Sensing and Hormone Delivery Microdevices</b> .....	<b>232-235</b>
<i>Siegel, Ronald A. * (University of Minnesota); Nuxoll, Eric E. (University of Iowa); Hillmyer, Marc A. (University of Minnesota); ziaie, babak (Purdue University)</i>	
10:10-10:25	ThA12.2
<b>Local Sustained Delivery of Recombinant Human Bone Morphogenetic Protein-2 (rhBMP-2)</b> .....	<b>236-237</b>
<i>McKay, William* (Medtronic Inc)</i>	
10:25-10:40	ThA12.3
<b>Implantable Pump Insulin</b> .....	<b>238-241</b>
<i>Van Antwerp, William* (Medtronic Inc)</i>	

10:40-10:55 ThA12.4  
**Templated Hydrogels for Combination Devices: Therapeutic Contact Lenses** ..... 242-245  
*Byrne, Mark\* (Auburn University)*

10:55-11:10 ThA12.5  
**Effects of Freezing on Intratumoral Drug Transport** ..... 246-249  
*Han, Bumsoo\* (University of Texas at Arlington); Teo, Ka Yaw (University of Texas at Arlington)*

ThA13: 09:40-11:10 Conrad D  
**8.3.1 Surgical Robotics (Oral Session)**  
**Chair:** Jacob Rosen, *Univ. of California - Santa Cruz*  
**Co-Chair:** Philippe Poignet, *Univ. of Montpellier II*

09:40-09:55 ThA13.1  
**Design of an Ultrasound-Guided Robotic Brachytherapy Needle-Insertion System** ..... 250-253  
*Hungr, Nikolai\* (Université Joseph Fourier); Troccaz, Jocelyne (Univ. Joseph Fourier - CNRS UMR 5525); Zemiti, Nabil (Université Montpellier 2, CNRS/UM2); Tripodi, Nathanaël (Université Joseph Fourier)*

09:55-10:10 ThA13.2  
**Soft Tissue Deformation Tracking for Robotic Assisted Minimally Invasive Surgery** ..... 254-257  
*Stoyanov, Danail\* (Imperial College London); Yang, Guang-Zhong (Imperial College)*

10:10-10:25 ThA13.3  
**Testing of Neurosurgical Needle Steering Via Duty-Cycled Spinning in Brain Tissue in Vitro** ..... 258-261  
*Minhas, Davneet (Carnegie Mellon University); Engh, Johnathan (University of Pittsburgh); Riviere, Cameron\* (Carnegie Mellon University)*

10:25-10:40 ThA13.4  
**Observations of Needle-Tissue Interactions** ..... 262-265  
*Misra, Sarthak\* (Johns Hopkins University); Reed, Kyle (Johns Hopkins University); Ramesh, K. T. (Johns Hopkins University); Okamura, Allison (Johns Hopkins University)*

10:40-10:55 ThA13.5  
**Semi-Autonomous Surgical Tasks Using a Miniature in Vivo Surgical Robot** ..... 266-269  
*Dumpert, Jason\* (University of Nebraska-Lincoln); Lehman, Amy C. (University of Nebraska-Lincoln); Wood, Nathan A. (University of Nebraska-Lincoln); Oleynikov, Dmitry (University of Nebraska Medical Center); Farritor, Shane M. (University of Nebraska-Lincoln)*

10:55-11:10 ThA13.6  
**Simulation for Optimal Design of Hand-Held Surgical Robots** ..... 270-273  
*Hassan Zahraee, Ali\* (Université Pierre et Marie Curie - Paris 6); Szewczyk, Jerome (Université Pierre et Marie Curie - Paris 6); Morel, Guillaume (Université Pierre et Marie Curie - Paris 6)*

ThA14: 09:40-11:10 Marquette III  
**9.1.4 Therapeutic Devices (Oral Session)**  
**Chair:** Fleur Tehrani, *California State Univ. Fullerton*  
**Co-Chair:** Timm Gerry, *Univ. of Minnesota*

09:40-09:55 ThA14.1  
**Design and Fabrication of Accommodating Fluidic Intraocular Lens** ..... 274-277  
*Qiao, Wen\* (University of California, San Diego); Johnson, Daniel (University of California at San Diego); Tsai, Frank S. (University of California at San Diego); Cho, Sung Hwan (University of California San Diego); Lo, Yu-Hwa (University of California San Diego)*

09:55-10:10 ThA14.2  
**Photochemical Approach of Photodynamic Therapy Applied to Skin** ..... 278-281  
*Fanjul-Vélez, Félix (University of Cantabria); Salas-García, Irene (University of Cantabria); Ortega-Quijano, Noé (University of Cantabria); Arce-Diego, José L.\* (University of Cantabria)*



10:10-10:25	ThA14.3
<b>Therapeutic Ultrasound Angioplasty: The Risk of Arterial Perforation. an in Vitro Study</b> .....	<b>282-285</b>
<i>Wylie, Mark (Dublin Institute of Technology); McGuinness, Garrett (Dublin City University); Gavin, Graham Paul* (Dublin Institute of Technology)</i>	
10:25-10:40	ThA14.4
<b>Critiquing Treatment and Setting Ventilatory Parameters by Using Physiological Modeling</b> .....	<b>286-288</b>
<i>Tehrani, Fleur* (California State University, Fullerton)</i>	
10:40-10:55	ThA14.5
<b>Studies in Drug Transport vs. Current in Iontophoretic Onychomycosis Treatment</b> .....	<b>289-294</b>
<i>Barsness, Michael* (Transport Pharmaceuticals, Inc.); Davis, Shawn (Transport Pharmaceuticals, Inc.); etheredge, robert (Transport Pharmaceuticals, Inc.); Chang, Kuowei (IBS-Corp); Kim, Hyun (Transport Pharmaceuticals, Inc.)</i>	
10:55-11:10	ThA14.6
<b>Active Control of Microcapsules in Artificial Blood Vessel by Producing Local Acoustic Radiation Force</b> .....	<b>295-298</b>
<i>Masuda, Kohji* (Tokyo Univ. A&amp;T); Nakamoto, Ryusuke (Tokyo Univ. A&amp;T); Muramatsu, Yusuke (Tokyo Univ. A&amp;T); Miyamoto, Yoshitaka (Nagoya University); Kim, Keri (The University of Tokyo); Chiba, Toshio (National Center for Child Health and Development)</i>	
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ThA15: 09:40-11:10	Marquette IX
<b>10.1.3 Personal Health Systems, Body Sensor Networks (Oral Session)</b>	
<b>Chair:</b> Nikolaos Maglaveras, <i>Aristotle Univ. of Thessaloniki</i>	
<b>Co-Chair:</b> Ilkka Korhonen, <i>VTT</i>	
<hr/>	
09:40-09:55	ThA15.1
<b>HeartCycle: Compliance and Effectiveness in HF and CAD Closed-Loop Management</b> .....	<b>299-302</b>
<i>Reiter, Harald (Philips); Maglaveras, Nikolaos* (Aristotle University of Thessaloniki)</i>	
09:55-10:10	ThA15.2
<b>Service and Business Model for Technology Enabled and Home-Based Cardiac Rehabilitation Programs</b> .....	<b>303-307</b>
<i>Sarela, Antti* (CSIRO); Whittaker, Frank (CAAIR); Korhonen, Ilkka (VTT)</i>	
10:10-10:25	ThA15.3
<b>Patient Interaction in Homecare Systems to Treat Cardiovascular Diseases in the Long Term</b> .....	<b>308-311</b>
<i>Peinado, Ignacio* (Technical University of Madrid); Arredondo, María Teresa (Technical University of Madrid); Villalba, Elena (Centre for the Development of Industrial Technology); SALVI, DARIO (Technical University of Madrid); Ottaviano, Manuel (Technical University of Madrid)</i>	
10:25-10:40	ThA15.4
<b>A Concept to Empower Self-Management of Psychophysiological Wellbeing: Preliminary User Study Experiences</b> .....	<b>312-315</b>
<i>Happonen, Antti* (VTT Technical Research Centre of Finland); Kaipainen, Kirsikka (VTT Technical Research Centre of Finland); Väätänen, Antti (VTT Technical Research centre of Finland); Kinnunen, Marja-Liisa (University of Jyväskylä); Myllymäki, Tero (University of Jyväskylä); Lappalainen, Päivi (University of Jyväskylä); Tuomela, Henna (University of Jyväskylä); Rusko, Heikki (University of Jyväskylä); Mattila, Elina (VTT); Lappalainen, Raimo (University of Jyväskylä); Korhonen, Ilkka (VTT)</i>	
10:40-10:55	ThA15.5
<b>Personal Health Promotion through Personalized Health Technologies – Nuadu Experience</b> .....	<b>316-319</b>
<i>Korhonen, Ilkka* (VTT); Mattila, Elina (VTT); Ahtinen, Aino (Nokia Research Center); Salminen, Jukka (Nokia); Hopsu, Leila (Finnish Institute of Occupational Health); Lappalainen, Raimo (University of Jyväskylä); Leino, Timo (Finnish Institute of Occupational Health)</i>	
10:55-11:10	ThA15.6
<b>SPN-Model Based Simulation of a Wearable Health Monitoring System</b> .....	<b>320-323</b>
<i>Pantelopoulos, Alexandros (Wright State University); Bourbakis, Nikolaos* (Wright State University)</i>	

**1.1.3 Time-Frequency and Time-Scale Analysis II (Poster Session)**

11:10-12:30	ThBPo01.1
<b>Morphological Processing of Physiological Signals for Feature Extraction .....</b>	<b>324-327</b>
<i>Samanta, Biswanath* (Villanova University)</i>	
11:10-12:30	ThBPo01.2
<b>Fuzzy Logic Based Classification and Assessment of Pathological Voice Signals .....</b>	<b>328-331</b>
<i>Seyed Aghazadeh, Babak (Virginia Commonwealth University); Khadivi Heris, Hossein* (McGill University)</i>	
11:10-12:30	ThBPo01.3
<b>Estimation of Instantaneous Power in the EEG to Assess Brain Connectivity with High Temporal Resolution .....</b>	<b>332-335</b>
<i>Kwon, JungPhil* (University of Florida); Seth, Sohan (University of Florida); Keil, Andreas (University of Florida); Principe, Jose (University of Florida)</i>	
11:10-12:30	ThBPo01.4
<b>Detection Technique of Muscle Activation Intervals for Seng Signals Based on the Empirical Mode Decomposition .....</b>	<b>336-339</b>
<i>Lee, Junghoon (Yonsei University); Ko, Hyun-Chul (Yonsei university); Lee, SeungHwan (Yonsei University); Lee, Hyunsook (Sangji University); Yoon, Young-ro* (Yonsei University)</i>	
11:10-12:30	ThBPo01.5
<b>Application of Empirical Mode Decomposition in Removing Fidgeting Interference in Doppler Radar Life Signs Monitoring Devices .....</b>	<b>340-343</b>
<i>Mostafanezhad, Isar* (University of Hawaii at Manoa); Boric-Lubecke, Olga (University of Hawaii Manoa); Lubecke, Victor (University of Hawaii Manoa); Mandic, Danilo (Imperial College)</i>	
11:10-12:30	ThBPo01.6
<b>Fetal R-Wave Detection from Multichannel Abdominal ECG Recordings in Low SNR .....</b>	<b>344-347</b>
<i>Kharabian, shahzad* (sharif university of technology(Tehran)); Shamsollahi, Mohammad Bagher (Sharif University of Technology); Sameni, Reza (Shiraz University)</i>	
11:10-12:30	ThBPo01.7
<b>Estimation of Blood Pressure Variability Using Independent Component Analysis of Photoplethysmographic Signal .....</b>	<b>348-351</b>
<i>Abe, Makoto* (Tohoku University); Yoshizawa, Makoto (Tohoku University); Sugita, Norihiro (Tohoku University); Tanaka, Akira (Fukushima University); Yambe, Tomoyuki (Tohoku Univ)</i>	
11:10-12:30	ThBPo01.8
<b>De-Noising of SPECT Images Via Optimal Thresholding by Wavelets .....</b>	<b>352-355</b>
<i>Ahmadi Noubari, Hossain* (University of Tehran); Fayazi, Ali (Engineering Faculty, Science and Research Branch, IslamicAzad University,); Babapour, Fashid (2 Engineering Faculty, Science and Research Branch, Islamic Azad University,)</i>	
11:10-12:30	ThBPo01.9
<b>An Improvement of Normogastric Rhythm Extraction from Electrogastrographic (EGG) Signal Using Independent Component Analysis .....</b>	<b>356-359</b>
<i>Mika, Barbara (Silesian University of Technology); Tkacz, Ewaryst* (Silesian Univ of Tech, Inst of Electron); Kostka, Pawel Stanislaw (Silesian University of Technology); Budzianowski, Zbigniew (Silesian University of Technology, Institute of Electronics)</i>	
11:10-12:30	ThBPo01.10
<b>Testing of Motor Unit Synchronization Model for Localized Muscle Fatigue .....</b>	<b>360-363</b>
<i>Naik, Ganesh R* (Royal Melbourne University of Tech); Poosapadi Arjunan, Sridhar (RMIT University); Kant Kumar, Dinesh (RMIT university); Wheeler, Katherine (RMIT)</i>	
11:10-12:30	ThBPo01.11
<b>Use of sEMG in Identification of Low Level Muscle Activities: Features Based on ICA and Fractal Dimension .....</b>	<b>364-367</b>
<i>Naik, Ganesh R* (Royal Melbourne University of Tech); Poosapadi Arjunan, Sridhar (RMIT University)</i>	

11:10-12:30	ThBPo01.12
<b>A New Approach For Frequency Analysis Of Complex Fractionated Atrial Electrograms .....</b>	<b>368-371</b>
<i>Nguyen, Minh Phuong (Universität Karlsruhe (TH)); Schilling, Christopher* (Universität Karlsruhe (TH)); Doessel, Olaf (University of Karlsruhe)</i>	
11:10-12:30	ThBPo01.13
<b>Use of Frequency Analysis on the ECG for the Prognosis of Low Energy Cardioversion Treatment of Atrial Fibrillation .....</b>	<b>372-375</b>
<i>Díaz, Jose David* (UNEFM); Escalona, Omar Jacinto (University of Ulster); GLOVER, BEN (RVH); Manoharan, Ganesh (Royal Victoria Hospital)</i>	
11:10-12:30	ThBPo01.14
<b>Evaluating the Efficacy of an Automated Procedure for EEG Artifact Removal .....</b>	<b>376-379</b>
<i>Tran, Yvonne* (University of Technology, Sydney); Thuraisingham, Ranjit Arulnayagam (University of Technology Sydney); Craig, Ashley (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i>	
11:10-12:30	ThBPo01.15
<b>Development of the EEG Measurement Method under Exercising. ....</b>	<b>380-383</b>
<i>DOBASHI, Noriyuki* (Tokai University); Magatani, Kazushige (Tokai Univ.)</i>	
11:10-12:30	ThBPo01.16
<b>A Machine Learning Approach to K-Step Look-Ahead Prediction of Gait Variables from Acceleration Data .....</b>	<b>384-387</b>
<i>Lai, Daniel* (Victoria University); Shilton, Alistair (The University of Melbourne); Charry, Edgar (The University of Melbourne); Begg, Rezaul (Victoria University); Palaniswami, Marimuthu (The University of Melbourne)</i>	
11:10-12:30	ThBPo01.17
<b>On Arithmetic Misconceptions of Spectral Analysis of Biological Signals, in Particular Respiratory Sounds .....</b>	<b>388-391</b>
<i>Yadollahi, Azadeh* (University of Manitoba); Moussavi, Zahra (University of Manitoba)</i>	
11:10-12:30	ThBPo01.18
<b>The Noise Influence on Determination Dominant Frequencies of EGG Signal. ....</b>	<b>392-395</b>
<i>Komorowski, Waldemar* (Silesian University of Technology); Pietraszek, Stanislaw (Silesian University of Technology)</i>	
11:10-12:30	ThBPo01.19
<b>The Simultaneous Recording and Analysis Both EGG and HRV Signals. ....</b>	<b>396-399</b>
<i>Pietraszek, Stanislaw* (Silesian University of Technology); Komorowski, Waldemar (Silesian University of Technology)</i>	
11:10-12:30	ThBPo01.20
<b>Spectral Analysis of Electroencephalogram and Oximetric Signals in Obstructive Sleep Apnea Diagnosis .....</b>	<b>400-403</b>
<i>Álvarez, Daniel (University of Valladolid); Hornero, Roberto (University Of Valladolid); Marcos, J. Victor* (University of Valladolid, CIF: Q4718001C); del Campo, Félix (Hospital del Río Hortega); López, Miguel (University of Valladolid)</i>	
11:10-12:30	ThBPo01.21
<b>Correlation of Respiratory Activity of Contralateral Diaphragm Muscles for Evaluation of Recovery Following Hemi-Paresis .....</b>	<b>404-407</b>
<i>Dow, Douglas E* (Wentworth Institute of Technology); Zhan, Wen-Zhi (Mayo Clinic College of Medicine); Sieck, Gary C (Mayo Clinic College of Medicine); Mantilla, Carlos B (Mayo Clinic College of Medicine)</i>	
11:10-12:30	ThBPo01.22
<b>Mechanomyogram for Identifying Muscle Activity and Fatigue .....</b>	<b>408-411</b>
<i>Yang, Zhao Feng (RMIT); Kant Kumar, Dinesh (RMIT university); Poosapadi Arjunan, Sridhar* (RMIT University)</i>	
11:10-12:30	ThBPo01.23
<b>Development of the Device to Detect SPO2 in the Field .....</b>	<b>412-415</b>
<i>KANAEDA, Yoshiaki* (Tokai University); Magatani, Kazushige (Tokai Univ.)</i>	

11:10-12:30 ThBPo01.24  
**ECG Denoising Using Modulus Maxima of Wavelet Transform** ..... 416-419  
*Ayat, Mohammad (Biomedical Signal and Image Processing Laboratory (BiSIPL),); Shamsollahi, Mohammad Bagher (Sharif University of Technology); Mozaffari, Behrooz (American University of Sharjah); Kharabian, shahrzad\* (sharif university of technology(Tehran))*

11:10-12:30 ThBPo01.25  
**Improved HRV Characterization Using OCDWT** ..... 420-423  
*Saini, B. S. (Dr. B. R. Ambedkar National Institute of Technology); Singh, Dilbag (National Institute of Technology); Kumar, Vinod\* (IIT Roorkee); Deepak, K. K. (All India Institute of Medical Sciences); Sidhu, Jagroop (PTU)*

11:10-12:30 ThBPo01.26  
**Wavelet Analysis to Detect Gait Events** ..... 424-427  
*Forsman, Pia\* (Finnish Inst of Occupational Health); Toppila, Esko (Finnish Institute of Occupational Health); Haeggström, Edward (University of Helsinki)*

11:10-12:30 ThBPo01.27  
**Two-Dimensional Compression of Surface Electromyographic Signals Using Column-Correlation Sorting and Image Encoders** ..... 428-431  
*Costa, Marcus Vinicius Chaffim (University of Brasilia); Carvalho, Joao Luiz Azevedo de\* (University of Brasilia); Berger, Pedro (Universidade de Brasilia); Zagheto, Alexandre (University of Brasilia); da Rocha, Adson F. (University of Brasilia); Nascimento, Francisco A. de O. (University of Brasilia)*

ThBPo02: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**2.2.4 Biomedical Acoustic Imaging II (Poster Session)**

11:10-12:30 ThBPo02.1  
**Calibration of Cross-Sectional Images Measured by an Ultrasound-Based Muscle Evaluation System** ..... 432-435  
*Fukumoto, Kiyotaka\* (Kyushu University); Muraki, Satoshi (Kyushu University); Tsubai, Masayoshi (National Inst of (AIST)); Fukuda, Osamu (National Institute of AIST)*

11:10-12:30 ThBPo02.2  
**Finite Element Simulation of Ultrasound Propagation in Bone for Quantitative Ultrasound toward the Diagnosis of Osteoporosis** ..... 436-439  
*Kim, Sang-Hyuk\* (Kyung-Hee university); Suh, Hyun Sang (Kyung Hee University); Cho, Min Hyoung (Kyung Hee University); Lee, Soo Yeol (Kyung Hee University); Kim, Tae-Seong (Kyung Hee University)*

11:10-12:30 ThBPo02.3  
**Refining Enamel Thickness Measurement from B-Mode Ultrasound Images** ..... 440-443  
*Hua, Jeremy\* (University of Washington); Chen, Ssu-Kuang (University of Washington); Kim, Yongmin (University of Washington)*

11:10-12:30 ThBPo02.4  
**Gradient-Driven Beamforming for Biomedical Ultrasound** ..... 444-450  
*Khezerloo, Solmaz\* (University of Victoria); Rakhmatov, Daler (University of Victoria)*

11:10-12:30 ThBPo02.5  
**Micro-Ultrasound Biofluid Imaging and Multi-Component Velocity Measurement with Micro Echo Particle Image Velocimetry Technique** ..... 451-454  
*Qian, Ming (Shenzhen Institute of Advanced Technology, ChineseAcademyofSciences); Niu, Lili (Shenzhen Institute of Advanced Technology, Chinese Academyof Sciences); zheng, Hairong\* (Shenzhen Inst of Advanced Tech); Jin, Qiaofeng (Shenzhen Institute of Advanced Technology,ChineseAcademyofSciences); Ling, Tao (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences)*

11:10-12:30 ThBPo02.6  
**Texture Characterization of Carotid Atherosclerotic Plaque from B-mode Ultrasound Using Gabor Filters** ..... 455-458  
*Stoitsis, John (Institute of Communication); Golemati, Spyretta (National Kapodistrian University of Athens); Tsiaparas, Nikos\* (National Technical University of Athens); Nikita, Konstantina (National Technical University of Athens)*

11:10-12:30	ThBPo02.7
<b>Improved Segmentation of Ultrasound Images for Fetal Biometry Using Morphological Operators</b> .....	<b>459-462</b>
<i>SHRIMALI, VIBHAKAR (DEPARTMENT OF TRAINING AND TECHNICAL EDUCATION); ANAND, R.S. (INDIAN INSTITUTE OF TECHNOLOGY); Kumar, Vinod* (IIT Roorkee)</i>	
11:10-12:30	ThBPo02.8
<b>LyP-1 Ultrasonic Microbubbles Targeting to Cancer Cell As Tumor Bio-Acoustics Markers or Drug Carriers: Targeting Efficiency Evaluation in Microfluidic Channels</b> .....	<b>463-466</b>
<i>LI, XIANG (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences); Jin, Qiaofeng (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences); Chen, Tan (Shenzhen Institute of Advanced Technology); zhang, baoyue (Shenzhen Institute of Advanced Technology); WANG, ZHANHUI (Shenzhen Institute of Adv Tech); zheng, Hairong* (Shenzhen Inst of Advanced Tech)</i>	
11:10-12:30	ThBPo02.9
<b>Imaging Components for a Robotic Casualty Evaluation System</b> .....	<b>467-470</b>
<i>Wong, Ken* (Virginia Tech)</i>	
11:10-12:30	ThBPo02.10
<b>Classification of Blood Regions in IVUS Images Using Three Dimensional Brushlet Expansions</b> .....	<b>471-474</b>
<i>Laine, Andrew F.* (Columbia University); Angelini, Elsa (Ecole Nat. Supérieure des Telecom); Katouzian, Amin (University)</i>	
11:10-12:30	ThBPo02.11
<b>Display Pixel-Based Synthetic Aperture Focusing Method for Intravascular Ultrasound Imaging</b> .....	<b>475-478</b>
<i>Kim, Seungsoo* (University of Texas at Austin); aglyamov, salavat (University of Texas at Austin); Emelianov, Stanislav (University of Texas at Austin)</i>	
11:10-12:30	ThBPo02.12
<b>Tissue Characterization Using Multiscale Products of Wavelet Transform of Ultrasound Radio Frequency Echoes</b> .....	<b>479-482</b>
<i>Aboofazeli, Mohammad* (Queen's University); Abolmaesumi, Purang (Queen's University); Fichtinger, Gabor (Johns Hopkins university); Mousavi, parvin (Queen's University)</i>	
11:10-12:30	ThBPo02.13
<b>3D Ultrasound in Assessment of Growth and Development of Frontal Lobes in Children with Perinatal Brain Injury</b> .....	<b>483-486</b>
<i>Liu, Yunfeng (Tsinghua University); wang, hongmei (Peking University First Hospital); tang, zezhong (Peking University First Hospital); Ding, Haiyan* (Tsinghua University); zhou, congle (Peking University First Hospital)</i>	
11:10-12:30	ThBPo02.14
<b>Sub-Pixel Methods for Improving Vector Quality in Echo PIV Flow Imaging Technology</b> .....	<b>487-490</b>
<i>Niu, Lili (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences); zheng, Hairong* (Shenzhen Inst of Advanced Tech)</i>	
11:10-12:30	ThBPo02.15
<b>Resolving the Lateral Component of Blood Flow Velocity Based on Ultrasound Speckle Size Change with Scan Direction and Speed</b> .....	<b>491-494</b>
<i>Xu, Tiantian* (University of Nebraska-Lincoln); Bashford, Greg (University of Nebraska-Lincoln)</i>	
11:10-12:30	ThBPo02.16
<b>Reducing Registration Error in Cross-Beam Vector Doppler Imaging with Position Sensor</b> .....	<b>495-498</b>
<i>Xu, Canxing* (University of Washington); Beach, Kirk (University of Washington); Leotta, Daniel (University of Washington); Stutzman, Edward (University of Washington); Kim, Yongmin (University of Washington)</i>	
11:10-12:30	ThBPo02.17
<b>Real-Time Compounding of Three-Dimensional Transesophageal Echocardiographic Volumes: The Phantom Study</b> .....	<b>499-502</b>
<i>Gang, Gao* (University College London); Ma, YingLiang (King's College London); Rhode, Kawal (King's College London)</i>	
11:10-12:30	ThBPo02.18
<b>Objective and Subjective Evaluations of Quality for Speckle Reduced Echocardiography</b> .....	<b>503-506</b>
<i>Finn, Sean* (National University of Ireland); Jones, Edward (National University of Ireland); Glavin, Martin (National University of Ireland)</i>	

11:10-12:30 ThBPo02.19  
**On the Use of Motion-Based Frame Rejection in Temporal Averaging Denoising for Segmentation of Echocardiographic Image Sequences** ..... 507-510  
*Reis, Maria do Carmo dos\** (University of Brasilia); *Carvalho, Joao Luiz Azevedo de* (University of Brasilia); *Macchiavello, Bruno L.* (University of Brasilia); *França Vasconcelos, Daniel* (UnB - HUB); *da Rocha, Adson F.* (University of Brasilia); *Nascimento, Francisco A. de O.* (University of Brasilia); *Camapum, Juliana Fernandes* (Universidade de Brasilia)

11:10-12:30 ThBPo02.20  
**Improved Segmentation of Echocardiographic Images Using Fusion of Images from Different Cardiac Cycles** ..... 511-514  
*Amorim, Junier Caminha* (Universidade de Brasilia); *Reis, Maria do Carmo dos\** (University of Brasilia); *Carvalho, Joao Luiz Azevedo de* (University of Brasilia); *da Rocha, Adson F.* (University of Brasilia); *Camapum, Juliana Fernandes* (Universidade de Brasilia)

11:10-12:30 ThBPo02.21  
**An Automatic 2D CAD Algorithm for the Segmentation of the IMT in Ultrasound Carotid Artery Images** ..... 515-519  
*Ilea Ghita, Dana Elena\** (Dublin City University); *Whelan, Paul F* (Dublin City University); *Brown, Catherine* (Royal College of Surgeons in Ireland); *Stanton, Alice* (Royal College of Surgeons in Ireland)

ThBPo03: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**6.4.4 Brain-Machine Interface III** (Poster Session)

11:10-12:30 ThBPo03.1  
**Brain-Machine Interfaces for Space Applications** ..... 520-523  
*Rossini, Luca\** (University Campus Biomedico of Rome); *Izzo, Dario* (European Space Agency); *Summerer, Leopold* (European Space Agency)

11:10-12:30 ThBPo03.2  
**Single Trial Detection of Human Movement Intentions from SAM-Filtered MEG Signals for a High Performance Two-Dimensional BCI** ..... 524-527  
*Battapady, Harsha\** (Virginia Commonwealth University); *Lin, Peter* (National Institute of Neurological Disorders, National Institutes of Health); *Fei, Ding-Yu* (Virginia Commonwealth University); *Huang, Dandan* (Virginia Commonwealth University); *Bai, Ou* (Virginia Commonwealth University)

11:10-12:30 ThBPo03.3  
**Design and Measurements of 64-Channel ASIC for Neural Signal Recording** ..... 528-531  
*KMON, Piotr\** (AGH University of Science and Technology); *Grybos, Pawel* (AGH University of Science and Technology); *Szczygiel, Robert* (AGH University of Science and Technology); *Zoladz, Miroslaw* (AGH University of Science and Technology)

11:10-12:30 ThBPo03.4  
**Visual Gate for Brain-Computer Interfaces** ..... 532-535  
*Dias, Nuno S.\** (University of Minho); *Jacinto, Luis* (University of Minho); *Kamrunnahar, Mst* (Kamrun) (The Pennsylvania State University); *Mendes, Paulo M.* (University of Minho); *Correia, Higino* (University of Minho)

11:10-12:30 ThBPo03.5  
**Flexible Multi Electrode Brain-Machine Interface for Recording in the Cerebellum** ..... 536-538  
*Köhler, Per\** (Lund University); *Linsmeier, Cecilia* (Lund University); *Thelin, Jonas* (Lund University); *Jorntell, Henrik* (Experimental Medical Science); *Garwicz, Martin* (Lund University); *Schouenborg, Jens* (Lund University); *Wallman, Lars* (Lund University)

11:10-12:30 ThBPo03.6  
**An Independent Brain-Computer Interface Based on Covert Shifts of Non-Spatial Visual Attention** ..... 539-542  
*Maye, Alexander* (University Medical Center Hamburg-Eppendorf); *Engel, Andreas Karl* (University Medical Center Hamburg-Eppendorf); *Gao, Shangkai\** (Tsinghua University); *Gao, Xiaorong* (Tsinghua University); *Zhang, Dan* (Tsinghua University)

11:10-12:30 ThBPo03.7  
**An Hybrid Platform Based on EOG and EEG Signals to Restore Communication for Patients Afflicted by Progressive Motor Neurons Diseases** ..... 543-546  
*Babiloni, Fabio\** (University of Rome); *Uslaki, Ali Bulent* (IRCCS Fondazione Santa Lucia)

11:10-12:30	ThBPo03.8
<b>Fully Integrated Wireless Inductive Tongue Computer Interface for Disabled People .....</b>	<b>547-550</b>
<i>Andreasen Struijk, Lotte N. S.* (Aalborg University); Lontis, Eugen Romulus (Center for Sensory Motor Interaction, Aalborg University); Bentsen, Bo (Center for Sensory Motor Interaction, Aalborg University); Christensen, Henrik Vie (CISS, Aalborg University); Caltenco, Hector Alejandro (Aalborg University); Lund, Morten Enemark (Center for Sensory Motor Interaction, Aalborg University)</i>	
11:10-12:30	ThBPo03.9
<b>Character Activation Time Prediction Model for Tongue-Typing: Adaptation of Fitts's Law .....</b>	<b>551-554</b>
<i>Caltenco, Hector Alejandro* (Aalborg University); Lontis, Eugen Romulus (Center for Sensory Motor Interaction, Aalborg University); Struijk, Johannes (Aalborg University); Lund, Morten Enemark (Center for Sensory Motor Interaction, Aalborg University); Andreasen Struijk, Lotte N. S. (Aalborg University)</i>	
11:10-12:30	ThBPo03.10
<b>Evaluation of the Tongue Drive System by Individuals with High-Level Spinal Cord Injury .....</b>	<b>555-558</b>
<i>Huo, Xueliang* (Georgia Institute of Technology); Cheng, Chih-Wen (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)</i>	
11:10-12:30	ThBPo03.11
<b>Spatial Mapping of Electrotactile Sensation Threshold and Intensity Range on the Human Tongue: Initial Results .....</b>	<b>559-562</b>
<i>Tyler, Mitchell* (UW-Madison); Braun, Jacquelin (University of Wisconsin, Madison); Danilov, Yuri (Wicab, Inc.)</i>	
11:10-12:30	ThBPo03.12
<b>Towards a Magnetic Localization System for 3-D Tracking of Tongue Movements in Speech-Language Therapy .....</b>	<b>563-566</b>
<i>Cheng, Chih-Wen* (Georgia Institute of Technology); Huo, Xueliang (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)</i>	
11:10-12:30	ThBPo03.13
<b>Supervised Adaptive Downsampling for P300-Based Brain Computer Interface .....</b>	<b>567-570</b>
<i>Sakamoto, Yuya (Toyohashi University of technology); AONO, MASAKI* (Toyohashi University of Technology)</i>	
11:10-12:30	ThBPo03.14
<b>Multi-Class Filter Bank Common Spatial Pattern for Four-Class Motor Imagery BCI .....</b>	<b>571-574</b>
<i>Chin, Zheng Yang* (Institute for Infocomm Research, Agency for Science Technology and Research); Ang, Kai Keng (Institute for Infocomm Research); Wang, Chuanchu (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Zhang, Haihong (Institute for Infocomm Research)</i>	
11:10-12:30	ThBPo03.15
<b>A Sensorimotor Rhythm based Goal Selection Brain-Computer Interface .....</b>	<b>575-577</b>
<i>Royer, Audrey S* (University of Minnesota); McCullough, Andrew (University of Minnesota); He, Bin (University of Minnesota)</i>	
11:10-12:30	ThBPo03.16
<b>Robust Filter Bank Common Spatial Pattern (RFBCSP) in Motor-Imagery-Based Brain-Computer Interface .....</b>	<b>578-581</b>
<i>Ang, Kai Keng* (Institute for Infocomm Research); Chin, Zheng Yang (Institute for Infocomm Research, Agency for Science Technology and Research); Zhang, Haihong (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research)</i>	
11:10-12:30	ThBPo03.17
<b>Spinal Cord Recordings in Rats During Skilled Reaching Task .....</b>	<b>582-585</b>
<i>Prasad, Abhishek* (New Jersey Institute of Technology); Sahin, Mesut (New Jersey Institute of Technology)</i>	

11:10-12:30	ThBPo03.18
<b>Human Motor Cortical Activity Recorded with Micro-ECOG Electrodes During Individual Finger Movements</b> .....	<b>586-589</b>
<i>Wang, Wei (University of Pittsburgh); Degenhart, Alan (University of Pittsburgh); Collinger, Jennifer (University of Pittsburgh); vinjamuri, ramana (University of Pittsburgh); Sudre, Gustavo (Carnegie Mellon University); Adelson, P. David (Children's Neuroscience Institute, Phoenix Children's Hospital); Holder, Deborah (University of Pittsburgh); Leuthardt, Eric (Washington University in St. Louis); Moran, Daniel (Washington University in St. Louis); Boninger, Michael (University of Pittsburgh); Schwartz, Andrew (University of Pittsburgh); Crammond, Donald (University of Pittsburgh); Tyler-Kabara, Elizabeth (University of Pittsburgh); Weber, Douglas* (University of Pittsburgh)</i>	
11:10-12:30	ThBPo03.19
<b>Estimation of the Direction of Arm Force by Using NIRS Signals</b> .....	<b>590-593</b>
<i>Sato, Takanobu (Nagaoka University of Technology); Tsubone, Tadashi* (Nagaoka University of Technology); Wada, Yasuhiro (Nagaoka University of Technology)</i>	
11:10-12:30	ThBPo03.20
<b>A NIRS-Based Brain-Computer Interface System during Motor Imagery: System Development and Online Feedback Training</b> .....	<b>594-597</b>
<i>Kanoh, Shin'ichiro* (Tohoku University); Murayama, Yu-mi (Tohoku University); Miyamoto, Ko-ichiro (Tohoku University); Yoshinobu, Tatsuo (Tohoku University); Kawashima, Ryuta (Tohoku University)</i>	
11:10-12:30	ThBPo03.21
<b>P300-based Brain Computer Interface Experimental Setup</b> .....	<b>598-601</b>
<i>Arboleda, Carolina (Escuela de Ingeniería de Antioquia); García, Eliana* (School of Engineering of Antioquia, CES University); Posada, Alejandro (School of Engineering of Antioquia, CES University); Torres, Róbinson (Antioquia School of Engineering, CES University)</i>	
11:10-12:30	ThBPo03.22
<b>Portable Single-Channel NIRS-Based BMI System for Motor Disabilities' Communication Tools</b> .....	<b>602-605</b>
<i>Sagara, Kazuhiko* (Hitachi Ltd.); Kunihiro, Kido (Hitachi Ltd.); Kuniaki, Ozawa (Hitachi Ltd.)</i>	
11:10-12:30	ThBPo03.23
<b>The Strathclyde Brain Computer Interface</b> .....	<b>606-609</b>
<i>Valsan, Gopal* (University of Strathclyde); Grychtol, Bartłomiej (University of Strathclyde); LAKANY, Heba (University of Strathclyde); Conway, Bernard A (University of Strathclyde)</i>	

ThBPo04: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>6.11.5 Biomedical Stimulation</b> (Poster Session)	

11:10-12:30	ThBPo04.1
<b>Intraoperative Demonstration of Selective Stimulation of the Common Human Femoral Nerve with a FINE</b> .....	<b>610-613</b>
<i>Schiefer, Matthew Anthony* (Case Western Reserve University); Polasek, Katharine (Case Western Reserve University); Triolo, Ronald J. (US Department of Veterans Affairs &amp; Case Western Reserve University); Tyler, Dustin (Case Western Reserve University); Pinault, Gilles (Case Western Reserve University)</i>	
11:10-12:30	ThBPo04.2
<b>Counted Cycles Method to Quantify the Onset Activity in High Frequency Peripheral Nerve Block</b> .....	<b>614-617</b>
<i>Foldes, Emily* (Case Western Reserve University); Ackermann, D. Michael (Case Western Reserve University); Bhadra, Niloy (Case Western Reserve University); Kilgore, Kevin (MetroHealth Medical Center)</i>	
11:10-12:30	ThBPo04.3
<b>Direct Activation of Retinal Ganglion Cells with Subretinal Stimulation</b> .....	<b>618-621</b>
<i>Tsai, David* (University of New South Wales); Morley, John William (University of Western Sydney); Suaning, Gregg (The University of New South Wales); Lovell, Nigel H (University of New South Wales)</i>	
11:10-12:30	ThBPo04.4
<b>A Method of Nerve Electrical Stimulation by Magnetic Induction</b> .....	<b>622-625</b>
<i>Zhang, Guanghao (Institute of ElectricalEngineering,ChineseAcademyofSciences); Li, Yue (Institute of Electrical Engineering, Chinese Academy of Sciences); Huo, Xiaolin (Chinese Academy of Sciences); Song, Tao* (Chinese Academy of Sciences)</i>	



11:10-12:30	ThBPo04.5
<b>In Vitro Testing of Floating Light Activated Micro-Electrical Stimulators</b> .....	<b>626-629</b>
<i>Abdo, Ammar* (NJIT); Unlu, Selim (Boston University); Sahin, Mesut (New Jersey Institute of Technology)</i>	
11:10-12:30	ThBPo04.6
<b>Finite Element Analysis of Electrical Impedance Myography in the Rat Hind Limb</b> .....	<b>630-633</b>
<i>Ahad, Mohammad* (Beth Israel Deaconess Medical Center, Harvard Medical School); Rutkove, Seward (Beth Israel Deaconess Medical Center, Harvard Medical School)</i>	
11:10-12:30	ThBPo04.7
<b>Genetic Algorithm Reveals Energy-Efficient Waveforms for Neural Stimulation</b> .....	<b>634-637</b>
<i>Wongsarnpigoon, Amorn* (Duke University); Grill, Warren (Duke University)</i>	
11:10-12:30	ThBPo04.8
<b>Realistic Simulation of Transcranial Direct Current Stimulation via 3-D High-resolution Finite Element Analysis: Effect of Tissue Anisotropy</b> .....	<b>638-641</b>
<i>Suh, Hyun Sang* (Kyung Hee University); Kim, Sang-Hyuk (Kyung-Hee university); Lee, Won Hee (Columbia University); Kim, Tae-Seong (Kyung Hee University)</i>	
11:10-12:30	ThBPo04.9
<b>Extracellular Stimulation of Mouse Retinal Ganglion Cells with Non-Rectangular Voltage-Controlled Waveforms</b> .....	<b>642-645</b>
<i>Cantrell, Donald Robinson* (Northwestern University); Troy, John (Northwestern University)</i>	
11:10-12:30	ThBPo04.10
<b>Light-Controlled Retinal Stimulation on Rabbit Using CMOS-Based Flexible Multi-Chip Stimulator</b> .....	<b>646-649</b>
<i>Tokuda, Takashi* (Nara Inst of Science &amp; Technology); Takeuchi, Yoichi (Nara Institute of Science and Technology); Noda, Toshihiko (Nara Institute of Science and Technology); Sasagawa, Kiyotaka] (Nara Institute of Science and Technology); Nishida, Kentaro (Osaka University); Kitaguchi, Yoshiyuki (Osaka University); Fujikado, Takashi (Osaka University); Tano, Yasuo (Osaka University); Ohta, Jun (Nara Institute of Science and Technology)</i>	
11:10-12:30	ThBPo04.11
<b>Reduction of the Onset Activity in High Frequency Nerve Block with Amplitude Ramps from Non-Zero Amplitudes</b> .....	<b>650-653</b>
<i>Bhadra, Niloy (Case Western Reserve University); Foldes, Emily (Case Western Reserve University); Ackermann, D. Michael (Case Western Reserve University); Kilgore, Kevin* (MetroHealth Medical Center)</i>	
11:10-12:30	ThBPo04.12
<b>Electrode Design for High Frequency Block: Effect of Bipolar Separation on Block Thresholds and Onset Activity</b> .....	<b>654-657</b>
<i>Ackermann, D. Michael* (Case Western Reserve University); Foldes, Emily (Case Western Reserve University); Bhadra, Niloy (Case Western Reserve University); Kilgore, Kevin (MetroHealth Medical Center)</i>	
11:10-12:30	ThBPo04.13
<b>Charge Storage: Stability Measures in Implantable Electrodes</b> .....	<b>658-661</b>
<i>Peixoto, Nathalia* (George Mason University); Jackson, Cassandra (George Mason University); Samiyi, Raamin (George Mason University); Minnikanti, Saugandhika (George Mason University)</i>	
11:10-12:30	ThBPo04.14
<b>Surface Electrical Stimulation to Realize Task Oriented Hand Motion</b> .....	<b>662-665</b>
<i>Watanabe, Takuya (Kyusyu Institute of Technology); Tagawa, Yoshihiko* (Kyushu Institute of Technology); Nagasue, Eiichiro (Kyusyu Institute of Technology); Shiba, Naoto (Kurume University Hospital)</i>	
11:10-12:30	ThBPo04.15
<b>A Pelvic Motion Driven Electrical Stimulator for Drop-Foot Treatment</b> .....	<b>666-669</b>
<i>Chen, Shih-Wei* (National Taiwan Univ.); Chen, Chiun-fan (National Taiwan University)</i>	
11:10-12:30	ThBPo04.16
<b>Bio-Heat Transfer Model of Transcranial DC Stimulation: Comparison of Conventional Pad versus Ring Electrode</b> .....	<b>670-673</b>
<i>Datta, Abhishek* (The City College of the CUNY)</i>	

11:10-12:30	ThBPo04.17
<b>Transcranial Magnetic Stimulation of Small Animals: A Modeling Study of the Influence of Coil Geometry, Size and Orientation</b> .....	<b>674-677</b>
<i>Salvador, Ricardo* (University of Lisbon); Miranda, Pedro (Faculty of Science, University of Lisbon)</i>	
11:10-12:30	ThBPo04.18
<b>An Investigation on the Effects of Single Pulse Transcranial Magnetic Stimulation in a Modified Maximum Entropy Auditory Stimulation Paradigm</b> .....	<b>678-681</b>
<i>Low, Yin Fen* (Saarland University Hospital); Schwerdtfeger, Karsten (Saarland University Hospital); Harris, Arief R. (University of Saarland); Strauss, Daniel J. (Comp. Diagn. &amp; Biocyb. Unit)</i>	
11:10-12:30	ThBPo04.19
<b>Effect of Anatomical Variability on Neural Stimulation Strength and Focality in Electroconvulsive Therapy (ECT) and Magnetic Seizure Therapy (MST)</b> .....	<b>682-688</b>
<i>Deng, Zhi-De* (Columbia University); Lisanby, Sarah (Columbia University / New York State Psychiatric Institute); Peterchev, Angel V (Columbia University)</i>	
11:10-12:30	ThBPo04.20
<b>Mechanisms Determining Safety and Performance of Brain Stimulating Electrodes</b> .....	<b>689-692</b>
<i>Andre, Dana Lynn* (The Pennsylvania State University); SHANMUGASUNDARAM, BALAJI (THE PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK); Drapaca, Corina (University of Waterloo); Gluckman, Bruce (Pennsylvania State University)</i>	

ThBPo05: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>10.1.2 Wireless Technologies</b> (Poster Session)	

11:10-12:30	ThBPo05.1
<b>Modeling for Intra-Body Communication with Bone Effect</b> .....	<b>693-696</b>
<i>Pun, Sio Hang (University of Macau); Gao, Yue Ming* (Fu zhou University); Mak, Peng Un (University of Macau); du, min (523 Gongye Road, Fuzhou University ,Fuzhou, Fujian, 350002,P.R. CHINA); Vai, Mang I. (University Of Macau)</i>	
11:10-12:30	ThBPo05.2
<b>Simple Electrical Model and Initial Experiments for Intra Body Communications</b> .....	<b>697-700</b>
<i>Gao, Yue Ming* (Fu zhou University); Pun, Sio Hang (University of Macau); du, min (523 Gongye Road, Fuzhou University ,Fuzhou, Fujian, 350002,P.R. CHINA); Mak, Peng Un (University of Macau); Vai, Mang I. (University Of Macau)</i>	
11:10-12:30	ThBPo05.3
<b>A Biometric Method to Secure Telemedicine Systems</b> .....	<b>701-704</b>
<i>zhang, guanghe* (Institute of Computing Technology, Chinese Academy of Sciences); Poon, Carmen CY (The Chinese University of Hong Kong); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	
11:10-12:30	ThBPo05.4
<b>Data Upload Capability of 3G Mobile Phones</b> .....	<b>705-708</b>
<i>Moon, Jon* (Devicix, LLC); Barden, Charles (Devicix LLC); Wohlers, Erica (Devicix, LLC)</i>	
11:10-12:30	ThBPo05.5
<b>High Speed Intra-Body Communication for Personal Health Care</b> .....	<b>709-712</b>
<i>Zhu, Hongjie* (The Hong Kong University of Science and Technology); XU, Ruoyu (The Hong Kong University of Science and Technology); Yuan, Jie (The Hong Kong University of Science and Technology)</i>	
11:10-12:30	ThBPo05.6
<b>Legitimate Data in Remote Monitoring</b> .....	<b>713-716</b>
<i>Schilling, Josh* (Nonin Medical, Inc.)</i>	
11:10-12:30	ThBPo05.7
<b>Provisioning of Medical Quality of Services for HSDPA and Mobile WiMAX in Healthcare Applications</b> .....	<b>717-720</b>
<i>Istepanian, Robert* (Kingston University London); Philip, Nada (Kingston University)</i>	

- 11:10-12:30 ThBPo06.1  
**Factors Affecting the Accuracy of Volume-Oscillometric Blood Pressure Measurement During Partial Pressurization of the Wrist** ..... 721-724  
*Kim, Jong Pal\* (Samsung Advanced Institute of Technology); Kim, Youn Ho (Samsung Advanced Institute of Technology); Bae, Sang Kon (Samsung Advanced Inst of Tech); Kim, Seok (Samsung Advanced Institute of Technology); Shin, Kunsu (Samsung Advanced Inst of Tech)*
- 11:10-12:30 ThBPo06.2  
**Ultrasound Monitoring of Inter-Knee Distances During Gait** ..... 725-728  
*Lai, Daniel\* (Victoria University); Wrigley, Tim V. (University of Melbourne); Palaniswami, Marimuthu (The University of Melbourne)*
- 11:10-12:30 ThBPo06.3  
**A New Tool to Assess Mechanical and Dielectric Properties of Tissues** ..... 729-732  
*Guhr, Glen\* (IFW Dresden); Schmidt, Hagen (IFW Dresden); Weihnacht, Manfred (IFW Dresden)*
- 11:10-12:30 ThBPo06.4  
**The Development of Therapeutic Ultrasound with Assistance of Robotic Manipulator** ..... 733-736  
*Huang, Zhihong\* (University of Dundee); Qiu, Zhen (University of Dundee); Gao, Jing (University of Dundee); Cochran, Sandy (University of Dundee); corner, george (ninewells hospital); Song, Charlie (University Of Dundee)*
- 11:10-12:30 ThBPo06.5  
**Piezoelectric Self-Sensing System for Tactile Intraoperative Brain Tumor Delineation in Neurosurgery** ..... 737-740  
*Oliva Uribe, David\* (University of Hannover); Wallaschek, Jörg (Leibniz University of Hannover); Stroop, Ralf (University Hospital of Essen)*
- 11:10-12:30 ThBPo06.6  
**An Analog Circuit Implementation of a Quadratic Integrate and Fire Neuron** ..... 741-744  
*Basham, Eric (University of California, Santa Cruz); Parent, David\* (San Jose State University)*
- 11:10-12:30 ThBPo06.7  
**A Smart Modules Network for Real Time Data Acquisition: Application to Biomedical Research** ..... 745-748  
*Logier, Regis\* (CHRU de Lille); De jonckheere, Julien (CHRU de Lille); Dassonneville, Alain (CHRU de Lille); Chaud, Pascal (CHRU de Lille); Jeanne, Mathieu (CHRU de Lille)*
- 11:10-12:30 ThBPo06.8  
**Instantiating a Mechatronic Valve Schedule for a Hydrocephalus Shunt** ..... 749-752  
*Momani, Lina\* (University of Liverpool); Alkharabsheh, Abdel Rahman (University of Liverpool); Al-Zubi, Nayel (University of Liverpool); Al-Nuaimy, Waleed (University of Liverpool)*
- 11:10-12:30 ThBPo06.9  
**A Pilot Study on Low Power Pulse Rate Detection Based on Compressive Sampling** ..... 753-756  
*Huang, Banguyu (Shenzhen Institute of Advanced Technology); Wang, Lei\* (Shenzhen Institute of Advanced Technology); Wang, Bo (Shenzhen Institute of Advanced Technology); Lin, Shaojie (Shenzhen Institute of Advanced Technology); Wu, Dan (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong)*
- 11:10-12:30 ThBPo06.10  
**High-Efficiency and Side-Viewing Micro Fiber Optic Probe for In-Vivo Diffuse Reflectance Measurements of Human Epithelial Tissues** ..... 757-760  
*Garcia-Urbe, Alejandro\* (Texas A&M University); Balareddy, Karthik C. (Texas A&M University); Chang, Cheng-Chung (Texas A&M University); Yapici, Murat Kaya (Texas A&M University); Zou, Jun (Texas A & M University); Wang, Lihong (Washington University in St. Louis)*
- 11:10-12:30 ThBPo06.11  
**Hybrid System for Magnetic and Acoustic Measurement** ..... 761-764  
*Bruno, Alexandre Colello (Universidade de São Paulo); Baffa, Oswaldo (FFCLRP-University of Sao Paulo); Carneiro, Antonio Adilton Oliveira\* (Universidade de São Paulo)*

11:10-12:30	ThBPo06.12
<b>A Study into Salivary-Based Measurement of Human Stress Subjected to Ellestad Stress Test Protocol</b> .....	<b>765-768</b>
<i>Lee, Khuan Y.* (Universiti Teknologi MARA); Zaaba, aiman (Universiti Teknologi MARA); Madzhi, Nina Korlina (Universiti Teknologi MARA); Ahmad, Anuar (Universiti Industri Selangor)</i>	
11:10-12:30	ThBPo06.13
<b>Acoustic Radiation Force and Optical Spectroscopy for Assessing Tumor Vessel Normalization During Anti-Angiogenic Therapy</b> .....	<b>769-772</b>
<i>Yan, Kaiguo* (Thomas Jefferson University); Wachsberger, Phyllis (Thomas Jefferson University); Yu, Yan (Thomas Jefferson University Hospital)</i>	
11:10-12:30	ThBPo06.14
<b>Pulmonary Disease Management System with Distributed Wearable Sensors</b> .....	<b>773-776</b>
<i>Fu, Yongji* (Sharp Laboratories of America); Ayyagari, Deepak (Sharp Laboratories of America)</i>	
11:10-12:30	ThBPo06.15
<b>Early Onset of Electrical Activity in Developing Neurons Cultured on Carbon Nanotube Immobilized Microelectrodes</b> .....	<b>777-780</b>
<i>Khraiche, Massoud* (Arizona state university); Jackson, Nathan (Arizona State University); Muthuswamy, Jit (Arizona State University)</i>	
11:10-12:30	ThBPo06.16
<b>Calibration Tools for PC-Based Vision Assessment</b> .....	<b>781-784</b>
<i>Rolkosky, David* (Advanced Medical Electronics Corp.); Dagnelie, Gislin (Johns Hopkins Univ); Kramer, Kevin (Advanced Medical Electronics Corp.); Havey, Gary (Advanced Medical Electronics Corp.); Seifert, Gregory John (Advanced Medical Electronics)</i>	
11:10-12:30	ThBPo06.17
<b>Stochastic Resonance-Enhanced Laser-Based Particle Detector</b> .....	<b>785-787</b>
<i>Dutta, Anirban* (Howard Hughes Medical Institute); Werner, Chris (Howard Hughes Medical Institute)</i>	
11:10-12:30	ThBPo06.18
<b>A Method for Identifying Small Molecule Aggregators Using Photonic Crystal Biosensor Microplates</b> .....	<b>788-791</b>
<i>Lidstone, Erich* (University of Illinois); Cunningham, Brian (University of Illinois)</i>	
11:10-12:30	ThBPo06.19
<b>Review: Design of Low-Cost Portable Ultrasound Systems</b> .....	<b>792-795</b>
<i>Baran, Jonathan* (University of Wisconsin-Madison); Webster, John (University of Wisconsin Madison)</i>	
11:10-12:30	ThBPo06.20
<b>Evaluation of Vibro-Acoustography Techniques to Map Absorbed Dose Distribution in Irradiated Phantoms</b> .....	<b>796-799</b>
<i>Vieira, Sílvio Leão (University of São Paulo); Kinnick, Randy (Mayo Clinic); Baggio, André Luiz (Univerisade de São Paulo); Nicolucci, Patricia (Universidade de São Paulo); Fatemi, Mostafa (Mayo Clinic); Carneiro, Antonio Adilton Oliveira* (Universidade de São Paulo)</i>	
11:10-12:30	ThBPo06.21
<b>Impedance Cardiography for Cuffless and Non-Invasive Measurement of Systolic Blood Pressure</b> .....	<b>800-802</b>
<i>Wong, Mico Yee Man* (The Chinese University of Hong Kong); MacPherson, Emma (Chinese University of Hong Kong); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	

ThBPo07: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>9.4.2 Medical Devices (Poster Session)</b>	

11:10-12:30	ThBPo07.1
<b>Laboratory Prototype of Cochlear Implant: Design and Techniques</b> .....	<b>803-806</b>
<i>Ali, Hussnain* (Center for Advanced Research in Engineering); Ahmad, Talha Jamal (Center for Advanced Research in Engineering); Ajaz, Muhammad Asim (National University of Sciences and Technology); Khan, Shoab (CASE-Center for Advanced Studies)</i>	

11:10-12:30	ThBPo07.2
<b>Objective Real-Time Assessment of Walking and Turning in Elderly Adults .....</b>	<b>807-810</b>
<i>Skrba, Zoran* (TRIL Centre and University College Dublin.); O'Mullane, Brian (TRIL Centre and University College Dublin.); Greene, Barry R. (Intel); Ni Scanail, Clíodhna (Intel); Fan, Chie Wei (St James's hospital); Quigley, Aaron (University College Dublin.); Nixon, Paddy (School of Computer Science &amp; Informatics)</i>	
11:10-12:30	ThBPo07.3
<b>Evaluation of the TheraDrive System for Robot/Computer Assisted Motivating Rehabilitation after Stroke .....</b>	<b>811-814</b>
<i>Ruparel, Rohit (Marquette University); Johnson, Michelle* (Medical College of Wisconsin); Strachota, Elaine (Milwaukee Area Technical College); McGuire, John (Medical College of Wisconsin); Tchekanov, Guennady (Medical College of Wisconsin)</i>	
11:10-12:30	ThBPo07.4
<b>A Framework for Mouse and Keyboard Emulation in a Tongue Control System. ....</b>	<b>815-818</b>
<i>Lund, Morten Enemark* (Center for Sensory Motor Interaction, Aalborg University); Caltenco, Hector Alejandro (Aalborg University); Lontis, Eugen Romulus (Center for Sensory Motor Interaction, Aalborg University); Christensen, Henrik Vie (CISS, Aalborg University); Bentsen, Bo (Center for Sensory Motor Interaction, Aalborg University); Andreasen Struijk, Lotte N. S. (Aalborg University)</i>	
11:10-12:30	ThBPo07.5
<b>Motor Unit Territories in Juvenile Myoclonic Epilepsy Patients .....</b>	<b>819-822</b>
<i>Goker, Imran (Yeditepe University); Baslo, (Istanbul University Istanbul Medical Faculty); Ertas, Mustafa (Anadolu Health Center Hospital, Kocaeli, Turkey); Ulgen, Yekta* (Bogazici University)</i>	
11:10-12:30	ThBPo07.6
<b>Relation between Index Finger Width and Hand Width Anthropometric Measures .....</b>	<b>823-826</b>
<i>Komandur, Sashidharan* (University of Washington); Johnson, Peter (University of Washington); Storch, Richard (University of Washington); Yost, Michael (University of Washington)</i>	
11:10-12:30	ThBPo07.7
<b>Developing a Genomic-Based Point-Of-Care Diagnostic System for Rheumatoid Arthritis and Multiple Sclerosis .....</b>	<b>827-830</b>
<i>Kalatzis, Fanis (University of Ioannina); Giannakeas, Nikolaos (University of Ioannina); Exarchos, Themis P. (Unit of Medical Tech &amp; Intelligent Info); Leandro, Lorenzelli (Fondazione Bruno Kessler); Adami, Andrea (Fondazione Bruno Kessler); Decarli, Massimiliano (Fondazione Bruno Kessler); Lupoli, Sara (University of Milan); Macciardi, Fabio (University of Milan); Markoula, Sofia (University of Ioannina); Georgiou, Ioannis (University of Ioannina); Fotiadis, Dimitrios I.* (University of Ioannina)</i>	
11:10-12:30	ThBPo07.8
<b>A Navigation System for the Visually Impaired Using Colored Navigation Lines and RFID Tags .....</b>	<b>831-834</b>
<i>SETO, Tatsuya* (Tokai University); Magatani, Kazushige (Tokai Univ.)</i>	
11:10-12:30	ThBPo07.9
<b>Evaluation of Activity Monitors to Estimate Energy Expenditure in Manual Wheelchair Users .....</b>	<b>835-838</b>
<i>Hiremath, Shivayogi Vishwanath* (University of Pittsburgh); Ding, Dan (University of Pittsburgh)</i>	
11:10-12:30	ThBPo07.10
<b>A Novel Vibration Device for Neuromuscular Stimulation for Sports and Rehabilitation Applications .....</b>	<b>839-844</b>
<i>Pujari, Amit Narahar* (University of Aberdeen); Neilson, Richard (University of Aberdeen); Cardinale, Marco (British Olympic Association)</i>	
11:10-12:30	ThBPo07.11
<b>Integrated Real-Time Neurofeedback System to Raise the Frontal Lobe Activity: Design and Implementation .....</b>	<b>845-848</b>
<i>GIL, Yeongjoon (Pusan National University); Li, Gang (Pusan National University); Lee, Jungtae* (Pusan National University)</i>	

11:10-12:30	ThBPo07.12
<b>A Preliminary Efficacy Evaluation Performed by Opto-Electronic Plethysmography of Asymmetric Respiratory Rehabilitation</b> .....	<b>849-852</b>
<i>Bastianini, Flavia* (University Campus Bio-Medico of Rome); Silvestri, Sergio (University Campus Bio-Medico); Magrone, Giovanni (University Campus Bio-Medico of Rome); Gallotta, Emilio (University Campus Bio-Medico of Rome); Sterzi, Silvia (University Campus Bio-Medico of Rome)</i>	
11:10-12:30	ThBPo07.13
<b>Comparison of Two Bioimpedance Spectroscopy Techniques in the Assessment of Body Fluid Volumes</b> .....	<b>853-856</b>
<i>Neves, Eduardo Borba (Federal University Of Rio de Janeiro); Pino, Alexandre Visintainer* (Federal University of Rio de Janeiro); Souza, Marcio N. (Federal University of Rio de Janeiro)</i>	
11:10-12:30	ThBPo07.14
<b>Recombination of Common Sensory-Motor Impairment Evaluation Techniques using a Committee of Classifiers</b> .....	<b>857-860</b>
<i>Chalmers, Nathan* (Queen's University); Seaborn, Geoffrey (Queen's University)</i>	
11:10-12:30	ThBPo07.15
<b>An 8-Channel Skin Impedance Measurement System for Acupuncture Research</b> .....	<b>861-864</b>
<i>Thong, Tran* (Oregon Health &amp; Science University); Colbert, Agatha (National College of Naturopathic Medicine); Larsen, Adrian (Miridia Technology, Inc.)</i>	
11:10-12:30	ThBPo07.16
<b>Static Forces Variation and Pressure Distribution in Laryngoscopy Performed by Straight and Curved Blades</b> .....	<b>865-868</b>
<i>Cecchini, Stefano* (University Campus Bio-Medico of Rome); Silvestri, Sergio (University Campus Bio-Medico); Carassiti, Massimiliano (University Campus Bio-Medico of Rome); Agrò, Felice (University Campus Bio-Medico of Rome)</i>	
11:10-12:30	ThBPo07.17
<b>Measurements of the Contact Pressure in Human Vocal Folds</b> .....	<b>869-872</b>
<i>Chen, Li-Jen* (McGill University); Mongeau, Luc (McGill University)</i>	
11:10-12:30	ThBPo07.18
<b>Application of Polarimetry Group Theory for Characterization of Biological Tissues Via Mueller Coherency Matrix Analysis</b> .....	<b>873-876</b>
<i>Fanjul-Vélez, Félix (University of Cantabria); Ortega-Quijano, Noé (University of Cantabria); Salas-García, Irene (University of Cantabria); Arce-Diego, José L.* (University of Cantabria)</i>	
11:10-12:30	ThBPo07.19
<b>Anesthetic Gas Concentration Changes Related to the Temperature and Humidity in High and Low Flow Anesthesia</b> .....	<b>877-880</b>
<i>SEZDI, MANA* (Istanbul University, Istanbul, Turkey); Akan, Aydin (Istanbul University); Tank, Fatih (Kirikkale University)</i>	
11:10-12:30	ThBPo07.20
<b>Unexplained Overexposures on Physical Dosimetry Reported by Biological Dosimetry</b> .....	<b>881-884</b>
<i>Montoro, Alegria (Hospital Unievrstario la Fe); Almonacid, Miguel (Hospital Unievrstario la Fe); Villaescusa, Juan Ignacio (Hospital Universitario La Fe); Verdu, Gumersindo* (Polytechnic University of Valencia)</i>	
11:10-12:30	ThBPo07.21
<b>Preliminary Study on the Quick Detection of Acquired Immune Deficiency Syndrome by Saliva Analysis Using Surface Enhanced Raman Spectroscopic Technique</b> .....	<b>885-887</b>
<i>Wang, Yan (China Capital University of Medical Sciences); Chen, Anyu* (China Capital University of Medical Sciences); Hua, Lin (Capital University of Medical Sciences); Liu, Jinghua (Capital University of Medical Sciences); Qu, Dian (Capital University of Medical Sciences); Jiao, Yi (OptoTrace (Beijing) Technologies, Inc.); Guo, Xun (OptoTrace (Beijing) Technologies, Inc.); Liu, Chunwei (OptoTrace (Beijing) Technologies, Inc.); Huang, Wen (OptoTrace (Beijing) Technologies, Inc.); Wang, Hong (OptoTrace (Beijing) Technologies, Inc.)</i>	

11:10-12:30	ThBPo07.22
<b>Development of New Quantitative Diagnosis Machine to Evaluate the Baroreflex Sensitivity of an Artery for Patients with Hypertension</b> .....	<b>888-891</b>
<i>Yambe, Tomoyuki* (Tohoku Univ)</i>	
11:10-12:30	ThBPo07.23
<b>Performance Evaluation of the Electrode Configuration in bioelectrical Impedance Analysis for Visceral Fat Measurement</b> .....	<b>892-895</b>
<i>Kim, Kwangsoo (Yonsei University); Lee, mihee (Yonsei University); Kim, Jungchae (Yonsei University); Jung, Seok Myung (Yonsei University); Jee, Sunha (Yonsei University); Yoo, SK* (Yonsei University)</i>	
11:10-12:30	ThBPo07.24
<b>Calibration System for Pulse Spectrophotometry Using a Double-Layer Pulsation Flow-Cell</b> .....	<b>896-899</b>
<i>Oura, Mitsuhiro* (Nihon Kohden Corporation); Kobayashi, Naoki (Nihon Kohden Corporation); Yamamori, Shinji (Nihon Kohden Corporation); Takeda, Sunao (Nihon Kohden Corporation); Iwasaki, Kiyotaka (Waseda University); Umezumi, Mitsuo (Waseda University Graduate School)</i>	
11:10-12:30	ThBPo07.25
<b>Analysis of the radiological detriment for premenopausal women in a breast early detection program during 2008</b> .....	<b>900-902</b>
<i>Tortosa, Ricardo (Hospital Universitario la Fe); Ramos, Miguel (Polytechnic University of Valencia); Villaescusa, Juan Ignacio (Hospital Universitario La Fe); Gallardo, Sergio* (Polytechnic University of Valencia); Verdu, Gumersindo (Polytechnic University of Valencia)</i>	
11:10-12:30	ThBPo07.26
<b>Portable Real-Time Support-Vector-Machine-Based Automated Diagnosis and Detection Device of Narcolepsy Episodes</b> .....	<b>903-906</b>
<i>Gabran, Salam* (University of Waterloo); Moussa, Wafik (University of Waterloo); Salama, Magdy (University of Waterloo); Charles, George (University of Western Ontario)</i>	
11:10-12:30	ThBPo07.27
<b>Contactless Recording of Photoplethysmogram on a Sleeping Bed</b> .....	<b>907-910</b>
<i>Wong, Mico Yee Man* (The Chinese University of Hong Kong); Leung, Hin Kwong (The Chinese University of Hong Kong); MacPherson, Emma (Chinese University of Hong Kong); GU, Wenbo (The Chinese University of Hong Kong); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	
11:10-12:30	ThBPo07.28
<b>Development of an MR Safe Reach and Grasp Movement Evaluation System to Study Brain Activation Patterns after Stroke</b> .....	<b>911-914</b>
<i>Xu, Rubing (Marquette University); Johnson, Michelle* (Medical College of Wisconsin); Verber, Matthew (Medical College of Wisconsin); Kamara, Sheku (Milwaukee School of Engineering)</i>	
11:10-12:30	ThBPo07.29
<b>Development of a Portable A-ABR Screener Using a Microprocessor</b> .....	<b>915-918</b>
<i>Noh, Hyung Wook (Yonsei University); Lee, Tak Hyung (Yonsei University); Kim, Jong Wook (Yonsei University); Yang, Dong In (Yonsei University); Cha, Eun Jong (Chungbuk National University); Kim, Deok Won* (Yonsei University College of Medicine)</i>	
11:10-12:30	ThBPo07.30
<b>Digitally-Bypassed Transducers: Interfacing Digital Mockups to Real-Time Medical Equipment</b> .....	<b>919-922</b>
<i>Sirowy, Scott* (University of California, Riverside); Vahid, Frank (University of California, Riverside); Givargis, Tony (University of California, Irvine)</i>	
11:10-12:30	ThBPo07.31
<b>Simulative and Experimental Research on Wireless Power Transmission Technique in Implantable Medical Device</b> .....	<b>923-926</b>
<i>Yu, Yue (Tsinghua University); Hao, Hongwei (Tsinghua University); Wang, Weiming (Tsinghua University); Li, Luming* (Tsinghua University)</i>	
11:10-12:30	ThBPo07.32
<b>Development of Broad-View Camera Unit for Laparoscopic Surgery</b> .....	<b>927-930</b>
<i>Kawahara, Tomohiro* (Hiroshima University); Takaki, Takeshi (Hiroshima University); Ishii, Idaku (Hiroshima University); Okajima, Masazumi (Hiroshima University)</i>	

11:10-12:30	ThBPo07.33
<b>Battery Power Comparison to Charge Medical Devices in Developing Countries</b> .....	<b>931-934</b>
<i>Nimunkar, Amit* (University of Wisconsin-Madison); Casanova, Alesia (University of Wisconsin Madison); Bray, Andrew (University of Wisconsin - Madison); Powers, Taylor (University of Wisconsin - Madison); Webster, John (University of Wisconsin Madison)</i>	
11:10-12:30	ThBPo07.34
<b>Multichannel Real Time Integrated Active Noise Control System for Infant Incubators</b> .....	<b>935-938</b>
<i>Liu, Lichuan* (Northern Illinois University); Kuo, Sen M. (Northern Illinois University)</i>	
11:10-12:30	ThBPo07.35
<b>Enhancing Biomedical Design with Design Thinking</b> .....	<b>939-941</b>
<i>Dorsa, Ed* (Virginia Tech)</i>	
11:10-12:30	ThBPo07.36
<b>Estimation of Variability of Specific Absorption Rate with Physical Description of Children Exposed to Electromagnetic Field in the VHF Band</b> .....	<b>942-945</b>
<i>Nagaoka, Tomoaki* (National Institute Info &amp; Comm Tech); Watanabe, Soichi (Nat'l Inst of Information &amp; Comms Tech)</i>	

ThC01: 13:30-15:00	Conrad B
<b>1.1.2 Wavelet Analysis of Biosignals</b> (Oral Session)	
<b>Chair:</b> Hisashi Yoshida, <i>Kinki Univ.</i>	
<b>Co-Chair:</b> Murtaza Ali, <i>Texas Inst.</i>	

13:30-13:45	ThC01.1
<b>Analysis of the QRS Complex for Apnea-Bradycardia Characterization in Preterm Infants</b> .....	<b>946-949</b>
<i>Altuve, Miguel* (Simon Bolivar University and University of Rennes 1 and INSERM U642); Carrault, Guy (Université de Rennes 1); Cruz, Julio (Simon Bolivar University); Beuchée, Alain (Centre Hospitalier Universitaire); Pladys, Patrick (Centre Hospitalier Universitaire); Hernández, Alfredo I (Univ. of Rennes 1 and INSERM U642)</i>	
13:45-14:00	ThC01.2
<b>Robust Beat Detector for Ambulatory Cardiac Monitoring</b> .....	<b>950-953</b>
<i>Romero, Iñaki* (IMEC); Grundlehner, Bernard (Holst Centre); Penders, Julien (Stichting IMEC Nederland)</i>	
14:00-14:15	ThC01.3
<b>A Wavelet Based Method for Steady-State Detection in Anesthesia</b> .....	<b>954-957</b>
<i>Castro, Ana* (IDMEC - Polo FEUP); Gomes de Almeida, Fernando (Faculdade de Engenharia da Universidade do Porto); Amorim, Pedro (Hospital Geral de Santo António); Nunes, Catarina S (King's College London)</i>	
14:15-14:30	ThC01.4
<b>Quantitative Analysis of Heart Sounds and Systolic Heart Murmurs Using Wavelet Transform and AR Modeling</b> .....	<b>958-961</b>
<i>Ning, James* (Dartmouth College); Atanasov, Nikolay (Trinity College); Ning, Taikang (Trinity College)</i>	
14:30-14:45	ThC01.5
<b>A Self-Paced BCI Using Stationary Wavelet Packets</b> .....	<b>962-965</b>
<i>Faradji, Farhad* (University of British Columbia); Ward, Rabab (University of British Columbia); Birch, Gary E. (University of British Columbia)</i>	

ThC02: 13:30-15:00	Conrad C
<b>1.4.2 Biomedical Signal Classification I</b> (Oral Session)	
<b>Chair:</b> Baikun Wan, <i>Tianjin Univ.</i>	
<b>Co-Chair:</b> Arun Kumar, <i>Medtronic</i>	

13:30-13:45	ThC02.1
<b>Energy Based Evolving Mean Shift Algorithm for Neural Spike Classification</b> .....	<b>966-969</b>
<i>Yang, Zhi* (University of California, Santa Cruz); Zhao, Qi (University of California); Liu, Wentai (University of California, Santa Cruz)</i>	



13:45-14:00	ThC02.2
<b>Cell Tracking in Fluorescence Images of Embryogenesis Processes with Morphological Reconstruction by 4D-Tubular Structuring Elements .....</b>	<b>970-973</b>
<i>Pastor, David* (Politecnico University of Madrid); Luengo-Oroz, Miguel Angel (Universidad Politécnica de Madrid); Lombardot, Benoit (Ecole Polytechnique, Paris); Gonzalvez, Irene (Universidad Politécnica de Madrid); Duloquin, Louise (CNRS); Savy, Thierry (Ecole Polytechnique); Bourguin, Paul (Ecole Polytechnique); Peyrieras, Nadine (CNRS); Santos, Andres (Universidad Politécnica Madrid)</i>	
14:00-14:15	ThC02.3
<b>Validation of Motor Unit Potential Trains Using Motor Unit Firing Pattern Information .....</b>	<b>974-977</b>
<i>Parsaei, Hossein* (University of Waterloo); jahanmiri nezhad, faezeh (aaa); Stashuk, Daniel William (University of Waterloo); Hamilton-Wright, Andrew (University of Guelph)</i>	
14:15-14:30	ThC02.4
<b>VLSI Architecture of NEO Spike Detection with Noise Shaping Filter and Feature Extraction Using Informative Samples .....</b>	<b>978-981</b>
<i>Hoang, Linh* (University of California, Santa Cruz); Yang, Zhi (University of California, Santa Cruz); Liu, Wentai (University of California, Santa Cruz)</i>	
14:30-14:45	ThC02.5
<b>Visual Acuity Classification Using Single Trial Visual Evoked Potentials .....</b>	<b>982-985</b>
<i>Hajipour, Sepideh* (Sharif University of Technology); Shamsollahi, Mohammad Bagher (Sharif University of Technology); Abootalebi, Vahid (Yazd University)</i>	
14:45-15:00	ThC02.6
<b>MEG Based Classification of Wrist Movement .....</b>	<b>986-989</b>
<i>montazeri, nasim (sharif university of technology); Shamsollahi, Mohammad Bagher (Sharif University of Technology); Hajipour, Sepideh* (Sharif University of Technology)</i>	

ThC03: 13:30-15:00	Grand Ballroom - Salon B
<b>2.4.1 X-ray, CT, PET, and SPECT (Oral Session)</b>	
<b>Chair:</b> Mark Anastasio, <i>Illinois Inst. of Tech.</i>	
<b>Co-Chair:</b> Emil Sidky, <i>Univ. of Chicago</i>	

13:30-13:45	ThC03.1
<b>A CCD Based Approach to Collimated Photon Counting Imaging for Micro-SPECT/CT .....</b>	<b>990-992</b>
<i>Eaker, Diane R. (Mayo Foundation); Dzyubak, Bogdan (University of Wisconsin-Madison); Jorgensen, Steven M. (Mayo Clinic College of Medicine); Ritman, Erik L.* (Mayo Clinic College of Medicine)</i>	
13:45-14:00	ThC03.2
<b>Metal Artifact Suppression from Reformatted Projections in Multi-Slice Helical CT Using Dual-Front Active Contours .....</b>	<b>993-996</b>
<i>Li, Hua* (Mayo Clinic); Yu, Lifeng (Mayo Clinic); Liu, Xin (Mayo Clinic); McCollough, Cynthia (Mayo Clinic)</i>	
14:00-14:15	ThC03.3
<b>Analysis of Image-Reconstruction Algorithms for Circular, Cone-Beam CT by Hotelling Observer Performance on a Detection Task .....</b>	<b>997-999</b>
<i>Sidky, Emil* (University of Chicago); Pan, Xiaochuan (University of Chicago)</i>	
14:15-14:30	ThC03.4
<b>Accelerating X-Ray Fluorescence Computed Tomography .....</b>	<b>1000-1003</b>
<i>La Riviere, Patrick* (The University of Chicago); Meng, Ling Jian (University of Illinois); Fu, Geng (University of Illinois); Vargas, Phillip (University of Chicago)</i>	
14:30-14:45	ThC03.5
<b>Quantitative Investigation of Bone Microvascularization from 3D Synchrotron Micro-Computed Tomography in a Rat Model .....</b>	<b>1004-1007</b>
<i>Langer, Max* (European Synchrotron Radiation Facility / CREATIS-LRMN CNRS UMR 5220; INSERM U630); Prisby, Rhonda (Université de Lyon, St-Etienne); Peter, Zsolt (University of Paris 10, PST/IUT of Ville d'Avray); Boistel, Renaud (Museum National d'Histoire Naturelle); Lafage-Proust, Marie-Hélène (Université de Lyon, St-Etienne); PEYRIN, Françoise (CREATIS)</i>	

14:45-15:00

ThC03.6

**Coupling 2d/3d Registration Method and Statistical Model to Perform 3D Reconstruction from Partial X-Rays Images Data ..... 1008-1011**

*Cresson, Thierry\* (Ecole de Technologie Superieure); Chav, Ramnada (Ecole de Technologie Superieure); Branchaud, Dominic (École de technologie supérieure); Humbert, Ludovic (Ecole Nationale Supérieure d'Arts et Métiers); Godbout, benoit (Ecole de Technologie Superieure); Aubert, Benjamin (Ecole Nationale Supérieure d'Arts et Métiers); Skalli, Wafa (Ecole Nationale Supérieure d'Arts et Métiers); de Guise, Jacques A. (École de technologie supérieure)*

ThC05: 13:30-15:00

Marquette V

**2.7.3 Biomedical Image Processing (Oral Session)**

**Chair:** Christian Roux, *TELECOM Bretagne - INSERM*

**Co-Chair:** Gudrun Zahlmann, *Siemens*

13:30-13:45

ThC05.1

**Accurate Estimation of Microtubule Dynamics Using Kymographs and Variable-Rate Particle Filters ..... 1012-1015**

*Smal, Ihor\* (Erasmus MC - University Medical Center Rotterdam); Grigoriev, Ilya (Erasmus MC - University Medical Center Rotterdam); Akhmanova, Anna (Erasmus MC - University Medical Center Rotterdam); Niessen, Wiro (Erasmus MC, University Medical Center Rotterdam); Meijering, Erik (Erasmus MC - University Medical Center Rotterdam)*

13:45-14:00

ThC05.2

**Cell Cycle Dependence of Protein Subcellular Location Inferred from Static, Asynchronous Images ..... 1016-1019**

*Buck, Taráz\* (Carnegie Mellon University); Berget, Peter B. (Carnegie Mellon University); Murphy, Robert F. (Carnegie Mellon University)*

14:00-14:15

ThC05.3

**Neuron Branch Detection and Description Using Random Walk ..... 1020-1023**

*Kim, Hee Chang (Universite Rene Descartes Paris 5); Genovesio, Auguste\* (Institut Pasteur Korea)*

14:15-14:30

ThC05.4

**An Automatic Method to Identify and Extract Information of DNA Bands in Gel**

**Electrophoresis Images ..... 1024-1027**

*Caridade, Cristina M. R.\* (Instituto Superior de Engenharia de Coimbra); Marcal, Andre R. S. (Faculdade de Ciencias, Universidade do Porto); Mendonça, Teresa (Faculdade de Ciencias, Universidade do Porto); Pessoa, Alberto (University of Porto, School of Sciences); Pereira, Susana (Faculty of Sciences, University of Porto)*

14:30-14:45

ThC05.5

**Automated Nodule Location and Size Estimation Using a Multi-Scale Laplacian of Gaussian**

**Filtering Approach ..... 1028-1031**

*Jirapatnakul, Artit\* (Cornell University); Fotin, Sergei (Cornell University); Reeves, Anthony (Cornell University); Biancardi, Alberto (Cornell University); Yankelevitz, David (Weill Cornell Medical College); Henschke, Claudia (Weill Cornell Medical College)*

14:45-15:00

ThC05.6

**SENSE Reconstruction with Nonlocal TV Regularization ..... 1032-1035**

*Liang, Dong\* (University of Wisconsin, Milwaukee); Wang, Haifeng (University of Wisconsin, Milwaukee); Ying, Lei (Leslie) (University of Wisconsin)*

ThC06: 13:30-15:00

Conrad A

**3.3.1 Bioelectric Sensors I (Oral Session)**

**Chair:** Mehmet Dokmeci, *Northeastern University*

**Co-Chair:** Igor Efimov, *Washington University in St. Louis*

13:30-13:45

ThC06.1

**Application of Photonic Crystal Enhanced Fluorescence to a Cytokine Immunoassay ..... 1036-1038**

*Cunningham, Brian\* (University of Illinois)*

13:45-14:00

ThC06.2

**Parylene-Based Encapsulated Fluid MEMS Sensors ..... 1039-1041**

*Meng, Ellis\* (University of Southern California); Gutierrez, Christian (University of Southern California)*

14:00-14:15 ThC06.3  
**Overview of the Optofluidic Ring Resonator: A Versatile Platform for Label-Free Biological and Chemical Sensing** ..... 1042-1044  
*Suter, Jonathan (University of Missouri); Fan, Xudong\* (University of Missouri)*

14:15-14:30 ThC06.4  
**Wireless Energy Transfer Platform for Medical Sensors and Implantable Devices** ..... 1045-1048  
*Zhang, Fei (University of Pittsburgh); Hackworth, Steven A. (University of Pittsburgh); Liu, Xiaoyu (University of Pittsburgh); Chen, Haiyan (University of Pittsburgh); Sclabassi, Robert (University of Pittsburgh); Sun, Mingui\* (University of Pittsburgh)*

14:30-14:45 ThC06.5  
**Stretchable Bioelectrodes** ..... 1049-1052  
*ziaie, babak\* (Purdue University)*

14:45-15:00 ThC06.6  
**Adaptive Resolution ADC Array for Neural Implant** ..... 1053-1056  
*O'Driscoll, Stephen\* (Stanford University); Meng, Teresa (Stanford University)*

ThC07: 13:30-15:00 Marquette VII  
**3.9.1 Microfluidics (Oral Session)**  
**Chair:** Logan Liu, *Univ. of Illinois at Urbana-Champaign*  
**Co-Chair:** Utkan Demirci, *Massachusetts Inst. of Tech.*

13:30-13:45 ThC07.1  
**Microfluidic Point-Of-Care Diagnostics for Resource-Poor Environments** ..... 1057-1059  
*Laksanasopin, Tassaneewan (Columbia University); Chin, Curtis (Columbia University); Moore, Hannah (Columbia University); Wang, Jennifer (Columbia University); Cheung, Yukkee (Columbia University); Sia, Samuel\* (Columbia University)*

13:45-14:00 ThC07.2  
**Microfluidic Cardiac Circulation Model ( $\mu$ CCM) for Functional Cardiomyocyte Studies** ..... 1060-1063  
*Sethu, Palaniappan\* (University of Louisville)*

14:00-14:15 ThC07.3  
**The New Role of the Microchemostat in the Bioengineering Revolution** ..... 1064-1066  
*Balagadde, Frederick\* (Lawrence Livermore National Laboratory)*

14:15-14:30 ThC07.4  
**Differential Gene Expression Using mRNA Isolated on Plastic Microfluidic Chips** ..... 1067-1070  
*Klapperich, Catherine M.\* (Boston University); Bhattacharyya, Arpita (Boston University)*

14:30-14:45 ThC07.5  
**Integrated Microfluidic Enzyme Reactor Mass Spectrometry Platform for Detection of Anthrax Lethal Factor** ..... 1071-1074  
*Aravamudhan, Shyam\* (Georgia Institute of Technology); Joseph, Paul (Georgia Institute of Technology); Kuklenyik, Zsuzsanna (CDC)*

14:45-15:00 ThC07.6  
**Micro-Fabricated Fluorescence-Activated Cell Sorter** ..... 1075-1078  
*Cho, Sung Hwan\* (University of California San Diego); Chen, Chun Hao (University of California San Diego); Tsai, Frank S. (University of California at San Diego); Lo, Yu-Hwa (University of California San Diego)*

ThC08: 13:30-15:00 Marquette VIII  
**11.4.1 History of Biomedical Engineering (Oral Session)**  
**Chair:** Ron Leder, *Univ. Nacional Autonoma de Mexico*  
**Co-Chair:** Willis J. Tompkins, *Univ. of Wisconsin - Madison*

13:30-14:00 ThC08.1  
**Investigation into the past and Future of Women in Science and Engineering** ..... 1079-1082  
*Frize, Monique\* (Carleton University)*

14:00-14:15	ThC08.2
<b>Complex Human Disorders and Molecular System Engineering: Historical Perspective and Potential Impacts</b> .....	<b>1083-1085</b>
<i>Emamian, Effat* (ATNT)</i>	
14:15-14:30	ThC08.3
<b>The Natural History of the Engineering in Medicine and Biology Society from a Modern Perspective</b> .....	<b>1086-1088</b>
<i>Requena Carrion, Jesus* (Universidad Rey Juan Carlos); Leder, Ron (Universidad Nacional Autonoma de Mexico)</i>	
14:30-14:45	ThC08.4
<b>The Modern Hospital in Historical Context</b> .....	<b>1089-1091</b>
<i>VALENTINUZZI, MAX E.* (Universidad de Buenos Aires)</i>	
14:45-15:00	ThC08.5
<b>EMB History to Increase Health Technology Literacy in the General Public</b> .....	<b>1092-1093</b>
<i>Leder, Ron* (Universidad Nacional Autonoma de Mexico)</i>	
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ThC09: 13:30-15:00	Marquette II
<b>5.5.1 Vascular Reactivity and Mechanics</b> (Oral Session)	
<b>Chair:</b> Craig J. Hartley, <i>Baylor College of Medicine</i>	
<b>Co-Chair:</b> Paul Iazzo, <i>Univ. of Minnesota</i>	
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13:30-13:45	ThC09.1
<b>Coronary Flow Reserve as an Index of Cardiac Function in Mice with Cardiovascular Abnormalities</b> .....	<b>1094-1097</b>
<i>Hartley, Craig J.* (Baylor College of Medicine); Reddy, Anilkumar K. (Baylor College of Medicine); Michael, Lloyd H. (Baylor College of Medicine); Entman, Mark L. (Baylor College of Medicine); Taffet, George E. (Baylor College of Medicine)</i>	
13:45-14:00	ThC09.2
<b>The Functional Anatomy of Human Cardiac Valves and Unique Visualization of Transcatheter-Delivered Valves Being Deployed</b> .....	<b>1098-1099</b>
<i>Iazzo, Paul* (University of Minnesota)</i>	
14:00-14:15	ThC09.3
<b>Digital Thermal Monitoring (DTM) of Vascular Reactivity Closely Correlates with Doppler Flow Velocity</b> .....	<b>1100-1103</b>
<i>McQuilkin, Gary L.* (Cardiowave, Inc.); Panthagani, David S. (Endothelix, Inc.); Metcalfe, Ralph (University of Houston); Hassan, Haider (Endothelix, Inc.); Yen, Albert A. (Endothelix, Inc.); Naghavi, Morteza (SHAPE (Society for Heart Attack Prevention and Eradication)); Hartley, Craig J. (Baylor College of Medicine)</i>	
14:15-14:30	ThC09.4
<b>Effect of Isoflurane on Aortic Impedance in Mice</b> .....	<b>1104-1105</b>
<i>Reddy, Anilkumar K.* (Baylor College of Medicine); Hartley, Craig J. (Baylor College of Medicine); Taffet, George E. (Baylor College of Medicine)</i>	
14:30-14:45	ThC09.5
<b>A Comparison between Fractured Xience-Like and Palmaz-Like Stents Using a Novel Computational Method</b> .....	<b>1106-1108</b>
<i>Tambaca, Josip (University of Zagreb); Canic, Suncica* (University of Houston); Paniagua, David (Michael DeBakey Veterans Medical Center)</i>	
14:45-15:00	ThC09.6
<b>Arterial Distensibility in Systemic Lupus Erythematosus</b> .....	<b>1109-1112</b>
<i>Greene, Ernest* (NMHU); Lanphere, Rose (NMHU); Sharrar, Janeen (UNMSOM); Roldan, Carlos (UNMSOM)</i>	

ThC10: 13:30-15:00 Grand Ballroom - Salon C  
**6.9.2 Neural Trauma** (Oral Session)  
**Chair:** Barclay Morrison, *Columbia Univ.*  
**Co-Chair:** Michelle LaPlaca, *Georgia Inst. of Tech.*

- 13:30-13:45 ThC10.1  
**Plasma Membrane Damage As a Marker of Neuronal Injury** ..... **1113-1116**  
*LaPlaca, Michelle\** (*Georgia Institute of Technology*)
- 13:45-14:00 ThC10.2  
**Shear Wave Propagation in Anisotropic Soft Tissues and Gels** ..... **1117-1122**  
*Namani, Ravi\** (*Washington University in St. Louis*); *Bayly, Philip* (*Washington University in St. Louis*)
- 14:00-14:15 ThC10.3  
**Every Newton Hertz: A Macro to Micro Approach Investigating Brain Injury** ..... **1123-1126**  
*Duma, Stefan\** (*Virginia Tech - Wake Forest*); *Rowson, Steven* (*Virginia Tech - Wake Forest*)
- 14:15-14:30 ThC10.4  
**Hypoxic-Ischemic Brain Injury in Neonatal Piglets with Different Histological Outcomes: An Amplitude-Integrated EEG Study** ..... **1127-1130**  
*Zhang, Dandan* (*Tsinghua University*); *Hathi, Manan* (*Infinite Biomedical Technologies*); *Yang, Zeng-Jin* (*Johns Hopkins School of Medicine*); *Ding, Haiyan\** (*Tsinghua University*); *Koehler, Raymond* (*Johns Hopkins School of Medicine*); *Thakor, Nitish* (*Johns Hopkins University*)
- 14:30-14:45 ThC10.5  
**Accelerated Detection of Intracranial Space-Occupying Lesions with CUDA Based on Statistical Texture Atlas in Brain HRCT** ..... **1131-1134**  
*Liu, Wei\** (*University of Science and Technology of China*); *Feng, Huanqing* (*University of Science and Tech*); *Li, Chuanfu* (*University of Science and Technology of China*); *Huang, Yufeng* (*University of Science and Technology of China*); *Wu, Dehuang* (*University of Science and Technology of China*); *Tong, Tong* (*University of Science and Technology of China*)
- 14:45-15:00 ThC10.6  
**Quantification of Functional Alterations after in Vitro Traumatic Brain Injury** ..... **1135-1138**  
*Yu, Zhe* (*Columbia University*); *Elkin, Benjamin* (*Columbia University*); *Morrison, Barclay\** (*Columbia University*)

ThC11: 13:30-15:00 Marquette I  
**6.10.4 Virtual Reality and Robotics in Rehabilitation** (Oral Session)  
**Chair:** Sergei Adamovich, *NJIT*  
**Co-Chair:** Emily Keshner, *Temple University*

- 13:30-13:45 ThC11.1  
**Remapping in the Ipsilesional Motor Cortex after VR-Based Training: A Pilot Fmri Study** ..... **1139-1142**  
*Tunik, Eugene* (*University of Medicine and Dentistry of New Jersey (UMDNJ)*); *Adamovich, Sergei\** (*NJIT*)
- 13:45-14:00 ThC11.2  
**Coordination Changes Demonstrated by Subjects with Hemiparesis Performing Hand-Arm Training Using the NJIT-RAVR Robotically Assisted Virtual Rehabilitation System** ..... **1143-1146**  
*Qiu, Qinyin* (*NJIT*); *Fluet, Gerard* (*UMDNJ*); *Lafond, Ian* (*New Jersey Institute of Technology*); *Merians, Alma* (*UMDNJ*); *Adamovich, Sergei\** (*NJIT*)
- 14:00-14:15 ThC11.3  
**Visual Field Dependence Influences Balance in Patients with Stroke** ..... **1147-1150**  
*Keshner, Emily\** (*Temple University*); *Slaboda, Jill* (*Temple University*); *barton, joseph* (*TEMPLE UNIVERSITY*); *maitin, ian* (*TEMPLE UNIVERSITY*)
- 14:15-14:30 ThC11.4  
**Therapist-Mediated Post-Stroke Rehabilitation Using Haptic/graphic Error Augmentation** ..... **1151-1156**  
*Rozario, Sylvester Vijay* (*U. of Illinois at Chicago, Rehabilitation Institute of Chicago*); *Housman, Sarah* (*Rehabilitation Institute of Chicago*); *Kovic, Mark* (*Rehabilitation Inst. Chicago*); *Patton, James (Jim)\** (*Rehab Institute of Chicago & U. of Illinois at Chicago*)

14:30-14:45 ThC11.5  
**Linear Vection in Virtual Environments Can Be Strengthened by Discordant Inertial Input** ..... 1157-1160  
*Wright, W.Geoffrey\* (Temple University)*

ThC12: 13:30-15:00 Marquette VI  
**7.4.1 Biomaterial-Cell Interactions** (Oral Session)  
**Chair:** Padma Rajagopalan, *Virginia Tech.*  
**Co-Chair:** Alisa Morss Clyne, *Drexel Univ.*

13:30-13:45 ThC12.1  
**Biomimetic Approaches to Modulating the T Cell Immune Response with Nano and Micro Particles.** .... 1161-1166  
*Demento, Stacey (Yale University); Steenblock, Erin Rae (Yale University); Fahmy, Tarek\* (Yale University)*

13:45-14:00 ThC12.2  
**Regulation of Cell Signaling and Function Via Changes in Growth Factor Presentation** ..... 1167-1171  
*Stefonek-Puccinelli, Tracy (University of Wisconsin); Masters, Kristyn\* (University of Wisconsin)*

14:00-14:15 ThC12.3  
**Engineering Bone Formation with Peptidomimetic Hybrid Biomaterials** ..... 1172-1175  
*Jabbari, Esmaiel\* (University of South Carolina)*

14:15-14:30 ThC12.4  
**Mechanical Characterization of Mouse Embryonic Stem Cells** ..... 1176-1179  
*Pillariseti, Anand (University of Maryland, College Park); Ladjal, Hamid (ENSI de Bourges); Ferreira, Antoine (ENSI de Bourges); Keefer, Carol (University of Maryland, College Park); Desai, Jaydev\* (University of Maryland)*

14:30-14:45 ThC12.5  
**Development of a Versatile Cell Force Transducer Using Moiré Mechanism** ..... 1180-1183  
*Zheng, Xiaoyu (Rayne)\* (Boston University); Xin, Zhang (Boston University)*

ThC13: 13:30-15:00 Conrad D  
**8.6.1 Computer Assisted Surgery** (Oral Session)  
**Chair:** Arianna Menciassi, *Scuola Superiore Sant'Anna*

13:30-13:45 ThC13.1  
**Dynamic View Expansion for Minimally Invasive Surgery Using Simultaneous Localization and Mapping** ..... 1184-1187  
*Mountney, Peter\* (Imperial College London); Yang, Guang-Zhong (Imperial College)*

13:45-14:00 ThC13.2  
**Influence of Visual Feedback and Speed on Micromanipulation Accuracy** ..... 1188-1191  
*Sidarta, Ananda Ekaputera\* (Nanyang Technological University); Tun Latt, Win (Nanyang Technological University); Shee, Chengyap (Nanyang Technological University); Burdet, Etienne (Imperial College London); Lim, Thiam Chye (National University Hospital); Ang, Wei Tech (Nanyang Technological University)*

14:00-14:15 ThC13.3  
**Master and Slave Transluminal Endoscopic Robot (MASTER) for Natural Orifice Transluminal Endoscopic Surgery (NOTES)** ..... 1192-1195  
*Phee, Louis\* (Nanyang Technological University); Low, Soon Chiang (Nanyang Technological University); HUYNH, VAN AN (NANYANG TECHNOLOGICAL UNIVERSITY); Kencana, Andy Prima (Nanyang Technological University); Sun, Zhenglong (Nanyang Technological University); Yang, Kai (Nanyang Technological University)*

14:15-14:30 ThC13.4  
**Real-Time, Haptics-Enabled Simulator for Probing Ex Vivo Liver Tissue** ..... 1196-1199  
*Lister, Kevin\* (University of Maryland, College Park); Gao, Zhan (University of Maryland, College Park); Desai, Jaydev (University of Maryland)*

14:30-14:45 ThC13.5  
**Characterization of Pre-Curved Needles for Steering in Tissue** ..... 1200-1203  
*Wedlick, Thomas\* (Johns Hopkins University); Okamura, Allison (Johns Hopkins University)*

14:45-15:00 ThC13.6  
**Wireless Steering Mechanism with Magnetic Actuation for an Endoscopic Capsule** ..... 1204-1207  
*Menciassi, Arianna\* (Scuola Superiore Sant'Anna); Valdastrì, Pietro (Scuola Superiore Sant'Anna);*  
*quaglia, claudio (Scuola superiore sant'anna); Buselli, Elisa (Scuola Superiore Sant'Anna);*  
*Dario, Paolo (Scuola Superiore Sant'Anna)*

ThC14: 13:30-15:00 Marquette III  
**9.4.1 Continuous Monitoring Systems** (Oral Session)  
**Chair:** Alan Rosenbloom, *Carnegie Mellon Univ.*  
**Co-Chair:** Abraham Lee, *Univ. of California, Irvine*

13:30-13:45 ThC14.1  
**Capacitive On-Line Hematocrit Sensor Design Based on Impedance Spectroscopy for Use in Hemodialysis Machines** ..... 1208-1211  
*Trebbels, Dennis\* (HSG-IMIT); Zengerle, Roland (Microfluidics); Hradetzky, David (HSG-IMIT)*

13:45-14:00 ThC14.2  
**A Flexible Pressure Monitoring System for Pressure Ulcer Prevention** ..... 1212-1215  
*Yip, Marcus\* (Massachusetts Institute of Technology); He, David Da (Massachusetts Institute of Technology);*  
*Winokur, Eric (Massachusetts Inst. of Tech.); Gaudreau Balderrama, Amanda (Massachusetts Institute of*  
*Technology); Sheridan, Robert (Shriner's Hospital for Children Boston); Ma, Hongshen (University of British Columbia)*

14:00-14:15 ThC14.3  
**The Exploration & Forensic Analysis of Computer Usage Data in the Elderly** ..... 1216-1219  
*Hatt, William J\* (Oregon Health & Science University, Central Campus); VanBaak, Edward (Oregon Health &*  
*Science University); Jimison, Holly (Oregon Health & Science University); Hagler, Stuart (Oregon Health and*  
*Science University); Hayes, Tamara (Oregon Health and Science University); Pavel, Michael (Oregon Health*  
*and Science University); Kaye, Jeffrey A. (Oregon Health and Science University)*

14:15-14:30 ThC14.4  
**Towards a Mobility Diagnostic Tool: Tracking Rollator Users' Leg Pose with a Monocular Vision System** ..... 1220-1225  
*Ng, Samantha\* (University of Waterloo); Fakh, Adel (University of Waterloo); Fournay, Adam (University of*  
*Waterloo); Poupart, Pascal (University of Waterloo); Zelek, John (University of Waterloo)*

14:30-14:45 ThC14.5  
**Influence of Gas Temperature on the Performances of a Low Dead Space Capillary Type Pneumotachograph for Neonatal Ventilation** ..... 1226-1229  
*Schena, Emiliano\* (University of Rome Campus Bio-Medico); Silvestri, Sergio (University Campus Bio-Medico)*

14:45-15:00 ThC14.6  
**Microdialysis Coupled with an Embedded Systems Controller and CMOS Image Sensor** ..... 1230-1233  
*Subrebost, George (Carnegie Mellon Univ.); Rosenbloom, Alan\* (Carnegie Mellon Univ.);*  
*Gandhi, Heer (Carnegie Mellon Univ.)*

ThC15: 13:30-15:00 Marquette IX  
**10.2.3 eHealth, mHealth, Telemedicine Systems** (Oral Session)  
**Chair:** Constantinos Pattichis, *Univ. of Cyprus*  
**Co-Chair:** Sergio Guillen, *Inst. Itaca*

13:30-13:45 ThC15.1  
**The MyHealthService Approach for Chronic Disease Management Based on Free Open Source Software and Low Cost Components** ..... 1234-1237  
*Vognild, Lars K.\* (Northern Research Institute Tromsø (Norut)); Burkow, Tatjana M. (University Hospital of*  
*North-Norway); Luque, Luis Fernandez (Northern Research Institute Tromsø (Norut))*

13:45-14:00 ThC15.2  
**Mobile Patient Monitoring: The MobiHealth System** ..... 1238-1241  
*Wac, Katarzyna\* (University of Geneva)*

14:00-14:15	ThC15.3
<b>Multi-parametric system for the continuous assessment and monitoring of motor status in Parkinson's disease: an entropy-based gait comparison</b> .....	<b>1242-1245</b>
<i>Reynold, Greenlaw (Oxford Computer Consultants); Arredondo, María Teresa (Technical University of Madrid); Estrada, Juan Jacobo* (Polytechnic University of Madrid); Pansera, Mario (Universidad Politecnica de Madrid); Fotiadis, Dimitrios I. (University of Ioannina)</i>	
14:15-14:30	ThC15.4
<b>An Overview of Recent Health Care Support Systems for Eemergency and Mhealth Applications</b> .....	<b>1246-1249</b>
<i>Kyriacou, Efthymoulos (Frederick University Cyprus); Pattichis, Constantinos* (University of Cyprus); Pattichis, Marios (University of New Mexico,)</i>	
14:30-14:45	ThC15.5
<b>Portable Emergency Telemedicine System Over Wireless Broadband and 3G Networks</b> .....	<b>1250-1253</b>
<i>Hong, SungHye (Yonsei University); Kim, SangYong (Yonsei University); Kim, Jungchae (Yonsei University); Lim, DongKyu (Yonsei University); Jung, Seok Myung (Yonsei University); Kim, DongKeun (Sangmyung University, Seoul, Korea); Yoo, Sun K.* (Yonsei University Health System)</i>	
14:45-15:00	ThC15.6
<b>TraumaStation: A Portable Telemedicine Station</b> .....	<b>1254-1257</b>
<i>Rizou, Despina* (Fraunhofer Institute for Computer Graphics); SACHPAZIDIS, ILIAS (Fraunhofer Institute); Salvatore, Luca (MEDCOM); SAKAS, Georgios (Fraunhofer Institute for Computer Graphics)</i>	

ThC16: 13:30-15:00	Grand Ballroom - Salon A
<b>S 1. Medical Device and Healthcare Industry: Trends and Opportunities I (Special Symposium)</b>	
<b>Chair:</b> Bin He, <i>Univ. of Minnesota</i>	
<b>Co-Chair:</b> Gregory A. Worrell, <i>Mayo Clinic</i>	

13:30-14:00	ThC16.1
<b>Navigating through the opportunities in Neuromodulation to assure a scientific and cost-effectiveness base for best patient care</b> .....	*
<i>Kuntz, Richard (Medtronic, Inc. and Medtronic Neuromodulation)</i>	
14:00-14:30	ThC16.2
<b>Neuromodulation: Approaching the 'Tipping Point'</b> .....	*
<i>Chavez, Chris (St. Jude Medical Neuromodulation)</i>	
14:30-15:00	ThC16.3
<b>Medical Devices and the Audacity of Hope in Healthcare</b> .....	*
<i>Smith, Joseph (Johnson &amp; Johnson Science and Technology)</i>	

ThDPo01: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>1.2.2 Biomedical Signals and Systems II (Poster Session)</b>	

15:00-16:40	ThDPo01.1
<b>Comparison between Voxelized, Volumized and Analytical Phantoms Applied to Radiotherapy Simulation with Monte Carlo</b> .....	<b>1258-1261</b>
<i>Abella, Vicente (Politechnical University of Valencia); Miró, Rafael* (Polytechnic University of Valencia); Juste, Belen (Polytechnic University of Valencia); Verdu, Gumersindo (Polytechnic University of Valencia)</i>	
15:00-16:40	ThDPo01.2
<b>Mathematical Modeling of a Tethered Bilayer Sensor Containing Gramicidin A Ion Channels</b> .....	<b>1262-1265</b>
<i>Monfared, Sahar* (University of British Columbia); Krishnamurthy, Vikram (University of British Columbia)</i>	
15:00-16:40	ThDPo01.3
<b>Development of Statistical Regression Models for Ventilation Estimation</b> .....	<b>1266-1269</b>
<i>Liu, Shaopeng* (University of Connecticut); Gao, Robert X. (University of Massachusetts Amherst); He, Qingbo (University of Connecticut); Staudenmayer, John (University of Massachusetts, Amherst); Freedson, Patty (University of Massachusetts Amherst)</i>	



15:00-16:40	ThDPo01.4
<b>Efficient Algorithm Development of CIS Speech Processing Strategy for Cochlear Implants .....</b>	<b>1270-1273</b>
<i>Ahmad, Talha Jamal* (Center for Advanced Research in Engineering); Ali, Hussnain (Center for Advanced Research in Engineering); Ajaz, Muhammad Asim (National University of Sciences and Technology); Khan, Shoab (CASE-Center for Advanced Studies)</i>	
15:00-16:40	ThDPo01.5
<b>A Survival Prediction Model of Hemorrhagic Shock in Rats Using a Logistic Regression Equation. ....</b>	<b>1274-1277</b>
<i>Lee, Tak Hyung (Yonsei University); Lee, Ju Hyung (Yonsei University); Chung, Sang Won (Kwandong University); Noh, Hyung Wook (Yonsei University); Shim, Young Woo (Yonsei University); Kim, Deok Won* (Yonsei University College of Medicine)</i>	
15:00-16:40	ThDPo01.6
<b>Frequency Dependence in Acupuncture Manipulations .....</b>	<b>1278-1281</b>
<i>Si, Wenjie (Tianjin University); Wang, Jiang* (Tianjin University); Che, Yanqiu (Tianjin University); wei, xile (Tianjin University); Dong, Feng (tianjin University)</i>	
15:00-16:40	ThDPo01.7
<b>A New Time-Frequency Approach to Estimate Single Joint Upper Limb Impedance .....</b>	<b>1282-1285</b>
<i>Piovesan, Davide* (Northwestern University); DiZio, Paul (Brandeis University); Lackner, James R. (Brandeis University)</i>	
15:00-16:40	ThDPo01.8
<b>Automated Control of Blood Glucose in the OR and Surgical ICU .....</b>	<b>1286-1289</b>
<i>Lee, Amy (Johns Hopkins University); Wang, Joseph (Johns Hopkins University); Hsu, Jason* (Johns Hopkins University)</i>	
15:00-16:40	ThDPo01.9
<b>Signal Processing System to Extract Serum Bilirubin Concentration from Diffuse Reflectance Spectrum of Human Skin .....</b>	<b>1290-1293</b>
<i>Beyette, Fred R* (University of Cincinnati); Beyette, Fred R (University of Cincinnati); Clark, Joseph F (University of Cincinnati)</i>	
15:00-16:40	ThDPo01.10
<b>Image and Signal Correlations of Electric-Field Induced Charged Fibrous Viruses (fd) .....</b>	<b>1294-1297</b>
<i>Kang, Kyongok* (Forschungszentrum Juelich)</i>	
15:00-16:40	ThDPo01.11
<b>Arteriovenous Fistula Stenosis Detection Using Wavelets and Support Vector Machines .....</b>	<b>1298-1301</b>
<i>Vásquez, Pablo* (Lunds University); Munguia M., Marco (National University of Engineering); Mandersson, Bengt (Lund University)</i>	
15:00-16:40	ThDPo01.12
<b>Detailed Measurements of Gastric Electrical Activity and Their Implications on Inverse Solutions .....</b>	<b>1302-1305</b>
<i>Cheng, Leo K* (The University of Auckland); O'Grady, Greg (The University of Auckland); Du, Peng (The University of Auckland); Egbuji, John (The University of Auckland); Windsor, John (The University of Auckland); Pullan, Andrew (University of Auckland)</i>	
15:00-16:40	ThDPo01.13
<b>Real-Time Quantification of Resting Tremor in the Parkinson's Disease .....</b>	<b>1306-1309</b>
<i>Rigas, Georgios (University of Ioannina); Tzallas, Alexandros (University of Ioannina); Tsalikakis, Dimitrios (University of Ioannina); Konitsiotis, Spiros (Medical School, University of Ioannina); Fotiadis, Dimitrios I.* (University of Ioannina)</i>	
15:00-16:40	ThDPo01.14
<b>Isokinetic Work-To-Surface Electromyographic Signal Energy Ratios As a Muscular Fatigue Indicator .....</b>	<b>1310-1313</b>
<i>Schwartz, Fabiano* (University of Brasilia); Souza Celes, Rodrigo (University of Brasilia); Bottaro, Martim (University of Brasilia); Nascimento, Francisco A. de O. (University of Brasilia)</i>	
15:00-16:40	ThDPo01.15
<b>Comparison of Load Cells and Wrist-Actigraphy for Unobtrusive Monitoring of Sleep Movements .....</b>	<b>1314-1317</b>
<i>Adami, Adriana Miorelli (University of Caxias do Sul); Hayes, Tamara* (Oregon Health and Science University); Pavel, Michael (Oregon Health and Science University); Adami, Andre (Universidade de Caxias do Sul)</i>	

15:00-16:41	ThDPo01.16
<b>A New Improved Model-Based Seizure Detection Using Statistically Optimal Null Filter .....</b>	<b>1318-1322</b>
<i>Yadav, Rajeev* (Concordia University); Agarwal, Rajeev (Concordia University); Swamy, M.N.S. (Concordia University)</i>	
15:00-16:40	ThDPo01.17
<b>Emotion Classification Based on Gamma-Band EEG .....</b>	<b>1323-1326</b>
<i>Li, Mu (Shanghai Jiao Tong University); Lu, Bao-Liang* (Shanghai Jiao Tong University)</i>	
15:00-16:40	ThDPo01.18
<b>A Strategy for Minimizing the Effect of Misclassifications During Real Time Pattern Recognition Myoelectric Control .....</b>	<b>1327-1330</b>
<i>Simon, Ann* (Rehabilitation Institute of Chicago); Hargrove, Levi (Rehabilitation Institute of Chicago); Lock, Blair (Rehabilitation Institute of Chicago); Kuiken, Todd (Rehabilitation Institute of Chicago)</i>	
15:00-16:40	ThDPo01.19
<b>A Technique for Optimizing Electrode Placement for Electromyographic Control of Prostheses .....</b>	<b>1331-1334</b>
<i>Walbran, Scott* (University of Auckland); Anderson, Iain (University of Auckland, New Zealand); Calius, Emilio Patricio (Industrial Research); Dunlop, G. Reg (University of Auckland)</i>	
15:00-16:40	ThDPo01.20
<b>An ECG Signal Processing Algorithm Based on Removal of Wave Deflections in Time Domain .....</b>	<b>1335-1338</b>
<i>Kim, Jungkuk* (Myongji University); Kim, Minkyu (Myongji University); Won, Injae (Myongji University); Yang, Seungyhul (Tongwon College); Lee, Kiyoung (Kwandong University); Huh, Woong (Myongji University)</i>	
15:00-16:40	ThDPo01.21
<b>Model-Based Feature Extraction of Electrocardiogram Using Mean Shift .....</b>	<b>1339-1342</b>
<i>Yan, Jingyu* (The Chinese University of Hong Kong); Lu, Yan (The Chinese University of Hong Kong); Liu, Jia (Shenzhen institute of advanced technology); Wu, Xinyu (Shenzhen institute of advanced technology); Xu, Yangsheng (The Chinese University of Hong Kong)</i>	
15:00-16:40	ThDPo01.22
<b>Life Signal Extraction in Through-The-Wall Surveillance .....</b>	<b>1343-1346</b>
<i>wang, qiang (Shenzhen Institute of Advanced Technology); Li, Ye (Shenzhen Institute of Advanced Technology); Wu, Jing* (Shenzhen Institutes of Advanced Technology, ChineseAcademyof Science); Zhang, Taiyi (Xi'an JiaoTong University)</i>	
15:00-16:40	ThDPo01.23
<b>Autoregressive Method for Quantifying Sleep Eye Movements That Reflects Medication Effects .....</b>	<b>1347-1350</b>
<i>Shokrollahi, Peyman* (Ryerson University); Krishnan, Sridhar (Ryerson University); Umapathy, Karthikeyan (Ryerson University); McConville, Kristiina (Ryerson University); Boulos, Mark I. (Sunnybrook Health Science Centre); Jewell, Dana (Sunnybrook Health Sciences Center, University of Toronto); Murray, Brian (Sunnybrook Health Sciences Center, University of Toronto)</i>	
15:00-16:40	ThDPo01.24
<b>Quiet Standing Control by Sway Density Curve after Maximal Oxygen Uptake Test and Prolonged Cycle Ergometer Exercise .....</b>	<b>1351-1354</b>
<i>Mello, Roger Gomes Tavares de (Federal University of Rio de Janeiro); Oliveira, Liliam Fernandes de (Federal University of Rio de Janeiro); Nadal, Jurandir* (Federal University of Rio de Janeiro)</i>	
15:00-16:40	ThDPo01.25
<b>Detecting Electroporation by Assessing the Time Constants in the Exponential Response of Human Skin to Voltage Controlled Impulse Electrical Stimulation .....</b>	<b>1355-1358</b>
<i>Birlea, Sinziana Iulia* (National University of Ireland, Galway); Birlea, Nicolae Marius (Technical University of Cluj-Napoca); Breen, Paul (National University of Ireland Galway); OLaighin, Gearoid (National University of Ireland Galway)</i>	
15:00-16:40	ThDPo01.26
<b>Effect of Transcranial Magnetic Stimulation on P300 of Event-Related Potential .....</b>	<b>1359-1362</b>
<i>Iwahashi, Masakuni* (Kyushu University); Katayama, Yoshinori (Graduate School of ISEE, Kyushu University); Ueno, Shoogo (Kyushu University); Iramina, Keiji (Kyushu University)</i>	

15:00-16:40	ThDPo01.27
<b>A Feasibility Study for Measuring Accurate Tendon Displacements Using an Audio-Based Fourier Analysis of Pulsed-Wave Doppler Ultrasound Signals</b> .....	<b>1363-1366</b>
<i>Stegman, Kelly J* (University of Victoria); Podhorodeski, Ronald P (University of Victoria); Park, Edward J. (University of Victoria)</i>	
15:00-16:40	ThDPo01.28
<b>Assessment of Quality Control Parameters for an X-Ray Tube Using the Monte Carlo Method and Unfolding Techniques</b> .....	<b>1367-1370</b>
<i>Gallardo, Sergio* (Polytechnic University of Valencia); Rodenas Diago, Jose (Polytechnic University of Valencia); Verdu, Gumersindo (Polytechnic University of Valencia); Querol, Andrea (Polytechnic University of Valencia)</i>	
15:00-16:40	ThDPo01.29
<b>Real-Time, Low-Complexity, Low-Memory Solution to ECG-Based Heart Rate Detection</b> .....	<b>1371-1374</b>
<i>Ravindran, Sourabh* (Texas Instruments Inc.); Dunbar, Steven (Texas Instruments Inc); Nisarga, Bhargavi (Texas Instruments Inc.)</i>	
15:00-16:40	ThDPo01.30
<b>Monitoring Blood Oxygenation Changes Due to Acute Pain Stimuli Using Functional Near-Infrared Spectroscopy (fNIRS)</b> .....	<b>1375-1379</b>
<i>Akbarian Azar, Arezou* (Drexel University); Akhbardeh, Alireza (Johns Hopkins University)</i>	
15:00-16:40	ThDPo01.31
<b>Time dependence of stimulation/recording-artifact transfer function estimates for neural interface systems</b> .....	<b>1380-1383</b>
<i>Chernyy, Nick* (Pennsylvania State University); Schiff, Steven (Pennsylvania State University); Gluckman, Bruce (Pennsylvania State University)</i>	
15:00-16:40	ThDPo01.32
<b>An Energy-Based Detection Algorithm of Epileptic Seizures in EEG Records</b> .....	<b>1384-1387</b>
<i>Garces, M Agustina (Universidad Nacional de San Juan); Laciari, Eric (Universidad Nacional de San Juan); OROSCO, LORENA (UNIVERSIDAD NACIONAL DE SAN JUAN); Gómez, María Eugenia (Universidad Nacional de San Juan); Otoyá, Raúl (Hospital H. Notti); Jané, Raimon* (Universitat Politècnica de Catalunya)</i>	
15:00-16:40	ThDPo01.33
<b>Real Time Control of a CPG Based Model of Human Trunk Activity in Different Walking Conditions</b> .....	<b>1388-1391</b>
<i>Ceccato, Jean-Charles* (CNRS UMR 5227); Azevedo-Coste, Christine (DEMAR INRIA/LIRMM); Cazalets, Jean-René (CNRS UMR 5227)</i>	
15:00-16:40	ThDPo01.34
<b>Establishing Telemedicine System to Support Urgent Incidents Around the Borderline of Greece: Implemented Architecture and Evaluation</b> .....	<b>1392-1395</b>
<i>Mandellos, George (University of Patras); Koutelakis, George (University of Patras); Panagiotakopoulos, Theodor (University of Patras); Koukias, Andreas (University of Patras); Mouzourakis, Nomikos (University of Patras); Koukias, Michael (University of Patras); Lymberopoulos, Dimitrios* (University of Patras)</i>	
15:00-16:40	ThDPo01.35
<b>Single Molecule Diffusion Coefficient Estimation by Image Analysis of Simulated CCD Images to Aid High-Throughput Screening</b> .....	<b>1396-1399</b>
<i>Song, Pengfei* (University of Nebraska-Lincoln); Davis, Lloyd M (University of Tennessee Space Institute); Bashford, Greg (University of Nebraska-Lincoln)</i>	

ThDPo02: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>2.3.4 Biomedical Optical Imaging II (Poster Session)</b>	

15:00-16:40	ThDPo02.1
<b>Interactions of Nanoparticles with Lipid Vesicles: A Population Based Computer Aided Image Analysis Approach</b> .....	<b>1400-1403</b>
<i>Zupanc, Jernej* (Faculty of Computer and Information Science); Valant, Janez (Biotechnical Faculty Ljubljana); Iglic(, Aleš (Faculty of Electrical Engineering); Iglic(, Veronika (Faculty of Medicine); Dobnikar, Andrej (Faculty of Computer and Information Science); Drobne, Damjana (Biotechnical Faculty Ljubljana)</i>	

15:00-16:40	ThDPo02.2
<b>Fluorescence Molecular Tomography with Optimal Radon Transform Based Surface Reconstruction .... 1404-1407</b> <i>Liu, Xin* (Tsinghua University); Wang, Daifa (Tsinghua University); Bai, Jing (Tsinghua University)</i>	
15:00-16:40	ThDPo02.3
<b>Intramural Spatial Variation of Optical Tissue Properties Measured with Fluorescence Microsphere Images of Porcine Cardiac Tissue ..... 1408-1411</b> <i>Goyal, Ayush* (University of Oxford)</i>	
15:00-16:40	ThDPo02.4
<b>Deriving a Blood-Mimicking Fluid for Particle Image Velocimetry in Sylgard-184 Vascular Models ..... 1412-1415</b> <i>Yousif, Majid* (University of Western Ontario); Holdsworth, David (University of Western Ontario); Poepping, Tamie (Univeristy of Western Ontario)</i>	
15:00-16:40	ThDPo02.5
<b>Characterization of Lung Tissues Using Liquid-Crystal Tunable Filter and Hyperspectral Imaging System ..... 1416-1419</b> <i>Lee, Jong-Ha (Temple University); Won, Chang-Hee* (Temple University)</i>	
15:00-16:40	ThDPo02.6
<b>Smoothness Processing of Infrared Image Based on AMSS ..... 1420-1423</b> <i>Li, Ying* (Hebei University of Technology); Sun, Yunyan (Hebei University of Technology); He, Renjie (Univ of Texas Medical Sch at Houston); Rao, Liyun (Methodist Hospital Resrch Institute); peng, chuan (Univercity); Xu, Guizhi (Hebei University of Technology); Guo, Lei (Hebei University of Technology); Shen, Xueqin (Hebei University of Technology); Yan, Weili (Hebei University of Technology)</i>	
15:00-16:40	ThDPo02.7
<b>Cell Segmentation in Time-Lapse Fluorescence Microscopy with Temporally Varying Sub-Cellular Fusion Protein Patterns ..... 1424-1428</b> <i>Bunyak, Filiz* (University of Missouri Columbia); Palaniappan, Kannappan (University of Missouri-Columbia); Chagin, Vadim (Darmstadt University of Technology); Cardoso, Cristina (Darmstadt University of Technology)</i>	
15:00-16:40	ThDPo02.8
<b>Mechanical Vibration Compensation Method for 3D+t Multi-Particle Tracking in Microscopic Volumes ..... 1429-1432</b> <i>Corkidi, Gabriel* (Instituto de Biotecnología, UNAM); Pimentel, Arturo (Universidad Nacional Autónoma de México)</i>	
15:00-16:40	ThDPo02.9
<b>Computer-Aided Prognosis of Neuroblastoma: Detection of Mitosis and Karyorrhexis Cells in Digitized Histological Images ..... 1433-1436</b> <i>Sertel, Olcay* (The Ohio State University); Catalyurek, Umit V. (The Ohio State University); Shimada, Hiroyuki (Los Angeles Children's Hospital); Gurcan, Metin (The Ohio State University)</i>	
15:00-16:40	ThDPo02.10
<b>Multi-Space Clustering for Segmentation of Exudates in Retinal Color Photographs ..... 1437-1440</b> <i>Ram, Keerthi (International Institute of Information Technology-Hyderabad); Sivaswamy, Jayanthi* (International Institute of Information Technology-Hyderabad)</i>	
15:00-16:40	ThDPo02.11
<b>Convex Hull Based Neuro-Retinal Optic Cup Ellipse Optimization in Glaucoma Diagnosis ..... 1441-1444</b> <i>Zhang, Zhuo* (A*STAR); Sun, Ying (National University of Singapore); Liu, Jiang (Inst for Infocomm Resrch, A STAR); Cherian, Neetu Sara (National University of Singapore); Lim, Joo Hwee (Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Lu, Shijian (Inst for Infocomm Research, A STAR); Li, Huiqi (Institute for Infocomm Research); Wong, Tien Yin (National University of Singapore)</i>	
15:00-16:40	ThDPo02.12
<b>3D Polarization-Sensitive Optical Coherence Tomography of Canine Meniscus Based on a 2D High-Fill-Factor Microelectromechanical Mirror ..... 1445-1448</b> <i>Guo, Shuguang (University of Florida); Pozzi, Antonio (University of Florida); Ling, Hang-yin (University of Florida); Sun, Jingjing* (University of Florida); Wu, Lei (University of Florida); Liu, Lin (University of Florida); Xie, Huikai (University of Florida)</i>	

15:00-16:40	ThDPo02.13
<b>Speckle Reduction and Lesion Segmentation of OCT Tooth Images for Early Caries Detection</b> .....	<b>1449-1452</b>
<i>Li, Jialin* (University of Manitoba); Bowman, Christopher (National Research Council); Fazel-Rezai, Reza (University of North Dakota); Hewko, Mark (National Research Council); Choo-Smith, Lin-P'ing (National Research Council)</i>	
15:00-16:40	ThDPo02.14
<b>Automatic Fundus Image Classification for Computer-Aided Diagonis</b> .....	<b>1453-1456</b>
<i>Lu, Shijian* (Inst for Infocomm Research, A STAR); Liu, Jiang (Inst for Infocomm Resrch, A STAR); Lim, Joo Hwee (Institute for Infocomm Research); Zhang, Zhuo (A*STAR); Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Li, Huiqi (Institute for Infocomm Research); Wong, Tien Yin (National University of Singapore)</i>	
15:00-16:40	ThDPo02.15
<b>Study of Spatial Sensitivity in Near-Infrared Spectroscopic Brain Imaging Based on Three-Dimensional Monte Carlo Modeling</b> .....	<b>1457-1460</b>
<i>Mansouri, Chemseddine* (Arts et Métiers-ParisTech Angers); Kashou, Nasser (Nationwide Children's Hospital)</i>	
15:00-16:40	ThDPo02.16
<b>Blood Vessel Detection and Artery-Vein Differentiation Using Hyperspectral Imaging</b> .....	<b>1461-1464</b>
<i>Akbari, Hamed* (Tokyo Institute of Technology); Kosugi, Yukio (Tokyo Institute of Technology); Kojima, Kazuyuki (Tokyo Medical and Dental University); Tanaka, Naofumi (Tokyo Medical and Dental University)</i>	
15:00-16:40	ThDPo02.17
<b>Tracking Variable Number of Multiple Subcellular Structures in 3D</b> .....	<b>1465-1468</b>
<i>Wen, Quan* (The University of Texas at Arlington); Gao, Jean (Univeristy of Texas); Luby-Phelps, Kate (The University of Texas Southwestern Medical Center)</i>	
15:00-16:40	ThDPo02.18
<b>An Automatic Quantification and Registration Strategy to Create a Gene Expression Atlas of Zebrafish Embryogenesis</b> .....	<b>1469-1472</b>
<i>Castro Gonzalez, Carlos* (Universidad Politécnica de Madrid); Luengo-Oroz, Miguel Angel (Universidad Politécnica de Madrid); Desnoullez, Sophie (CNRS); Duloquin, Louise (CNRS); Fernández-de-Manuel, Laura (Universidad Politécnica de Madrid); Montagna, Sara (Universita di Bologna); Ledesma-Carbayo, Maria J. (Universidad Politécnica de Madri); Bourguine, Paul (Ecole Polytechnique); Peyrieras, Nadine (CNRS); Santos, Andres (Universidad Politecnica Madrid)</i>	

ThDPo03: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>3.2.2 Optical Sensors II</b> (Poster Session)	

15:00-16:40	ThDPo03.1
<b>OFSETH: Smart Medical Textile for Continuous Monitoring of Respiratory Motions under Magnetic Resonance Imaging</b> .....	<b>1473-1476</b>
<i>De jonckheere, Julien (CHRU de Lille); Narbonneau, François (Multitel); Jeanne, Mathieu (CHRU de Lille); Kinet, Damien (Multitel); Paquet, Bernard (Centexbel); Depré, Annick (Elasta); Logier, Regis* (CHRU de Lille)</i>	
15:00-16:40	ThDPo03.2
<b>A Multicentre Study of an Enhanced Optical Method for Measuring Concentration of Uric Acid Removed During Dialysis</b> .....	<b>1477-1480</b>
<i>Jerotskaja, Jana* (Tallinn University of Technology); Fridolin, Ivo (Centre of Biomedical Engineering); Tanner, Risto (National Institute of Chemical Physics and Biophysics); Lauri, Kai (Tallinn University of Technology); Uhlin, Fredrik (University Hospital, Linköping); Luman, Merike (North-Estonian Regional Hospital)</i>	
15:00-16:40	ThDPo03.3
<b>Plasmonic Nanohole Arrays for Label-Free Kinetic Biosensing in a Lipid Membrane Environment</b> .....	<b>1481-1484</b>
<i>Lesuffleur, Antoine (University of Minnesota); Lim, Kwan Seop (University of Minnesota); Lindquist, Nathan (University of Minnesota); Im, Hyunsoon* (University of Minnesota); Oh, Sang-Hyun (University of Minnesota); Warrington, Arthur (Mayo Clinic); Rodriguez, Moses (Mayo Clinic)</i>	

15:00-16:40	ThDPo03.4
<b>Attempt of a Novel Calibration Method of Pulse Oximetry Using Support Vector Machines Regression .....</b>	<b>1485-1488</b>
<i>Ogawa, Mitsuhiro* (yu.sys Corp.); Yamakoshi, Yasuhiro (yusys Co., Ltd.); Nogawa, Masamichi (Kanazawa University); Yamakoshi, Takehiro (Kanazawa University); Motoi, Kosuke (Kanazawa University); Tanaka, Shinobu (Kanazawa University); Yamakoshi, Ken-ichi (Kanazawa University)</i>	
15:00-16:40	ThDPo03.5
<b>A Novel Non-Invasive Trans-Reflectance Photoplethysmographic Probe for Use in Cases of Low Peripheral Blood Perfusion .....</b>	<b>1489-1492</b>
<i>Muhammad, Shafique (City University London); Phillips, Justin (City University); Kyriacou, Panayiotis* (City University)</i>	
15:00-16:40	ThDPo03.6
<b>Investigation of Photoplethysmographic Changes Using a Static Compression Model of Spinal Cord Injury .....</b>	<b>1493-1496</b>
<i>Phillips, Justin* (City University); George, Kuriakose Joshi (Queen Mary, University of London); Kyriacou, Panayiotis (City University); Langford, Richard (St Bartholomew's Hospital)</i>	
15:00-16:40	ThDPo03.7
<b>Protein a for Human IgG Oriented Immobilization on Silicon Surface for an Imaging Ellipsometry Biosensor .....</b>	<b>1497-1500</b>
<i>Meng, Yanli* (Northeast Normal University); Chen, Bo (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)</i>	
15:00-16:40	ThDPo03.8
<b>A Fibre-Optic Catheter-Tip Force Sensor with MRI Compatibility: A Feasibility Study .....</b>	<b>1501-1504</b>
<i>polygerinos, panagiotis* (King's College London); Seneviratne, Lakmal (King's College London); Althoefer, Kaspar (King's College London); Schaeffter, Tobias (King's College London)</i>	
15:00-16:40	ThDPo03.9
<b>In-Vivo Evaluation of a Fiber-Optic Splanchnic Photoplethysmographic Sensor During Open Laparotomy .....</b>	<b>1505-1508</b>
<i>Hickey, Michelle (City University); Samuels, Neal (St Bartholomew's Hospital); Randive, Nilesh (St Bartholomew's Hospital); Langford, Richard (St Bartholomew's Hospital); Kyriacou, Panayiotis* (City University)</i>	
15:00-16:40	ThDPo03.10
<b>Evaluation of a Fiber-Optic Esophageal Pulse Oximeter .....</b>	<b>1509-1512</b>
<i>Phillips, Justin* (City University); Langford, Richard (St Bartholomew's Hospital); Chang, Serene (St Bartholomew's Hospital); Maney, Kishore (St Bartholomew's Hospital); Kyriacou, Panayiotis (City University); Jones, Deric (City University)</i>	
15:00-16:40	ThDPo03.11
<b>Measurements of Cerebral Arterial Oxygen Saturation Using a Fiber-Optic Pulse Oximeter .....</b>	<b>1513-1516</b>
<i>Phillips, Justin* (City University); Langford, Richard (St Bartholomew's Hospital); Chang, Serene (St Bartholomew's Hospital); Maney, Kishore (St Bartholomew's Hospital); Kyriacou, Panayiotis (City University); Jones, Deric (City University)</i>	
15:00-16:40	ThDPo03.12
<b>Development of an Accuracy Assessment Phantom for Surgical Navigators .....</b>	<b>1517-1520</b>
<i>Koivukangas, Tapani* (University of Oulu); Katisko, Jani Petri Antton (Oulu University Hospital); Nevala, Kalervo (University of Oulu); Louhisalmi, Yrjö (University of Oulu); Koivukangas, John Pertti (Oulu University Hospital)</i>	

ThDPo04: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>6.7.1 Neural Circuits and Mechanisms (Poster Session)</b>	

15:00-16:40	ThDPo04.1
<b>Noise Induced Oscillations in Recurrent Neural Networks .....</b>	<b>1521-1524</b>
<i>Sekine, Makoto (Kanto-Gakuin University); Mino, Hiroyuki* (Kanto Gakuin University); Durand, Dominique (Case Western Reserve University)</i>	

15:00-16:40	ThDPo04.2
<b>Channel Noise Enhances Signal Detectability in a Model of Acoustic Neuron through the Stochastic Resonance Paradigm</b> .....	<b>1525-1528</b>
<i>Liberti, Micaela (ICEMB@La Sapienza Univ Rome); Paffi, Alessandra (ICEmB@La Sapienza Univ Rome); Maggio, Fernando* (ICEMB@La Sapienza University Rome); De Angelis, Annalisa (ICEMB@La Sapienza University Rome); Apollonio, Francesca (ICEmB@La Sapienza Univ Rome); D'Inzeo, Guglielmo (ICEmB@"La Sapienza" University Rome)</i>	
15:00-16:40	ThDPo04.3
<b>Using an Open-Loop Inverse Control Strategy to Regulate CA1 Nonlinear Dynamics for an in Vitro Hippocampal Prosthesis Model</b> .....	<b>1529-1532</b>
<i>Hsiao, Min-Chi* (University of Southern California); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California)</i>	
15:00-16:40	ThDPo04.4
<b>The Thalamocortical Circuit and the Generation of Epileptic Spikes in Rat Models of Focal Epilepsy</b> .....	<b>1533-1536</b>
<i>Freestone, Dean Robert* (The University of Melbourne); Grayden, David B. (The University of Melbourne); Lai, Alan (Bionic Technologies Australia); Nelson, Timothy Scott (Bionic Technologies Australia); Halliday, Amy Jean (St Vincent's Hospital); Burkitt, Anthony Neville (The University of Melbourne); Cook, Mark (St. Vincent's Hospital)</i>	
15:00-16:40	ThDPo04.5
<b>Curve Fitting of Spikes in Neural Signals</b> .....	<b>1537-1540</b>
<i>Chen, Dong (Southeast University); Lü, Xiaoying* (Southeast University); Wang, Zhigong (Southeast University)</i>	
15:00-16:40	ThDPo04.6
<b>Linear Control of Neuronal Spike Timing Using Phase Response Curves</b> .....	<b>1541-1544</b>
<i>Stigen, Tyler* (University of Minnesota); Netoff, Tay (University of Minnesota)</i>	
<b>ThDPo05: 15:00-16:40</b>	
<b>6.11.4 Rehabilitation II (Poster Session)</b>	
Grand Ballroom - Salon E, F, G	
15:00-16:40	ThDPo05.1
<b>Comparison of Neuronal Network Models for Tinnitus Management by Sound Therapy</b> .....	<b>1545-1548</b>
<i>Nagashino, Hirofumi* (The University of Tokushima); Kinouchi, Yohsuke (The University of Tokushima); Danesh, Ali A. (Florida Atlantic University); Pandya, Abhijit S. (Florida Atlantic University)</i>	
15:00-16:40	ThDPo05.2
<b>Evaluation of Sonomyography (SMG) for Control Compared with Electromyography (EMG) in Terms of Accuracy</b> .....	<b>1549-1552</b>
<i>Guo, Jing-Yi* (The Hong Kong Polytechnic University); Xie, Hong-Bo (The Hong Kong Polytechnic University); Zheng, Yongping (The Hong Kong Polytechnic University)</i>	
15:00-16:40	ThDPo05.3
<b>Measurement of Upper Limb Kinematics and Joint Angle Patterns During Deep Brain Stimulation for Parkinson's Disease</b> .....	<b>1553-1556</b>
<i>Khandwala, Vivek* (University of Rochester); Burack, Michelle (University of Rochester); Mink, Jonathan (University of Rochester); Gdowski, Martha Johnson (University of Rochester); Gdowski, Greg (University of Rochester)</i>	
15:00-16:40	ThDPo05.4
<b>Nerve Cuff Stimulation and the Effect of Fascicular Organization for Hand Grasp in Nonhuman Primates</b> .....	<b>1557-1560</b>
<i>Brill, Natalie* (Case Western Reserve University); Polasek, Katharine (Case Western Reserve University); Miller, Lee (Northwestern University); Oby, Emily (Northwestern University); Tyler, Dustin (Case Western Reserve University)</i>	
15:00-16:40	ThDPo05.5
<b>An ASK Demodulator for Data Telemetry in Biomedical Application</b> .....	<b>1561-1564</b>
<i>Liang, Bin* (University of California, Santa Cruz); Yang, Zhi (University of California, Santa Cruz); Liu, Wentai (University of California, Santa Cruz)</i>	

15:00-16:40	ThDPo05.6
<b>Tremor Suppression Orthoses for Parkinson's Patients: A Frequency Range Perspective .....</b>	<b>1565-1568</b>
<i>Rahimi, Fariborz* (University of Waterloo); Almeida, Quincy (Wilfrid Laurier University); Wang, David (University of Waterloo); Janabi-Sharifi, Farrokh (Ryerson University)</i>	
15:00-16:40	ThDPo05.7
<b>An FES Cycling Control System Based on CPG .....</b>	<b>1569-1572</b>
<i>Hou, Zeng-Guang* (Chinese Academy of Sciences); Li, Pengfeng (Institute of Automation, Chinese Academy of Sciences); Zhang, Feng (Chinese Academy of Sciences)</i>	
15:00-16:40	ThDPo05.8
<b>Design and Evaluation of a Hybrid Passive and Active Gravity Neutral Orthosis (GNO) .....</b>	<b>1573-1576</b>
<i>Koo, Benjamin (Columbia University Medical Center); Montes, Jacqueline (Columbia University); Gamarnik, Viktor (Columbia University); Yeager, Keith (Columbia University); Marra, Jonathan (Columbia University); Dunaway, Sally (Columbia University Medical Center); Montgomery, Megan (Columbia University); De Vivo, Darryl (Columbia University); Strauss, Nancy E. (Columbia University); Konofagou, Elisa (Columbia University); Kaufmann, Petra (Columbia University); Morrison, Barclay* (Columbia University)</i>	
15:00-16:40	ThDPo05.9
<b>Design and Analysis of Ultrasonic Monaural Audio Guiding Device for the Visually Impaired .....</b>	<b>1577-1580</b>
<i>Kim, Keonwook* (Dongguk University); Kim, Hyunjai (IESystems Co.); Yun, Gihun (Dongguk University); Kim, Myungsoo (Dongguk University)</i>	
15:00-16:40	ThDPo05.10
<b>The Effects of Asymmetric Tonic Neck Reflex During Reaching Movements Following Stroke: Preliminary Results .....</b>	<b>1581-1584</b>
<i>Lee, Song Joo* (Northwestern University); Yao, Jun (Northwestern University); Acosta, Anamaria (Northwestern University); Dewald, Julius P. A. (Northwestern University)</i>	
15:00-16:40	ThDPo05.11
<b>Electro-Tactile Preference Identification Using Fuzzy Logic .....</b>	<b>1585-1588</b>
<i>Fadali, M. Sami (University of Nevada, Reno); Shen, Yantao* (University of Nevada, Reno); Jafarzadeh, Saeed (University of Nevada, Reno); Yi, Jingang (Rutgers University)</i>	
15:00-16:40	ThDPo05.12
<b>Phantom Limb Pain Treated by Far Infrared Ray .....</b>	<b>1589-1591</b>
<i>Huang, Chi-Yu* (National Taiwan University); Yang, Rong-Sen (College of Medicine, National Taiwan University); Kuo, Te-son (National Taiwan University); Hsu, Kai-Hsiung (National Ilan University)</i>	

ThDPo06: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>6.2.3 Neural Microsystems III (Poster Session)</b>	

15:00-16:40	ThDPo06.1
<b>Highly Programmable Digital Controller for High-Density Epi-Retinal Prosthesis .....</b>	<b>1592-1595</b>
<i>Chen, Kuanfu* (University of California, Santa Cruz); Liu, Wentai (University of California, Santa Cruz)</i>	
15:00-16:40	ThDPo06.2
<b>Comparing different electrode configurations using the 10-10 international system in tDCS: a finite element model analysis .....</b>	<b>1596-1599</b>
<i>Faria, Paula Cristina* (University of Lisbon); Leal, Alberto (AL); Miranda, Pedro (Faculty of Science, University of Lisbon)</i>	
15:00-16:40	ThDPo06.3
<b>A Flexible Microelectrode for Mouse EEG .....</b>	<b>1600-1603</b>
<i>Choi, Jee Hyun* (Korea Institute of Science and Technology, University of Science and Technology); Koch, Klaus-Peter (Fraunhofer Institut für Biomedizinische Technik); Poppendieck, Wigand (Fraunhofer Institut für Biomedizinische Technik); Lee, Mina (Korea Institute of Science and Technology, University of Science and Technology)</i>	
15:00-16:40	ThDPo06.4
<b>Common Median Referencing for Improved Action Potential Detection with Multielectrode Arrays .....</b>	<b>1604-1607</b>
<i>Rolston, John* (Emory University School of Medicine); Gross, Robert (Emory University); Potter, Steve (Georgia Institute of Technology)</i>	



15:00-16:40	ThDPo06.5
<b>In Vivo Testing of a Low Noise 32-Channel Wireless Neural Recording System .....</b>	<b>1608-1611</b>
<i>Yin, Ming (North Carolina State University); Lee, Seung Bae (Georgia Institute of Technology); Ghovanloo, Maysam* (Georgia Institute of Technology)</i>	
15:00-16:40	ThDPo06.6
<b>Stretchable Tracks for Laser-Machined Neural Electrode Arrays .....</b>	<b>1612-1615</b>
<i>Schuetzler, Martin* (University of Freiburg); Pfau, Damir (University of Freiburg, Laboratory for Biomedical Microtechnology); Ordonez, Juan Sebastian (University of Freiburg); Henle, Christian (University of Freiburg); Woias, Peter (University); Stieglitz, Thomas (University of Freiburg)</i>	
15:00-16:40	ThDPo06.7
<b>Insertion of a Three Dimensional Silicon Microelectrode Assembly through a Thick Meningeal Membrane .....</b>	<b>1616-1618</b>
<i>Escamilla - Mackert, Taneev (University of Michigan); Langhals, Nicholas B.* (University of Michigan); Kozai, Takashi D. Y. (University of Michigan); Kipke, Daryl (University of Michigan)</i>	
15:00-16:40	ThDPo06.8
<b>Implementation of Integratable PDMS-Based Conformable Microelectrode Arrays Using a Multilayer Wiring Interconnect Technology .....</b>	<b>1619-1622</b>
<i>Guo, Liang* (Georgia Institute of Technology); DeWeerth, Stephen P. (Georgia Tech/Emory University)</i>	
15:00-16:40	ThDPo06.9
<b>PDMS-Based Conformable Microelectrode Arrays with Selectable Novel 3-D Microelectrode Geometries for Surface Stimulation and Recording .....</b>	<b>1623-1626</b>
<i>Guo, Liang* (Georgia Institute of Technology); DeWeerth, Stephen P. (Georgia Tech/Emory University)</i>	
15:00-16:40	ThDPo06.10
<b>Six-Channel Neural Signal Regeneration Integrated Circuit .....</b>	<b>1627-1630</b>
<i>Li, Wenyuan* (Southeast University); Wang, Fei (Southeast University); Wang, Zhigong (Southeast University); Lü, Xiaoying (Southeast University); SHEN, Xiaoyan (Southeast University)</i>	
15:00-16:40	ThDPo06.11
<b>A 1<math>\mu</math> W 85nV/<math>\sqrt</math> Hz Pseudo Open-Loop Preamplifier with Programmable Band-Pass Filter for Neural Interface System .....</b>	<b>1631-1634</b>
<i>Chang, Sun-Il* (University of Michigan); Yoon, Euisik (University of Michigan)</i>	
15:00-16:40	ThDPo06.12
<b>Pulse-Clamp Technique for Single Neuron Stimulation Electrode Characterization .....</b>	<b>1635-1638</b>
<i>van Ooyen, André* (RWTH Aachen University); Zagolla, Volker G. (RWTH Aachen University); Ulrich, Christian (RWTH Aachen University); Schnakenberg, Uwe (RWTH Aachen University)</i>	
15:00-16:40	ThDPo06.13
<b>Integrated Electronics for Peripheral Nerve Recording and Signal Processing .....</b>	<b>1639-1642</b>
<i>Limnusun, Kanokwan (Case Western Reserve University); Tyler, Dustin (Case Western Reserve University); Mohseni, Pedram* (Case Western Reserve University)</i>	
15:00-16:40	ThDPo06.14
<b>A Fully Flexible Stimulator using 65 nm CMOS Process for 1024-electrode Epi-retinal Prosthesis .....</b>	<b>1643-1646</b>
<i>Tran, Nhan* (The University of Melbourne); Yang, Jiawei (The University of Melbourne); Bai, Shun (The University of Melbourne); Ng, David (NICTA Victoria Research Lab); Halpern, Mark Edward (NICTA Victoria Res. Lab.); Grayden, David B. (The University of Melbourne); Skafidas, Stan (NICTA Victoria Research Lab); Mareels, Iven (Melbourne University, Australia)</i>	
15:00-16:40	ThDPo06.15
<b>A Low-Power Area-Efficient 8 Bit SAR ADC Using Dual Capacitor Arrays for Neural Microsystems .....</b>	<b>1647-1650</b>
<i>Chang, Sun-Il* (University of Michigan); Yoon, Euisik (University of Michigan)</i>	
15:00-16:40	ThDPo06.16
<b>A Carbon Nanotube Cortical Neuron with Spike-Timing-Dependent Plasticity .....</b>	<b>1651-1654</b>
<i>Joshi, Jonathan* (University of Southern California); Parker, Alice. C (University of Southern California); Hsu, Chih-Chieh (University of Southern California)</i>	

15:00-16:40 ThDPo06.17  
**Dual Compartment Neurofluidic System for Electrophysiological Measurements in Physically Isolated Neuronal Cell Cultures** ..... 1655-1658  
*Kanagasabapathi, Thirukumaran T. (Philips Research Laboratories Eindhoven); Wang, Ke\* (Philips Research); Mellace, Marco (Philips Research Laboratories Eindhoven,); Ramakers, Ger J. A. (University of Amsterdam); Decré, Michel (Philips Research)*

ThDPo07: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>10.7.2 Healthcare Information Systems (Poster Session)</b>	

15:00-16:40 ThDPo07.1  
**Lifetime Estimation of Wireless Body Area Sensor Networks for Patient Health Monitoring** ..... 1659-1662  
*Agyei-Ntim, Frank\* (University of Denver); Newman, Kimberly (University of Denver)*

15:00-16:40 ThDPo07.2  
**Implementation and Performance Evaluation of Mobile Ad Hoc Network for Emergency Telemedicine System in Disaster Areas** ..... 1663-1666  
*Kim, Jungchae (Yonsei University); Kim, Doyoon (University of Yonsei); Jung, Seok Myung (Yonsei University); Lee, mihee (Yonsei University); Kim, Kwangsoo (Yonsei University); Lee, ChungK (Yonsei University); Nah, Ji Young (Yonsei University); LEE, SU HO (Yonsei University College of Medicine); Kim, JuHyun (Yonsei University); Choi, WooJjin (Yonsei univ); Yoo, Sun K.\* (Yonsei University Health System)*

15:00-16:40 ThDPo07.3  
**Service oriented architecture for the integration of clinical and physiological data for real-time event stream processing** ..... 1667-1670  
*Kamaleswaran, Rishikesan\* (University of Ontario Institute of Technology); McGregor, Carolyn (Univ of Ontario Inst of Technology); Percival, Jennifer (Univ of Ontario Institute of Tech)*

15:00-16:40 ThDPo07.4  
**Web-Based Sharing of Electrocardiogram: A Framework for Information Publishing** ..... 1671-1674  
*Yuan, Shizhong\* (University of Aizu); Wei, Daming (University of Aizu); Xu, Weimin (Shanghai University); Shen, Wenfeng (Shanghai University)*

15:00-16:40 ThDPo07.5  
**Fast Matching of Sensor Data with Manual Observations** ..... 1675-1678  
*Biswas, Jit (Institute for Infocomm Research); Maniyeri, Jayachandran\* (Institute for Infocomm Research); Shue, Louis (Institute for Infocomm Research); Yap, Philip (Alexandra Hospital)*

15:00-16:40 ThDPo07.6  
**Implementation Experiences of ISO/IEEE11073 Standard Applied to New Use Cases for E-Health Environments** ..... 1679-1682  
*Martinez Ruiz, Ignacio (University of Zaragoza); Escayola, Javier (University of Zaragoza); Martinez-Espronedada, Miguel\* (Public University of Navarra); Serrano, Luis (Public University of Navarra); Trigo, Jesus (University of Zaragoza); Led, Santiago (Public University of Navarra); Garcia Moros, Jose (University of Zaragoza)*

15:00-16:40 ThDPo07.7  
**Cross-Layer Fault Tolerant Data Aggregation for Improved Network Delay in Healthcare Management Applications** ..... 1683-1686  
*Yuan, Xiaojing\* (University of Houston); Liu, Haoying (University of Houston)*

15:00-16:40 ThDPo07.8  
**Information Exchange Protocol for Mobile Heart Monitoring System** ..... 1687-1690  
*Ho, Thomas Chee Tat (Institute for Infocomm Research); Chen, Xiang\* (Institute for Infocomm Research)*

15:00-16:40 ThDPo07.9  
**An XML Based Middleware for ECG Format Conversion** ..... 1691-1694  
*Li, Xuchen (RMIT University); Fang, Qiang (RMIT University); Vojisavljevic, Vuk\* (RMIT University)*

15:00-16:40 ThDPo07.10  
**A Design of the u-Health Monitoring System using a Nintendo DS Game Machine** ..... 1695-1698  
*Lee, SangJoon\* (Yonsei University); Kim, Jinkwon (Yonsei Univ.); Kim, Jungkuk (Myongji University); Lee, Myounggho (Yonsei University)*

15:00-16:40	ThDPo07.11
<b>DiNAR: Health Monitoring of IT Systems in Emergency Response .....</b>	<b>1699-1702</b>
<i>Deshpande, Kartik* (University of Massachusetts, Amherst);</i>	
<i>Ganz, Aura (University of Massachusetts, Amherst)</i>	
15:00-16:40	ThDPo07.12
<b>Real Time Localization of Victims at an Emergency Site: Architecture, Algorithms</b>	
<b>and Experimentation .....</b>	<b>1703-1706</b>
<i>Vemula, Dhruva Tej* (University of Massachusetts, Amherst);</i>	
<i>Ganz, Aura (University of Massachusetts, Amherst)</i>	
15:00-16:40	ThDPo07.13
<b>“Smart Pharmacy” Master Blends Integrated Supply Chains with Patient Care to Uphold</b>	
<b>Regulatory Compliances .....</b>	<b>1707-1709</b>
<i>Bhinder, Prabhjot* (UNICEF (United Nations Fund for Children), NationalInstitute for Communicable Diseases</i>	
<i>(NICD), Delhi); oberoi, mandeep s (Capgemini USA LLC)</i>	
15:00-16:40	ThDPo07.14
<b>Web Based Tool for Resource Allocation in Multiple Mass Casualty Incidents .....</b>	<b>1710-1713</b>
<i>Inampudi, Venkata Srihari* (University of Massachusetts, Amherst);</i>	
<i>Ganz, Aura (University of Massachusetts, Amherst)</i>	
15:00-16:40	ThDPo07.15
<b>Distributed Visual Analytics for Collaborative Emergency Response Management .....</b>	<b>1714-1717</b>
<i>Natarajan, Sriram* (University of Massachusetts, Amherst); Ganz, Aura (University of Massachusetts, Amherst)</i>	
15:00-16:40	ThDPo07.16
<b>A Flexible System to Capture Sample Vials in a Storage Box – the Box Vial Scanner .....</b>	<b>1718-1721</b>
<i>Nowakowski, E* (Mayo Clinic)</i>	
15:00-16:40	ThDPo07.17
<b>Patient Centric Identification and Association .....</b>	<b>1722-1725</b>
<i>Frisch, Paul* (Memorial Sloan-Kettering Cancer Ctr); Miodownik, Saul (Memorial Sloan Kettering Cancer Ctr);</i>	
<i>Booth, Paul (Memorial Sloan Kettering Cancer Ctr); carragee, Patrick (Memorial Sloan-Kettering Cancer Center);</i>	
<i>dowling, Mary (Memorial Sloan-Kettering Cancer Center); Lui, Wei (Memorial Sloan Kettering Cancer Ctr)</i>	
15:00-16:40	ThDPo07.18
<b>Interoperability of Personal Health Records .....</b>	<b>1726-1729</b>
<i>Lähteenmäki, Jaakko* (VTT Technical Research Centre of Finland); Leppänen, Juha (VTT);</i>	
<i>Kajjanranta, Hannu (VTT)</i>	
15:00-16:40	ThDPo07.19
<b>Electronic Medical Record Systems in Developing Countries: A Review .....</b>	<b>1730-1733</b>
<i>Kalogriopoulos, Nicholas (University of Wisconsin - Madison); Baran, Jonathan* (University of Wisconsin-</i>	
<i>Madison); Nimunkar, Amit (University of Wisconsin-Madison); Webster, John (University of Wisconsin Madison)</i>	
15:00-16:40	ThDPo07.20
<b>A New Bed-Exiting Alarm System for Welfare Facility Residents .....</b>	<b>1734-1737</b>
<i>Ogawa, Hidekuni* (Hiroshima Institute of Technology); Yonezawa, Yoshiharu (Hiroshima Institute of Technology);</i>	
<i>Maki, Hiromichi (Hiroshima institute of Technology); Caldwell, Morton (Caldwell Biomedical Electronics)</i>	
15:00-16:40	ThDPo07.21
<b>Successive ECG Telemetry Monitoring for Preventing Sudden Cardiac Death .....</b>	<b>1738-1741</b>
<i>Fang, Zuxiang (Fudan University); Lai, Dakun (University of Minnesota); Ge, Xin* (Fudan University);</i>	
<i>Wu, Xiaomei (Fudan University)</i>	
15:00-16:40	ThDPo07.22
<b>Medication Dispenser Design for Narcotic Rehabilitation Patients .....</b>	<b>1742-1745</b>
<i>Ho, Vien (University of Tasmania); Gale, Timothy John* (University of Tasmania)</i>	

**5.8.2 Cardiovascular Signal Processing II (Poster Session)**

- 15:00-16:40 ThDPo08.1  
**Noninvasive Cardiac Output Estimation Using a Novel Photoplethysmogram Index** ..... **1746-1749**  
*Wang, Ling\** (The Chinese University of Hong Kong); *MacPherson, Emma* (Chinese University of Hong Kong);  
*Zhang, Yuan-Ting* (The Chinese University of Hong Kong)
- 15:00-16:40 ThDPo08.2  
**Analysis of QRS Loop Changes in the Beat-To-Beat Vectocardiogram of Ischemic Patients Undergoing PTCA** ..... **1750-1753**  
*Correa, Raúl* (Universidad Nacional de San Juan (San Juan-Argentina)); *Laciar, Eric\** (Universidad Nacional de San Juan); *Arini, Pedro David* (CONICET); *Jané, Raimon* (Universitat Politècnica de Catalunya)
- 15:00-16:40 ThDPo08.3  
**New Vectorcardiographic Non-Planarity Measure of T-Wave Loop Improves Separation between Healthy Subjects and Myocardial Infarction Patients** ..... **1754-1757**  
*Karsikas, Mari\** (University of Oulu); *Noponen, Kai* (University of Oulu); *Huikuri, Heikki* (University of Oulu);  
*Seppänen, Tapio* (University of Oulu)
- 15:00-16:40 ThDPo08.4  
**Model-Based Heart Rate Prediction During Lokomat Walking** ..... **1758-1761**  
*Koenig, Alexander\** (ETH Zurich); *Somaini, Luca* (ETH Zurich); *Pulfer, Michael* (ETH Zurich);  
*Holenstein, Thomas* (ETH Zurich); *Omlin, Ximena* (ETH Zurich); *Wieser, Martin* (ETH Zurich);  
*Riener, Robert* (ETH and University Zurich)
- 15:00-16:40 ThDPo08.5  
**Time-Frequency Representation of Cardiovascular Signals During Handgrip Exercise** ..... **1762-1765**  
*Tiinanen, Suvi\** (University of Oulu); *Kiviniemi, Antti* (Verve); *Tulppo, Mikko* (Verve);  
*Seppänen, Tapio* (University of Oulu)
- 15:00-16:40 ThDPo08.6  
**Cardiac Action Potential Wavefront Tracking Using Optical Mapping** ..... **1766-1769**  
*Ashraf, Abtin* (University of Calgary); *Nygren, Anders\** (University of Calgary)
- 15:00-16:40 ThDPo08.7  
**Optimised Design of the Front-End Analogue High-Pass Filter for a Diagnostic Quality ECG Monitoring System** ..... **1770-1773**  
*Dozio, Roberta\** (Trinity College Dublin); *Burke, Martin J.* (Trinity College Dublin)
- 15:00-16:40 ThDPo08.8  
**Amplifier Input Impedance in Dry Electrode ECG Recording** ..... **1774-1777**  
*Assambo, Cedric\** (Trinity College Dublin); *Burke, Martin J.* (Trinity College Dublin)
- 15:00-16:40 ThDPo08.9  
**Cardiac Source Localization by Means of a Single Moving Dipole Solution During Endocardial Pacing in an Animal Model** ..... **1778-1780**  
*Lai, Dakun\** (University of Minnesota); *Liu, Chenguang* (University of Minnesota); *Eggen, Michael* (University of Minnesota);  
*Iaizzo, Paul* (University of Minnesota); *He, Bin* (University of Minnesota)
- 15:00-16:40 ThDPo08.10  
**Spectral Analysis of Heart Period and Pulse Transit Time Derived from Electrocardiogram and Photoplethysmogram in Sepsis Patients** ..... **1781-1784**  
*Tang, Collin Howe Hing\** (University of New South Wales); *Chan, Gregory S H* (The University of New South Wales);  
*Middleton, Paul MacConachie* (University of New South Wales); *Savkin, Andrey* (University of New South Wales);  
*Lovell, Nigel H* (University of New South Wales)
- 15:00-16:40 ThDPo08.11  
**Pulse Transit Time-Based Blood Pressure Estimation Using Hilbert-Huang Transform** ..... **1785-1788**  
*Shi, Yang\** (University of Saskatchewan); *Zhang, Qiao* (University of Saskatchewan)

- 15:00-16:40 ThDPo08.12  
**A Novel Method for Assessing Arterial Stiffness by a Hydrostatic Approach** ..... 1789-1791  
*Liu, Yinbo\** (The Chinese University of Hong Kong); *Poon, Carmen CY* (The Chinese University of Hong Kong);  
*Zhang, Yuan-Ting* (The Chinese University of Hong Kong)
- 15:00-16:40 ThDPo08.13  
**Effect of Upper Arm Cuff Pressure on Pulse Morphology Using Photoplethysmography** ..... 1792-1795  
*Lakshmanan, Suganthi* (IIT Madras); *M, Manivannan\** (Indian Institute of Technology Madras)
- 15:00-16:40 ThDPo08.14  
**Determination of Wave Speed and Distensibility of Flexible Tubes Using Diameter and Velocity** ..... 1796-1799  
*Li, Ye\** (Brunel University); *Khair, Ashraf* (Brunel University)
- 15:00-16:40 ThDPo08.15  
**Reactive Hyperemia-Related Changes in Carotid-Radial Pulse Wave Velocity As a Potential Tool to Characterize the Endothelial Dynamics** ..... 1800-1803  
*Torrado, Juan* (School of Medicine, Republic University); *Bia, Daniel\** (School of Medicine, Republic University);  
*Zócalo, Yanina* (School of Medicine, Republic University); *Valls, Gabriela* (School of Medicine, Republic University);  
*Lluberas, Sebastian* (School of Medicine); *Craiem, Damian* (Favaloro University);  
*Armentano, Ricardo* (Favaloro University)
- 15:00-16:40 ThDPo08.16  
**Environmental Stress: Approximate Entropy Approach Revisited** ..... 1804-1807  
*Loncar-Turukalo, Tatjana* (University of Novi Sad); *Bajic, Dragana\** (University of Novi Sad); *Sarenac, Olivera*  
(School of Medicine, University of Belgrade); *Japundzic-Zigon, Nina* (University of Belgrade);  
*Boskovic, Aleksandar* (Elektrovojvodina)
- 15:00-16:40 ThDPo08.17  
**Multifractal Characterization of the Autonomous Nervous System During Prolonged Coronary Artery Occlusion** ..... 1808-1811  
*Magrans, Rudys\** (Universitat Politècnica de Catalunya); *Gomis, Pedro* (Technical University of Catalonia);  
*Caminal, Pere* (Technical University of Catalonia (UPC)); *Wagner, Galen* (Duke University Medical Center)
- 15:00-16:40 ThDPo08.18  
**Discrimination of Endocardial Electrogram Disorganization Using a Signal Regularity Analysis** ..... 1812-1815  
*Novak, Daniel\** (Czech Technical University in Prague); *Kremen, Vaclav* (Faculty of Electrical Engineering, Czech Technical University in Prague.); *Cuesta-Frau, David* (Politechnic University of Valencia); *Schmidt, Karel*  
(Czech Technical University); *Chudacek, Vaclav* (Czech Technical University in Prague); *Lhotska, Lenka*  
(Czech Technical University in Prague)
- 15:00-16:40 ThDPo08.19  
**Spontaneous Variability Analysis for Characterizing Cardiovascular Responses to Water Ingestion** ..... 1816-1819  
*Nozawa, Masaki* (Hosei University); *Yana, Kazuo\** (Hosei University); *Kaeriyama, Kaoru* (Hosei University);  
*Mizuta, Hirohisa* (Josai University); *Ono, Takuya* (Nippon Medical School)
- 15:00-16:40 ThDPo08.20  
**Orthogonal Basis Expansion Based Atrial Activity Reconstruction for Atrial Fibrillation Electrocardiogram Analysis** ..... 1820-1823  
*Kodituwakku, Sandun\** (RSISE, Australian National University); *Abhayapala, Thushara Dheemantha* (Australian National University);  
*Kennedy, Rodney Andrew* (The Australian National University)
- 15:00-16:40 ThDPo08.21  
**Time-Frequency Analysis of HRV Data from Locally Anesthetized Patients** ..... 1824-1827  
*Shafqat, Kamran\** (City University); *Kyriacou, Panayiotis* (City University);  
*Pal, Sandip* (Broomfield Hospital); *Kumari, Santhi* (Broomfield Hospital)
- 15:00-16:40 ThDPo08.22  
**COI-Wiz: An Interactive Computer Wizard for Analyzing Cardiac Optical Signals** ..... 1828-1831  
*Yuan, Xiaojing\** (University of Houston); *UYANIK, ILYAS* (UNIVERSITY OF HOUSTON);  
*Situ, Ning* (University of Houston)

15:00-16:40	ThDPo08.23
<b>Development of Semi-Separated Co-Culture System of Sympathetic Neuron and Cardiomyocyte .....</b>	<b>1832-1835</b>
<i>Takeuchi, Akimasa* (The University of Tokyo); Moriguchi, Hiroyuki (University of Tokyo); Kotani, Kiyoshi (University of Tokyo); Miwa, Keiko (Nagoya University); Lee, Jong-Kook (Nagoya University); Noshiro, Makoto (Kitasato University); Jimbo, Yasuhiko (University of Tokyo)</i>	
15:00-16:40	ThDPo08.24
<b>Mental Workload Classification Using Heart Rate Metrics .....</b>	<b>1836-1839</b>
<i>Henelius, Andreas* (Finnish Institute of Occupational Health); Hirvonen, Kati (Finnish Institute of Occupational Health); Holm, Anu (Finnish Institute of Occupational Health); Korpela, Jussi (Finnish Institute of Occupational Health); Müller, Kiti (Finnish Institute of Occupational Health, Helsinki)</i>	
15:00-16:40	ThDPo08.25
<b>Validation of a Graphic Measurement of Heart Rate Variability to Assess Analgesia/nociception Balance During General Anesthesia .....</b>	<b>1840-1843</b>
<i>Jeanne, Mathieu (CHRU de Lille); Logier, Regis (CHRU de Lille); De jonckheere, Julien* (CHRU de Lille); Tavernier, Benoit (CHRU de Lille)</i>	
15:00-16:40	ThDPo08.26
<b>Cardiovascular Impact of Manual and Automated Turns in ICU .....</b>	<b>1844-1847</b>
<i>Padhye, Nikhil* (Univ of Texas Health Science Center); Hamlin, Shannan (The Methodist Hospital); Brazdekis, Audrius (University of Houston); Hanneman, Sandra (The University of Texas Health Science Center at Houston)</i>	
15:00-16:40	ThDPo08.27
<b>Transfer Function Analysis of Baroreflex Function in a Rabbit Model of Endotoxic Shock .....</b>	<b>1848-1851</b>
<i>Tang, Collin Howe Hing* (University of New South Wales); Chan, Gregory S H (The University of New South Wales); Middleton, Paul MacConachie (University of New South Wales); Cave, Grant (University of Otago); Harvey, Martyn (Waikato Hospital); Savkin, Andrey (University of New South Wales); Lovell, Nigel H (University of New South Wales)</i>	
15:00-16:40	ThDPo08.28
<b>Pilot Canine Investigation of the Cardiopulmonary Baroreflex Control of Ventricular Contractility .....</b>	<b>1852-1855</b>
<i>Sala-Mercado, Javier (Wayne State University School of Medicine); Chen, Xiaoxiao* (Michigan State University); Hammond, Robert (Wayne State University School of Medicine); Ichinose, Masashi (Wayne State University School of Medicine); O'Leary, Donal (Wayne State University School of Medicine); Mukkamala, Ramakrishna (Michigan State University)</i>	
15:00-16:40	ThDPo08.29
<b>Sleeping ECG and Body Position Monitoring System .....</b>	<b>1856-1859</b>
<i>Yang, Chang-Ming* (Ming Yang Biomedical Corp.)</i>	

ThE01: 16:40-18:10	Conrad B
<b>1.2.1 EEG Signal Processing I (Oral Session)</b>	
<b>Chair:</b> Reza Fazel-Rezai, <i>Univ. of North Dakota</i>	
<b>Co-Chair:</b> Richard D. Jones, <i>Van der Veer Inst.</i>	

16:40-16:55	ThE01.1
<b>Seizure Detection in Intracranial EEG Using a Fuzzy Inference System .....</b>	<b>1860-1863</b>
<i>Aarabi, Ardalan* (University of Manitoba); Fazel-Rezai, Reza (University of North Dakota); Aghakhani, Yahya (University of Manitoba)</i>	

16:55-17:10	ThE01.2
<b>EEG Seizure Prediction: Measures and Challenges .....</b>	<b>1864-1867</b>
<i>Aarabi, Ardalan* (University of Manitoba); Fazel-Rezai, Reza (University of North Dakota); Aghakhani, Yahya (University of Manitoba)</i>	

17:10-17:25	ThE01.3
<b>EEG Source Extraction by Autoregressive Source Separation Reveals Abnormal Synchronization in Parkinson's Disease .....</b>	<b>1868-1872</b>
<i>Chiang, Joyce Hsien yin (University of British Columbia); Wang, Z. Jane (University of British Columbia); McKeown, Martin* (University of British Columbia)</i>	

17:25-17:40 ThE01.4  
**Partial Directed Coherence-Based Information Flow in Parkinson's Disease Patients Performing a Visually-Guided Motor Task** ..... 1873-1878  
*Tropini, Giorgia (University of British Columbia); Chiang, Joyce Hsien yin (University of British Columbia); Wang, Z. Jane (University of British Columbia); McKeown, Martin\* (University of British Columbia)*

17:40-17:55 ThE01.5  
**Human Performance Evaluation Based on EEG Signal Analysis: A Prospective Review** ..... 1879-1882  
*Rabbi, Ahmed Fazle\* (University of North Dakota); Ivanca, Kevin (University of North Dakota); Putnam, Ashley (University of North Dakota); Musa, Ahmed (University of North Dakota); Thaden, Courtney (University of North Dakota); Fazel-Rezai, Reza (University of North Dakota)*

ThE02: 16:40-18:10 Conrad C  
**1.4.3 Biomedical Signal Classification II (Oral Session)**  
**Chair:** Kazuo Yana, *Hosei Univ.*  
**Co-Chair:** Vinod Kumar, *IIT Roorkee*

16:40-16:55 ThE02.1  
**A Personalized Classification System for Holter Registers** ..... 1883-1888  
*Kiranyaz, Serkan\* (Tampere University of Technology); Ince, Turker (Izmir University of Economics); Pulkkinen, Jenni (Tampere University of Technology); Gabbouj, Moncef Gabbouj (Tampere University of Technology)*

16:55-17:10 ThE02.2  
**A Biomedical Signal Segmentation Algorithm for Event Detection Based on Slope Tracing** ..... 1889-1892  
*Kim, Jungkuk\* (Myongji University); Kim, Minkyu (Myongji University); Won, Injae (Myongji University); Yang, Seunghul (Tongwon College); Lee, Kiyoun (Kwandong University); Huh, Woong (Myongji University)*

17:10-17:25 ThE02.3  
**Electrocardiogram Signals Identification for Cardiac Arrhythmias Using Prony's Method and Neural Network** ..... 1893-1896  
*Bani-Hasan, Moustafa\* (Cairo University); Kadah, Yasser M. (Cairo University); Rasmy, Mohamed (Cairo University); hefnawi, fatma (Electronics Research Institute)*

17:25-17:40 ThE02.4  
**A Fast and Accurate Method for Arrhythmia Detection** ..... 1897-1900  
*Tavakoli, Vahid (University of Louisville); Sahba, Nima (Islamic Azad University); Hajebi, Nima\* (Shahed University)*

17:40-17:55 ThE02.5  
**Efficacy of Noncontact Mapping in Detecting Epicardial Activation** ..... 1901-1904  
*Shokrollahi, Elnaz\* (Ryerson University); Krishnan, Sridhar (Ryerson University); Masse, Stephane (THCFM Lab, Toronto General Hospital); Umopathy, Karthikeyan (Ryerson University); Soucie, Luc (St. Jude Medical Canada); Farid, Talha (THCFM Lab, Toronto General Hospital); Nanthakumar, Kumaraswamy (THCFM Lab, Toronto General Hospital)*

17:55-18:10 ThE02.6  
**Segmentation of Respiratory Signals by Evidence Theory** ..... 1905-1908  
*BELGHITH, Akram\* (University of Strasbourg); COLLET, Christophe (University of Strasbourg)*

ThE03: 16:40-18:10 Grand Ballroom - Salon B  
**2.1.2 Minisymposium: Medical Imaging – New Biomarkers and Clinical Perspective II**  
**Chair:** Yi Wang, *Cornell Univ.*

16:40-17:10 ThE03.1  
**CT Clinical Perspective: Challenges and the Impact of Future Technology Developments** ..... 1909-1912  
*Vannier, Michael\* (University of Chicago)*

17:10-17:40 ThE03.2  
**A Family of Intracardiac Ultrasound Imaging Devices Designed for Guidance of Electrophysiology Ablation Procedures** ..... 1913-1917  
*Sahn, David J.\* (Oregon Health & Science University)*

17:40-18:10 ThE03.3  
**Towards Cardiovascular Risk Stratification Using Imaging Data** ..... 1918-1921  
*Kakadiaris, Ioannis\* (University of Houston)*

ThE04: 16:40-18:10 Duluth Room  
**2.5.2 Electrical Source Imaging** (Oral Session)  
**Chair:** Lei Ding, *Univ. of Oklahoma*  
**Co-Chair:** Laura Astolfi, *Univ. of Rome*

16:40-16:55 ThE04.1  
**L1-Norm and L2-Norm Neuroimaging Methods in Reconstructing Extended Cortical Sources from EEG** ..... 1922-1925  
*Ding, Lei\* (University of Oklahoma)*

16:55-17:10 ThE04.2  
**Multimodal Functional Imaging Using Fmri-Informed Regional EEG/MEG Source Estimation** ..... 1926-1929  
*Ou, Wanmei\* (Massachusetts Institute of Technology); Golland, Polina (Massachusetts Institute of Technology); Nummenmaa, Aapo (Massachusetts General Hospital); Hamalainen, Matti (Massachusetts General Hospital)*

17:10-17:25 ThE04.3  
**Interictal ECoG Spikes As Reflected in MEG** ..... 1930-1933  
*Huiskamp, Geertjan\* (University Medical Center utrecht); Agirre-Arrizubieta, Zalao (University Medical Center Utrecht)*

17:25-17:40 ThE04.4  
**Cortical Correlates of Alpha Rhythm Modulation** ..... 1934-1936  
*Yang, Lin\* (University of Minnesota); Liu, Zhongming (National Institute of Neurological Disorders and Stroke, National Institutes of Health); Rios, Cristina (University of Minnesota); Yuan, Han (University of Minnesota); He, Bin (University of Minnesota)*

17:40-17:55 ThE04.5  
**Estimation of the Cortical Activity from Simultaneous Multi-Subject Recordings During the Prisoner's Dilemma** ..... 1937-1939  
*Astolfi, Laura\* (University of Rome); Babiloni, Fabio (University of Rome); Salinari, Serenella (La Sapienza University); Wilke, Christopher (University of Minnesota); Yuan, Han (University of Minnesota); He, Bin (University of Minnesota)*

17:55-18:10 ThE04.6  
**Neuromagnetic Source Imaging of Abnormal Spontaneous Activity in Tinnitus Patient Modulated by Electrical Cortical Stimulation** ..... 1940-1944  
*Ramirez, Rey\* (Medical College of Wisconsin); Kopell, Brian Harris (Medical College of Wisconsin); Butson, Christopher (Medical College of Wisconsin); Gaggl, Wolfgang (Medical College of Wisconsin); Friedland, David (Medical College of Wisconsin); Baillet, Sylvain (Medical College of Wisconsin)*

ThE05: 16:40-18:10 Marquette V  
**2.2.3 Ultrasound Imaging II** (Oral Session)  
**Chair:** Elisa Konofagou, *Columbia Univ.*  
**Co-Chair:** K. Kirk Shung, *Univ. of Southern California*

16:40-16:55 ThE05.1  
**A 2D Post-Beamforming Filter for Contrast Restoration in Medical Ultrasound: In Vivo Results** ..... 1945-1948  
*Wan, Yayun\* (University of Minnesota); Ebbini, Emad (University of Minnesota)*



16:55-17:10	ThE05.2
<b>Characterization of Pancreatic Cancer and Intra-Abdominal Lymph Node Malignancy Using Spectrum Analysis of Endoscopic Ultrasound Imaging</b> .....	<b>1949-1952</b>
<i>Kumon, Ronald* (University of Michigan); Pollack, Michael (University Hospitals Case Medical Center and Case Western Reserve University); Faulx, Ashley (University Hospitals Case Medical Center and Case Western Reserve University); Olowe, Kayode (University Hospitals Case Medical Center and Case Western Reserve University); Farooq, Farees (University Hospitals Case Medical Center and Case Western Reserve University); Chen, Victor (University Hospitals Case Medical Center and Case Western Reserve University); Zhou, Yun (University of Michigan); Wong, Richard (University Hospitals Case Medical Center and Case Western Reserve University); Isenberg, Gerard (University Hospitals Case Medical Center and Case Western Reserve University); Sivak, Michael (University Hospitals Case Medical Center and Case Western Reserve University); Amitabh, Chak (University Hospitals Case Medical Center and Case Western Reserve University); Deng, Cheri (University of Michigan)</i>	
17:10-17:25	ThE05.3
<b>High Frequency Ultrasound: A New Frontier for Ultrasound</b> .....	<b>1953-1955</b>
<i>Shung, K. Kirk* (University of Southern California)</i>	
17:25-17:40	ThE05.4
<b>Improved Diagnostics through Quantitative Ultrasound Imaging</b> .....	<b>1956-1959</b>
<i>Hruska, David (University of Illinois at Urbana-Champaign); Sanchez, Jose (University of Illinois at Urbana-Champaign); Oelze, Michael* (University of Illinois at Urbana-Champaign)</i>	
17:40-17:55	ThE05.5
<b>Characterization of the Stress-Strain Relationship of the Abdominal Aortic Wall in Vivo</b> .....	<b>1960-1963</b>
<i>Danpinid, Asawinee (Chiang Mai University); Luo, Jianwen (Columbia University); Vappou, Jonathan (Columbia University); Terdtoon, Pradit (Chiang Mai University); Konofagou, Elisa* (Columbia University)</i>	
17:55-18:10	ThE05.6
<b>Measurement of the Attenuation Coefficient of Monodisperse Populations of Ultrasound Contrast Agent</b> .....	<b>1964-1966</b>
<i>Porter, Tyrone* (Boston University)</i>	
ThE06: 16:40-18:10	Conrad A
<b>3.1.1 Acoustic, Mechanical, and Thermal Sensors</b> (Oral Session)	
<b>Chair:</b> Stanislav Emelianov, <i>Univ. of Texas at Austin</i>	
<b>Co-Chair:</b> Michael Kolios, <i>Ryerson Univ.</i>	
16:40-16:55	ThE06.1
<b>Elastic Nonlinearity Imaging</b> .....	<b>1967-1970</b>
<i>Hall, Timothy J.* (University of Wisconsin); Oberai, Assad (Rensselaer Polytechnic Institute); Barbone, Paul (Boston University); Sommer, Amy (University of Wisconsin); Gokhale, Nachiket (Boston University); Goenezen, Sevan (Rensselaer Polytechnic Institute); Jiang, Jingfeng (University of Wisconsin)</i>	
16:55-17:10	ThE06.2
<b>Real-Time Two-Dimensional Temperature Imaging Using Ultrasound</b> .....	<b>1971-1974</b>
<i>LIU, DALONG* (University of Minnesota); Ebbini, Emad (University of Minnesota)</i>	
17:10-17:25	ThE06.3
<b>Mechanical Imaging in Medical Applications</b> .....	<b>1975-1978</b>
<i>Sarvazyan, Armen (Artann Laboratories); Egorov, Vladimir* (Artann Laboratories)</i>	
17:25-17:40	ThE06.4
<b>Nanoparticle Enhanced Thermal Therapies</b> .....	<b>1979-1982</b>
<i>Shenoi, Mithun (University of Minnesota); Anderson, Kyle (University of Minnesota); Bischof, John* (University of Minnesota)</i>	
17:40-17:55	ThE06.5
<b>Photoacoustic Imaging Endoscope</b> .....	<b>1983-1986</b>
<i>Sheaff, Clay (University of Minnesota); Lau, Nathan (University of Minnesota); Patel, Heena (University of Minnesota); Huang, Shengwen (University of Michigan); Ashkenazi, Shai* (University of Minnesota)</i>	

17:55-18:10 ThE06.6  
**Doppler-Derived Trigger Signals for High-Frame-Rate Mouse Cardiovascular Imaging** ..... 1987-1990  
*Aristizabal, Orlando (Riverside Research Institute); Mamou, Jonathan (Riverside Research Institute);*  
*Turnbull, Daniel H. (New York University School of Medicine); Ketterling, Jeffrey A.\* (Riverside Research Institute)*

ThE07: 16:40-18:10 Marquette VII  
**12.1.2 Recent Advances in Translational Biophotonics and Nanophotonic Imaging Technologies** (Oral Session)  
**Chair:** Ilko Ilev, *US FDA*  
**Co-Chair:** Vadim Backman, *Northwestern Univ.*

16:40-17:10 ThE07.1  
**Diffuse Optics for Monitoring Brain Hemodynamics** ..... 1991-1993  
*Yodh, Arjun\* (University of Pennsylvania)*

17:10-17:25 ThE07.2  
**Sensitivity of Hemoglobin Concentration on Optical Probe Positioning in Image-Guided Near Infrared Spectroscopy** ..... 1994-1996  
*Srinivasan, Subhadra\* (Dartmouth College); Carpenter, Colin (Dartmouth College);*  
*Pogue, Brian (Dartmouth College)*

17:25-17:40 ThE07.3  
**Diagnostic Imaging of Esophageal Epithelium with Clinical Endoscopic Polarized Scanning Spectroscopy Instrument** ..... 1997-2000  
*Qiu, Le (Beth Israel Deaconess Medical Center, Harvard Medical School); Chuttani, Ram (Beth Israel Deaconess Medical Center, Harvard Medical School); Zhang, Songhua (Beth Israel Deaconess Medical Center, Harvard Medical School); Feng, Jun (Beth Israel Deaconess Medical Center, Harvard Medical School); Itani, Sara (Beth Israel Deaconess Medical Center, Harvard Medical School); Fang, Hui (Beth Israel Deaconess Medical Center, Harvard Medical School); Pleskow, Douglas (Beth Israel Deaconess Medical Center, Harvard Medical School); Mandeep, Sawhney (Beth Israel Deaconess Medical Center, Harvard Medical School); Salahuddin, Saira (Beth Israel Deaconess Medical Center, Harvard Medical School); Modell, Mark (Beth Israel Deaconess Medical Center, Harvard Medical School); Vitkin, Edward (Beth Israel Deaconess Medical Center, Harvard Medical School); Hanlon, Eugene (U. S. Department of Veterans Affairs); Itzkan, Irving (Beth Israel Deaconess Medical Center, Harvard Medical School); Perelman, Lev\* (Beth Israel Deaconess Medical Center, Harvard Medical School)*

17:40-17:55 ThE07.4  
**First-In-Human Clinical Trials of Imaging Devices: An Example from Optical Imaging** ..... 2001-2004  
*Gibbs-Strauss, Summer\* (Beth Israel Deaconess Medical Center); Rosenberg, Mireille (Gumiane Associates LLC); Clough, Barbara (Beth Israel Deaconess Medical Center); Troyan, Susan (Beth Israel Deaconess Medical Center); John, Frangioni (Beth Israel Deaconess Medical Center)*

17:55-18:10 ThE07.5  
**Cancer Imaging and Therapy with Metal Nanoparticles** ..... 2005-2007  
*Sokolov, Konstantin\* (The UT M.D. Anderson Cancer Center)*

ThE08: 16:40-18:10 Marquette VIII  
**11.2.1 Biomedical Engineering Education** (Oral Session)  
**Chair:** Jorge E. Monzon, *Univ. Nacional del Nordeste*  
**Co-Chair:** Willis J. Tompkins, *Univ. of Wisconsin - Madison*

16:40-17:10 ThE08.1  
**Software for Biomedical Engineering Signal Processing Laboratory Experiments** ..... 2008-2010  
*Tompkins, Willis J.\* (University of Wisconsin - Madison); Wilson, J. Adam (University of Wisconsin-Madison)*

17:10-17:25 ThE08.2  
**Ethics and Biomedical Engineering Education: The Continual Defiance** ..... 2011-2014  
*Monzon, Jorge E.\* (Universidad Nacional del Nordeste);*  
*Monzon-Wyngaard, Alvaro (Universidad Nacional del Nordeste)*

17:25-17:40 ThE08.3  
**Honors Biomedical Instrumentation – a Course Model for Accelerated Design** ..... 2015-2018  
*Madhok, Jai\* (Johns Hopkins School of Medicine); Smith, Ryan J (The Johns Hopkins University);*  
*Thakor, Nitish (Johns Hopkins University)*

17:40-17:55 ThE08.4  
**Real-Time Development of Data Acquisition and Analysis Software for Hands-On Physiology Education in Neuroscience: G-PRIME** ..... 2019-2021  
*Lott, Gus\* (Howard Hughes Medical Institute); Bonow, Robert (Cornell University); land, bruce (cornell univ); Johnson, Bruce (Cornell University)*

17:55-18:10 ThE08.5  
**Global Engineering Education Initiative through Student Organization** ..... 2022-2024  
*Sagstetter, Ann\* (University of Wisconsin-Madison); Vitzthum, Lucas (University of Wisconsin); Meyer, Jonathan (University of Wisconsin-Madison); Nimunkar, Amit (University of Wisconsin-Madison); Webster, John (University of Wisconsin Madison)*

ThE09: 16:40-18:10 Marquette II  
**5.9.1 Heart-Brain Connections** (Oral Session)  
**Chair:** Kenji Sunagawa, *Kyushu University*  
**Co-Chair:** Maneesh Shrivastav, *Medtronic / Univ. of Minnesota*

16:40-16:55 ThE09.1  
**Effects of Electrical Stimulation of the Carotid Sinus Baroreflex Using the Rheos® Device on Ventricular-Vascular Coupling and Myocardial Efficiency Assessed by Pressure-Volume Relations in Non-Vagotomized Anesthetized Dogs** ..... 2025-2029  
*Georgakopoulos, Dimitrios\* (CVRx Inc.); Wagner, Darrell (CVRx Inc.); Cates, Adam (CVRx Inc.); Irwin, Eric (CVRx Inc); Lovett, Eric (CVRx)*

16:55-17:10 ThE09.2  
**Feedback Control of Multiple Hemodynamic Variables with Multiple Cardiovascular Drugs** ..... 2030-2032  
*Sugimachi, Masaru\* (Nat'l Cardio Center Research Inst); UEMURA, KAZUNORI (National Cardio. Center Research Inst); Kamiya, Atsunori (National Cardiovascular Center Research Institute); Shimizu, Shuji (National Cardiovascular Center Research Institute); Shishido, Toshiaki (National Cardiovascular Center Research Institute)*

17:10-17:25 ThE09.3  
**Spinal Cord Stimulation for Complex Regional Pain Syndrome** ..... 2033-2036  
*Shrivastav, Maneesh\* (Medtronic / University of Minnesota); Musley, Shailesh (Medtronic)*

17:25-17:40 ThE09.4  
**Chronic Vagal Stimulation in Patients with Congestive Heart Failure** ..... 2037-2039  
*De Ferrari, Gaetano M.\* (Fondazione IRCCS Policlinico San Matteo); Sanzo, Antonio (Fondazione IRCCS Policlinico San Matteo and University of Pavia); Schwartz, Peter J. (Fondazione IRCCS Policlinico San Matteo and UniversityofPavia)*

17:40-17:55 ThE09.5  
**Mechanisms of Blood Pressure Reduction by Prolonged Activation of the Baroreflex** ..... 2040-2042  
*Iliescu, Radu\* (University of Mississippi Medical Center); Lohmeier, Thomas E. (University of Mississippi Medical Center)*

17:55-18:10 ThE09.6  
**Bionic Autonomic Neuromodulation Revolutionizes Cardiology in the 21st Century** ..... 2043-2045  
*Sunagawa, Kenji\* (Kyushu University)*

ThE10: 16:40-18:10 Grand Ballroom - Salon C  
**6.2.2 Neural Microsystems II** (Oral Session)  
**Chair:** Robert Butera, *Georgia Inst. of Tech.*  
**Co-Chair:** Arthur Erdman, *Univ. of Minnesota*

16:40-16:55 ThE10.1  
**A Microelectrode Array Incorporating An Optical Waveguide Device for Stimulation and Spatiotemporal Electrical Recording of Neural Activity** ..... 2046-2049  
*Zhang, Jiayi (Brown University); Laiwalla, Farah\* (Brown University); Kim, Jennifer (Brown University); URABE, HAYATO (Brown University); Van Wagenen, Rick (Blackrock Microsystems); Song, Yoon-Kyu (Brown University); Connors, Barry W (Brown University); Nurmikko, Arto (Brown University)*

16:55-17:10 ThE10.2  
**Exploiting the 1/f Structure of Neural Signals for the Design of Integrated Neural Amplifiers** ..... 2050-2053  
*Venkatraman, Subramaniam\* (University of California, Berkeley); Patten, Craig (Plexon Inc);*  
*Carmena, Jose M. (University of California, Berkeley)*

17:10-17:25 ThE10.3  
**IBCOM (Intra-Brain Communication) Microsystem: Wireless Transmission of Neural Signals within the Brain** ..... 2054-2057  
*Al-Ashmouny, Khaled\* (University of Michigan); Boldt, Chris (University of Minnesota); Ferguson, John (University of Minnesota); Erdman, Arthur (University of Minnesota); Redish, A. David (University of Minnesota); Yoon, Euisik (University of Michigan)*

17:25-17:40 ThE10.4  
**Aerial and Terrestrial Locomotion Control of Lift Assisted Insect Biobots** ..... 2058-2061  
*Bozkurt, Alper\* (Cornell University); Lal, Amit (Cornell University); Gilmour, Robert (Cornell University)*

17:40-17:55 ThE10.5  
**Titanium-Based Multi-Channel, Micro-Electrode Array for Recording Neural Signals** ..... 2062-2065  
*McCarthy, Patrick\* (Purdue University)*

17:55-18:10 ThE10.6  
**Validation of a Novel Three-Dimensional Electrode Array within Auditory Cortex** ..... 2066-2069  
*Langhals, Nicholas B.\* (University of Michigan); Kipke, Daryl (University of Michigan)*

ThE11: 16:40-18:10 Marquette I  
**6.12.1 Evoked Potentials** (Oral Session)  
**Chair:** Daniel J. Strauss, *Comp. Diagn. & Biocyb. Unit*  
**Co-Chair:** Yukio Kosugi, *Tokyo Inst. of Tech.*

16:40-16:55 ThE11.1  
**Activity Detection and Causal Interaction Analysis among Independent EEG Components from Memory Related Tasks** ..... 2070-2073  
*Michalopoulos, Kostas (Technical University of Crete); Sakkalis, Vangelis\* (ICS-FORTH); Iordanidou, Vasiliki (Technical University of Crete); Zervakis, Michalis (Technical University of Crete, Greece)*

16:55-17:10 ThE11.2  
**A Series of Notched-Noise Embedded Chirps for Objective Frequency Specific Hearing Examinations** ..... 2074-2077  
*Corona-Strauss, Farah I.\* (Saarland University Hospital); Delb, Wolfgang (Saarland University Hospital); Schick, Bernhard (Saarland University Hospital); Strauss, Daniel J. (Comp. Diagn. & Biocyb. Unit)*

17:10-17:25 ThE11.3  
**On the Cognitive Neurodynamics of Listening Effort: A Phase Clustering Analysis of Large-Scale Neural Correlates** ..... 2078-2081  
*Strauss, Daniel J.\* (Comp. Diagn. & Biocyb. Unit); Corona-Strauss, Farah I. (Saarland University Hospital); Bernarding, Corinna (Computational Diagnostics & Biocybernetics Unit); Latzel, Matthias (SIEMENS Audiology); Froehlich, Matthias (CDB-Unit)*

17:25-17:40 ThE11.4  
**Real-Time Somatosensory Evoked Potential Monitoring Using FPGA-Based Adaptive Filter** ..... 2082-2085  
*zhang, Yuqi (The University of Hong Kong); Cui, Hongyan (Chinese Academy of Medical Sciences); Zhang, Zhiguo (The University of Hong Kong); Xie, XB (Institute of Biomedical Engineering, Chinese Academy Of Medical Sciences and Peking Union Medical College); Hu, Yong\* (The University of Hong Kong)*

17:40-17:55 ThE11.5  
**A Comparative Study of Recording Procedures for Motor Evoked Potential Signals** ..... 2086-2089  
*Agrawal, Gracee\* (Johns Hopkins University); Iyer, Shrivats (Johns Hopkins University); All, Angelo (Johns Hopkins University,)*

ThE12: 16:40-18:10	Marquette VI
<b>7.1.1 Tissue Engineering</b> (Oral Session)	
<b>Chair:</b> Wei Shen, <i>Univ. of Minnesota</i>	
<b>Co-Chair:</b> Michael Cho, <i>Univ. of Illinois</i>	

16:40-16:55	ThE12.1
<b>Controlling Cellular Biomechanics of Human Mesenchymal Stem Cells</b> .....	<b>2090-2093</b>
<i>Titushkin, Igor* (University of Illinois at Chicago); Cho, Michael (University of Illinois)</i>	
16:55-17:10	ThE12.2
<b>Tuning Hydrogel Properties for Applications in Tissue Engineering</b> .....	<b>2094-2096</b>
<i>Burdick, Jason* (University of Pennsylvania)</i>	
17:10-17:25	ThE12.3
<b>Device for the Control of Oxygen Concentration in Multiwell Cell Culture Plates</b> .....	<b>2097-2100</b>
<i>Oppegard, Shawn (University of Illinois at Chicago); Eddington, David* (University of Illinois at Chicago)</i>	
17:25-17:40	ThE12.4
<b>Designer Protein-Based Scaffolds for Neural Tissue Engineering</b> .....	<b>2101-2102</b>
<i>Straley, Karin (Stanford University); Heilshorn, Sarah* (Stanford University)</i>	
17:40-17:55	ThE12.5
<b>Temporal and Spatial Control Over Soluble Protein Signaling for Musculoskeletal Tissue Engineering</b> .....	<b>2103-2105</b>
<i>Murphy, William* (University of Wisconsin)</i>	
17:55-18:10	ThE12.6
<b>Upstream Mechanotaxis Behavior of Endothelial Cells</b> .....	<b>2106-2110</b>
<i>Song, Sukhyun (Korea Advanced Institute of Science and Technology); Kim, Minah (Korea Advanced Institute of Science and Technology); Shin, Jennifer Hyunjong* (KAIST)</i>	

ThE13: 16:40-18:10	Conrad D
<b>8.5.1 Interactive Control of Powered Lower Limb Prostheses</b> (Oral Session)	
<b>Chair:</b> Eric Perreault, <i>Northwestern Univ.</i>	
<b>Co-Chair:</b> Daniel Ferris, <i>Univ. of Michigan</i>	

16:40-16:55	ThE13.1
<b>Toward the Development of a Neural Interface for Lower Limb Prosthesis Control</b> .....	<b>2111-2114</b>
<i>Hargrove, Levi* (Rehabilitation Institute of Chicago); Huang, He (University of Rhode Island); Schultz, Aimee (Rehabilitation Institute of Chicago); Lock, Blair (Rehabilitation Institute of Chicago); Lipschutz, Robert (Rehabilitation Institute of Chicago); Kuiken, Todd (Rehabilitation Institute of Chicago)</i>	
16:55-17:10	ThE13.2
<b>Control Strategy for Stabilizing Force with Goal-Equivalent Joint Torques Is Frequency-Dependent During Human Hopping</b> .....	<b>2115-2118</b>
<i>Yen, Jasper (Georgia Institute of Technology); Chang, Young-Hui* (Georgia Institute of Technology)</i>	
17:10-17:25	ThE13.3
<b>Robotic Lower Limb Exoskeletons Using Proportional Myoelectric Control</b> .....	<b>2119-2124</b>
<i>Ferris, Daniel* (University of Michigan); Lewis, Cara (University of Michigan)</i>	
17:25-17:40	ThE13.4
<b>Phase-Based Control of the Central Pattern Generator for Locomotion</b> .....	<b>2125-2128</b>
<i>Vogelstein, R. Jacob* (Johns Hopkins University); Etienne-Cummings, Ralph (Johns Hopkins University); Cohen, Avis (University of Maryland College Park)</i>	
17:40-17:55	ThE13.5
<b>Slacking by the Human Motor System: Computational Models and Implications for Robotic Orthoses</b> .....	<b>2129-2132</b>
<i>Reinkensmeyer, David* (University of California); Akoner, Mine (University of California at Irvine); Ferris, Daniel (University of Michigan); Gordon, Keith (Rehabilitation Institute of Chicago)</i>	

ThE14: 16:40-18:10

Marquette III

**9.1.1 Muscle and Nerve Stimulation** (Oral Session)

**Chair:** George O'Clock, *Univ. of Minnesota*

**Co-Chair:** David Guiraud, *INRIA*

16:40-16:55

ThE14.1

**Electrotherapeutic Device/Protocol Design Considerations for Visual Disease Applications** ..... 2133-2136

*O'Clock, George\* (University of Minnesota); Jarding, John (Acuity Medical Inc.)*

16:55-17:10

ThE14.2

**Neuro-Muscular Electrical Stimulation Training Enhances Maximal Aerobic Capacity in Healthy Physically Active Adults** ..... 2137-2140

*Crognale, Domenico (University College Dublin); Crowe, Louis (University College Dublin); devito, giuseppe (University College Dublin); Minogue, Conor M (Biomedical Research Ltd); Caulfield, Brian\* (UCD)*

17:10-17:25

ThE14.3

**Low Intensity Pulsed Ultrasound Increases the Mechanical Properties of the Healing Tissues at Bone-Tendon Junction** ..... 2141-2144

*Lu, Tracy Minhua\* (Shenzhen University); Zheng, Yongping (The Hong Kong Polytechnic University); Huang, Qinghua (South China University of Technology); Lu, Hong Bin (The Chinese University of Hong Kong); Qin, Ling (The Chinese University of Hong Kong)*

17:25-17:40

ThE14.4

**Development of a Multi – Electrode Electrical Stimulation Device to Improve Chronic Wound Healing** ..... 2145-2148

*Weber, Sonja\* (University of Ulster); Vonhoff, Philipp Alexis (University of Ulster); Owens, Frank (University of Ulster); Byrne, John Anthony (University of Ulster); McAdams, Eric (University of Ulster)*

17:40-17:55

ThE14.5

**A Hemodynamic Study of Popliteal Vein Blood Flow: The Effect of Bed Rest and Electrically Elicited Calf Muscle Contractions** ..... 2149-2152

*Broderick, Barry\* (National University of Ireland Galway); O'Briain, David E. (Department of Surgery, National University of Ireland, Galway, University Road, Galway, Ireland and Galway University Hospitals,); Breen, Paul (National University of Ireland Galway); Kearns, Stephen R. (National University of Ireland, Galway, University Road, Galway, Ireland and Galway University Hospitals, Galway, Ireland.); O'Laighin, Gearoid (National University of Ireland Galway)*

17:55-18:10

ThE14.6

**Design and Analysis of a Transcutaneous Telemetry Device for Brain Stimulator** ..... 2153-2156

*Wang, Weiming (Tsinghua University); Hao, Hongwei\* (Tsinghua University); Ma, Bozhi (Tsinghua University); Liu, FangJun (Tsinghua University); Hu, Chunhua (Tsinghua University); Li, Luming (Tsinghua University)*

ThE15: 16:40-18:10

Marquette IX

**10.3.1 Enterprise-Wide Image Management** (Oral Session)

**Chair:** Seong Mun, *Virginia Tech.*

**Co-Chair:** Elliot B. Sloane, *CHIRP*

16:40-16:55

ThE15.1

**Potential Impact of HITECH Security Regulations on Medical Imaging** ..... 2157-2160

*Prior, Fred\* (Washington University School of Medicine); Ingeholm, Mary Lou (Georgetown University); Levine, Betty (Georgetown University); Tarbox, Lawrence (Washington University in St. Louis, School of Medicine)*

16:55-17:10

ThE15.2

**Conversion to Use of Digital Chest Images for Surveillance of Coal Workers' Pneumoconiosis (Black Lung)** ..... 2161-2163

*Levine, Betty (Georgetown University); Ingeholm, Mary Lou (Georgetown University); Prior, Fred (Washington University School of Medicine); Mun, Seong\* (Virginia Tech); Freedman, Matthew Thomas (Georgetown University Medical Center); Weissman, David (National Institute for Occupational Safety and Health); Attfield, Michael (National Institute for Occupational Safety and Health Mailing); Wolfe, Anita (NIOSH); Petsonk, Edward (West Virginia University School of Medicine)*

17:10-17:25	ThE15.3
<b>Network Collaborative Environment Supporting 3D Medicine</b> .....	<b>2164-2167</b>
<i>Krsek, Premysl* (Brno University of Technology, Faculty of Information Technology)</i>	
17:25-17:40	ThE15.4
<b>EIR: Enterprise Imaging Repository, an Alternative Imaging Archiving and Communication System</b> .....	<b>2168-2171</b>
<i>Bian, Jiang* (University of Arkansas for Medical Sciences); Topaloglu, Umit (University of Arkansas for Medical Sciences); Lane, Cheryl (University of Arkansas for Medical Sciences)</i>	
17:40-17:55	ThE15.5
<b>Comparison of Some Reversible Watermarking Methods in Application to Medical Images</b> .....	<b>2172-2175</b>
<i>Pan, Wei (Telecom Bretagne); Coatrieux, Gouenou* (ENST Bretagne - Inserm); Montagner, Julien (INSERM ; GET ENST Bretagne); Cuppens, Nora (Telecom Bretagne); Cuppens, Frédéric (Telecom Bretagne); Roux, Christian (TELECOM Bretagne - INSERM)</i>	
17:55-18:10	ThE15.6
<b>Agitation and Pain Assessment Using Digital Imaging</b> .....	<b>2176-2179</b>
<i>Gholami, Behnood* (Georgia Institute of Technology); Haddad, Wassim (Georgia Institute of Technology); Tannenbaum, Allen (Georgia Institute of Technology)</i>	

ThE16: 16:40-18:10	Grand Ballroom - Salon A
<b>S 1. Medical Device and Healthcare Industry: Trends and Opportunities II</b> (Special Symposium)	
<b>Chair:</b> Robert Tranquillo, <i>Univ. of Minnesota</i>	
<b>Co-Chair:</b> Bin He, <i>Univ. of Minnesota</i>	

16:40-17:10	ThE16.1
<b>Strategic Choices in Remote Patient Monitoring Platforms</b> .....	*
<i>LaLonde, John (Boston Scientific Cardiac Rhythm Management)</i>	
17:10-17:40	ThE16.2
<b>Creating Healthier Hearts: The Future of Cardiovascular Device Therapies</b> .....	*
<i>Bergman, Rebecca M. (Medtronic CRDM)</i>	
17:40-18:10	ThE16.3
<b>The FDA: Regulators Leading Safety and Innovation</b> .....	*
<i>Sackner-Bernstein, Jonathan (Center for Devices and Radiologic Health, FDA)</i>	

ThE18: 16:40-18:10	Marquette IV
<b>1.2.7 Neural Signal Processing</b> (Oral Session)	
<b>Chair:</b> Nitish Thakor, <i>Johns Hopkins Univ.</i>	
<b>Co-Chair:</b> Justin Dauwels, <i>MIT</i>	

16:40-16:55	ThE18.1
<b>Localization of Seizure Onset Area from Intracranial Non-Seizure EEG by Exploiting Locally Enhanced Synchrony</b> .....	<b>2180-2183</b>
<i>Dauwels, Justin* (MIT); Cash, Sydney (Massachusetts General Hospital); Eskandar, Emad (Massachusetts General Hospital)</i>	
16:55-17:10	ThE18.2
<b>A Robust Spike and Wave Algorithm for Detecting Seizures in a Genetic Absence Seizure Model</b> .....	<b>2184-2187</b>
<i>Xanthopoulos, Petros (University of Florida); Liu, Chang-Chia (Johns Hopkins University); Zhang, Jicong* (University of Florida); Nair, Sandeep (University of Florida); Pardalos, Panos (University of Florida); Uthman, Basim M. (University of Florida)</i>	
17:10-17:25	ThE18.3
<b>Directed Information Measure for Quantifying the Information Flow in the Brain</b> .....	<b>2188-2191</b>
<i>Liu, Ying* (Michigan State University); Aviyente, Selin (Michigan State University)</i>	

17:25-17:40 ThE18.4  
**Scaling Exponents of EEG Are Related to the Temporal Process of the Therapeutic Hypothermia Following Ischemic Brain Injury** ..... 2192-2195  
*Jiang, Dineng (Shanghai Jiao Tong University); Wu, Wenqing (Shanghai Jiao Tong University); Jia, Xiaofeng (Johns Hopkins School of Medicine); Qiu, Yihong\* (Shanghai Jiao Tong University); Zhu, Yisheng (Shanghai Jiaotong University); Thakor, Nitish (Johns Hopkins University); Tong, Shanbao (Shanghai Jiao Tong University)*

17:40-17:55 ThE18.5  
**Long-Term Assessment of Post-Cardiac-Arrest Neurological Outcomes with Somatosensory Evoked Potential in Rats** ..... 2196-2199  
*Kang, Xiaoxu (Johns Hopkins University); Koenig, Matthew (Johns Hopkins School of Medicine); Xiong, Wei (Johns Hopkins University); Puttgen, Hans Adrian (Johns Hopkins University); Jia, Xiaofeng (Johns Hopkins School of Medicine); Geocadin, Romergryko (Johns Hopkins University); Thakor, Nitish\* (Johns Hopkins University)*

17:55-18:10 ThE18.6  
**Automatic Recognition of Postures and Activities in Stroke Patients** ..... 2200-2203  
*Sazonov, Edward\* (Clarkson University); Fulk, George (Clarkson University); Sazonova, Nadezhda (Clarkson University); Schuckers, Stephanie (Clarkson University)*

ThBPL1: 19:40-20:10 Grand Ballroom  
**Plenary Lecture II**  
**Chair:** Bin He, *Univ. of Minnesota*

19:40-20:10 ThBPL1.1  
**The History of Short-Term and Long-Term Pacing** ..... \*  
*Bakken, Earl\* (Medtronic, Inc.)*

**Friday, 4 September 2009**

FrPL1: 08:30-09:30 Grand Ballroom - Salon D  
**Conference Keynote Lecture**  
**Chair:** Yongmin Kim, *Univ. of Washington*

08:30-09:30 FrPL1.1  
**Use of New Nanotechnology-based DNA Sequencing Technologies to Illuminate Cellular Regulation and Defense** ..... \*  
*Fire, Andrew Zachary\* (Stanford University School of Medicine)*

FrKN2L: 09:40-11:10 Grand Ballroom - Salon A  
**Theme Keynote II**  
**Chair:** Xiaochuan Pan, *Univ. of Chicago*

09:40-10:25 FrKN2L.1  
**Imaging and Optical Biopsy Using Optical Coherence Tomography** ..... \*  
*Fujimoto, James G.\* (Massachusetts Institute of Technology)*

10:25-11:10 FrKN2L.2  
**Photoacoustic Tomography: High-resolution in vivo Imaging of Optical Contrast at New Depths** ..... \*  
*Wang, Lihong\* (Washington University in St. Louis)*

FrA01: 09:40-11:10 Conrad B  
**1.8.1 Coupling and Synchronizations (Oral Session)**  
**Chair:** Shangkai Gao, *Tsinghua Univ.*  
**Co-Chair:** Fabio Babiloni, *Univ. of Rome*

09:40-09:55 FrA01.1  
**Analysis of the Connection Redundancy in Functional Networks from High-Resolution EEG: A Preliminary Study** ..... 2204-2207  
*Babiloni, Fabio\* (University of Rome); De Vico Fallani, Fabrizio (Universita' La Sapienza); Astolfi, Laura (University of Rome); Vecchiato, Giovanni (University of Rome Sapienza); Salinari, Serenella (La Sapienza University); Mattia, Donatella (Fondazione Santa Lucia IRCCS)*



09:55-10:10	FrA01.2
<b>Study of the Time-Varying Cortical Connectivity Changes During the Attempt of Foot Movements by Spinal Cord Injured and Healthy Subjects</b> .....	<b>2208-2211</b>
<i>Astolfi, Laura* (University of Rome); De Vico Fallani, Fabrizio (Universita' La Sapienza); Salinari, Serenella (La Sapienza University); Witte, Herbert (Friedrich Schiller University); Babiloni, Fabio (University of Rome)</i>	
10:10-10:25	FrA01.3
<b>Default Network and Intelligence Difference</b> .....	<b>2212-2215</b>
<i>Song, Ming (chinese academy of sciences); Liu, Yong (chinese academy of sciences); Zhou, Yuan (chinese academy of sciences); Wang, Kun (chinese academy of sciences); Yu, Chunshui (Xuanwu hospital of capital medical university); Jiang, Tianzi* (Institute of Automation)</i>	
10:25-10:40	FrA01.4
<b>Influences of Bilateral Ischemic Stroke on the Cortical Synchronization</b> .....	<b>2216-2219</b>
<i>Wu, Wenqing (Shanghai Jiao Tong University); Jin, Zheng (the 5th People's Hospital of Shanghai); Qiu, Yihong (Shanghai Jiao Tong University); Zhu, Yisheng (Shanghai Jiaotong University); Li, Yingjie* (Shanghai University); Tong, Shanbao (Shanghai Jiao Tong University)</i>	
10:40-10:55	FrA01.5
<b>Analysis of Epileptogenic Network Properties During Ictal Activity</b> .....	<b>2220-2223</b>
<i>Wilke, Christopher* (University of Minnesota); Worrell, Gregory A. (Mayo Clinic); He, Bin (University of Minnesota)</i>	
10:55-11:10	FrA01.6
<b>EEG Synchrony Analysis for Early Diagnosis of Alzheimer's Disease: A Study with Several Synchrony Measures and EEG Data Sets</b> .....	<b>2224-2227</b>
<i>Dauwels, Justin* (MIT); Vialatte, Francois (RIKEN Brain Science Institute); Cichocki, Andrzej (BSI RIKEN); Jeong, Jaeseung (KAIST); Latchoumane, Charles (KAIST)</i>	
FrA02: 09:40-11:10	Conrad C
<b>1.4.6 Biomedical Signal Classification V (Oral Session)</b>	
<b>Chair:</b> Olivier Meste, UNSA-CNRS	
09:40-09:55	FrA02.1
<b>Midpoint-Based Empirical Decomposition for Nonlinear Trend Estimation</b> .....	<b>2228-2231</b>
<i>He, Qingbo* (University of Connecticut); Gao, Robert X. (University of Massachusetts Amherst); Freedson, Patty (University of Massachusetts Amherst)</i>	
09:55-10:10	FrA02.2
<b>Mu Rhythm Desynchronization Detection Based on Empirical Mode Decomposition</b> .....	<b>2232-2235</b>
<i>Wan, Bai-kun (Tianjin University); Ming, Dong* (Tianjin University)</i>	
10:10-10:25	FrA02.3
<b>Empirical Mode Decomposition to Assess Baroreflex Gain from Spontaneous Variability During Exercise in Humans</b> .....	<b>2236-2239</b>
<i>Magagnin, Valentina* (Istituto Ortopedico IRCCS Galeazzi); Bassani, Tito (Politecnico di Milano); Lucini, Daniela (Università degli studi di Milano); Pagani, Massimo (Università degli studi di Milano); Caiani, Enrico (Polytechnic of Milan); Cerutti, Sergio (Politecnico di Milano); Porta, Alberto (Università degli Studi di Milano)</i>	
10:25-10:40	FrA02.4
<b>Cardiogenic Oscillations Extraction in Inductive Plethysmography: Ensemble Empirical Mode Decomposition</b> .....	<b>2240-2243</b>
<i>Abdulhay, Enas* (Université Joseph Fourier); Gumery, Pierre-Yves (université joseph fourier); Fontecave Jallon, Julie (Université Joseph Fourier); Baconnier, Pierre (Université Joseph Fourier)</i>	
10:40-10:55	FrA02.5
<b>Empirical Mode Decomposition (EMD) Analysis of HRV Data from Locally Anesthetized Patients</b> .....	<b>2244-2247</b>
<i>Shafqat, Kamran* (City University); Kyriacou, Panayiotis (City University); Kumari, Santhi (Broomfield Hospital); Pal, Sandip (Broomfield Hospital)</i>	

10:55-11:10 FrA02.6  
**Complexity Analysis of Pathological Voices by Means of Hidden Markov Entropy Measurements** ..... 2248-2251  
*Arias-Londoño, Julián David\** (Universidad Nacional de Colombia sede Manizales); *Godino-Llorente, Juan Ignacio* (Universidad Politécnica de Madrid); *Castellanos-Dominguez, Germán* (Universidad Nacional de Colombia); *Sáenz-Lechón, Nicolás* (Universidad Politécnica de Madrid); *Osma-Ruíz, Víctor* (Universidad Politécnica de Madrid)

FrA03: 09:40-11:10 Grand Ballroom - Salon B

**2.2.1 Biomedical Acoustic Imaging I** (Oral Session)

**Chair:** Emad Ebbini, *Univ. of Minnesota*

09:40-09:55 FrA03.1  
**Liver Elasticity and Viscosity Quantification Using Shearwave Dispersion Ultrasound Vibrometry (SDUV)** ..... 2252-2255  
*Chen, Shigao\** (Mayo Clinic College of Medicine); *Urban, Matthew* (Mayo Clinic College of Medicine); *pislaru, Cristina* (Mayo Clinic College of Medicine); *Kinnick, Randy* (Mayo Clinic); *Greenleaf, James* (Mayo Clinic)

09:55-10:10 FrA03.2  
**A Reduced Multiplier Beamformer Architecture for Ultrasound Imaging Systems** ..... 2256-2259  
*Magee, David\** (Texas Instruments); *Ali, Murtaza* (Texas Instruments)

10:10-10:25 FrA03.3  
**Experimental Characterization of a Vector Doppler System Based on a Clinical Ultrasound Scanner** ..... 2260-2263  
*Eranki, Avinash\** (George Mason University); *Sikdar, Siddhartha* (George Mason University)

10:25-10:40 FrA03.4  
**Optimization of Doppler Velocity Echocardiographic Measurements Using an Automatic Contour Detection Method** ..... 2264-2267  
*Gaillard, Emmanuel\** (IRCM); *Kadem, Lyes* (Concordia University); *Pibarot, Philippe* (Laval University); *Durand, Louis-Gilles* (IRCM)

10:40-10:55 FrA03.5  
**Estimating Vascular Volume Fraction in a Network of Small Blood Vessels with High-Frequency Power Doppler Ultrasound** ..... 2268-2271  
*Pinter, Stephen Z.\** (University of Western Ontario); *Lacefield, James C.* (University of Western Ontario)

10:55-11:10 FrA03.6  
**Tissue Vibration Pulsatility for Arterial Bleeding Detection Using Doppler Ultrasound** ..... 2272-2275  
*Xie, Zhiyong* (University of Washington); *Kim, Eung-Hun* (University of Washington); *Kim, Yongmin\** (University of Washington)

FrA04: 09:40-11:10 Duluth Room

**2.5.4 Electrical Source and Impedance Imaging** (Oral Session)

**Chair:** Eung Je Woo, *Kyung Hee Univ.*

**Co-Chair:** Rosalind Sadleir, *Univ. of Florida*

09:40-09:55 FrA04.1  
**Magnetic Flux Density Measurement with Balanced Steady State Free Precession Pulse Sequence for MREIT: A Simulation Study** ..... 2276-2278  
*Woo, Eung Je\** (Kyung Hee University); *Lee, Soo Yeol* (Kyung Hee University); *Minhas, Atul S.* (Kyung Hee University)

09:55-10:10 FrA04.2  
**Experimental Setup for Developing Acousto-Electric Interaction Imaging** ..... 2279-2283  
*Gendron, Mathieu\** (Ecole Polytechnique de Montreal); *Guardo, Robert* (Ecole Polytechnique de Montréal); *Bertrand, Michel* (Ecole Polytechnique)

10:10-10:25 FrA04.3  
**Implementation of a Fast Reconfigurable Array for Tissue Impedance Characterization** ..... 2284-2287  
*Habibi, Mohammad* (University of Wisconsin - Milwaukee); *Klemer, David\** (University of Wisconsin - Milwaukee); *Raicu, Valerica* (University of Wisconsin - Milwaukee)

10:25-10:40 FrA04.4  
**An Ultra-Wideband Microwave Tomography System: Preliminary Results** ..... 2288-2291  
*Gilmore, Colin\* (University of Manitoba); Mojabi, Puyan (University of Manitoba); Zakaria, Amer (University of Manitoba); Ostadrahimi, Majid (University of Manitoba); Kaye, Cameron (University of Manitoba); Noghanian, Sima (University of North Dakota); Shafai, Lotfollah (University of Manitoba); Pistorius, Stephen (CancerCare Manitoba / University of Manitoba); LoVetri, Joe (University of Manitoba)*

10:40-10:55 FrA04.5  
**Electromagnetic Forward and Inverse Problems of Non-Rotating Magnetoacoustic Tomography with Magnetic Induction** ..... 2292-2295  
*zhang, yang\* (Electrical Engineering Institute of Chinese Academy of Sciences); Liu, Guoqiang (Chinese Academy of Sciences)*

10:55-11:10 FrA04.6  
**Development of a Realistic Head Model for EEG Event-Detection and Source Localization in Newborn Infants** ..... 2296-2299  
*Despotovic, Ivana\* (Gent University)*

FrA05: 09:40-11:10 Marquette IV & V  
**SS 7. Stimulus Funding – and the Impact on the Medical and Biological Engineering Enterprise**  
(Special Session)  
**Chair:** Benjamin Corb, *American Inst. for Medical and Biological Engrg*

FrA06: 09:40-11:10 Conrad A  
**3.1.2 Acoustic, Mechanical and Bioelectrical Sensors** (Oral Session)  
**Chair:** Victor Lubecke, *Univ. of Hawaii Manoa*  
**Co-Chair:** Mike McShane, *Texas A&M Univ.*

09:40-09:55 FrA06.1  
**Experimental Validation of a Tactile Sensor Model for a Robotic Hand** ..... 2300-2303  
*Yahud, Shuhaida\* (UNSW); Dokos, Socrates (University of New South Wales); Morley, John William (University of Western Sydney); Lovell, Nigel H (University of New South Wales)*

09:55-10:10 FrA06.2  
**Investigation of Acoustic Radiation Force for Radio-Protecting Normal Tissues During Radiation Therapy** ..... 2304-2307  
*Yan, Kaiguo\* (Thomas Jefferson University); Wachsberger, Phyllis (Thomas Jefferson University); Yu, Yan (Thomas Jefferson University Hospital)*

10:10-10:25 FrA06.3  
**Characterization of the Sensitivity of a TCB Laplacian Sensor for Surface EEnG Recordings** ..... 2308-2311  
*Garcia-Casado, Javier\* (Universidad Politécnica de Valencia); Prats-Boluda, Gema (Centro de investigación e Innovación en Bioingeniería); Perez, Juan J (Polytechnic University of Valencia); Martinez-de-Juan, Jose Luis (Centro de investigación e Innovación); Ye Lin, Yiyao (Universidad Politécnica de Valencia)*

10:25-10:40 FrA06.4  
**Pulse Wave Sensor for Non-Intrusive Driver's Drowsiness Detection** ..... 2312-2315  
*Hu, Shan\* (University of Minnesota Duluth); Bowlds, Ryan (University of Minnesota Duluth); Gu, Ye (University of Minnesota Duluth); Yu, Xun (University of Minnesota Duluth)*

10:40-10:55 FrA06.5  
**A 1.0 V 78  $\mu$  W Reconfigurable ASIC Embedded in an Intelligent Electrode for Continuous Remote ECG Applications** ..... 2316-2319  
*Yang, Geng\* (KTH); Chen, Jian (KTH); Jonsson, Fredrik (KTH); Tenhunen, Hannu (KTH); Zheng, Li-Rong (KTH)*

10:55-11:10 FrA06.6  
**Objective Skill Analysis and Assessment in Neurosurgery by Using an Ultra-Miniaturized Inertial Measurement Unit WB-3 - Pilot Tests** ..... 2320-2323  
*Lin, Zhuohua\* (Waseda University); Zecca, Massimiliano (Waseda University); Sessa, Salvatore (Waseda University); Sasaki, Tomoya (Waseda University); Suzuki, Takashi (Tokyo Women's Medical University); Itoh, Kazuko (Waseda University); Iseki, Hiroshi (Tokyo Women's Medical University); Takanishi, Atsuo (Waseda University)*

FrA08: 09:40-11:10 Marquette VIII  
**4.1.1 Structural Bioinformatics and Computational Proteomics (Oral Session)**  
**Chair:** Pengyu Ren, *University of Texas at Austin*  
**Co-Chair:** Jie Liang, *University of Illinois at Chicago*

09:40-09:55 FrA08.1  
**Geometry of Protein Shape and Its Evolutionary Pattern for Function Prediction and Characterization** ..... 2324-2327  
*Liang, Jie\* (University of Illinois at Chicago)*

09:55-10:10 FrA08.2  
**Trypsin-Ligand Binding Free Energy Calculation with AMOEBA** ..... 2328-2331  
*Shi, Yue (University of Texas at Austin); Jiao, Dian (University of Texas at Austin); Schnieders, Michael (Stanford University School of Medicine); Ren, Pengyu\* (University of Texas at Austin)*

10:10-10:25 FrA08.3  
**LOOS: An Extensible Platform for the Structural Analysis of Simulations** ..... 2332-2335  
*Romo, Tod (University of Rochester Medical and Dental School); Grossfield, Alan\* (University of Rochester Medical Center)*

10:25-10:40 FrA08.4  
**Mapping Drug-Target Interaction Networks** ..... 2336-2339  
*Tian, Longzhang (The University of Texas M. D. Anderson Cancer Center); Zhang, Shuxing\* (UT MD Anderson Cancer Center)*

10:40-10:55 FrA08.5  
**Elucidating membrane protein function through long-timescale molecular dynamics simulation** ..... 2340-2342  
*Dror, Ron O.\* (D. E. Shaw Research); Jensen, Morten Ø. (D. E. Shaw Research); Shaw, David E. (D. E. Shaw Research and Columbia University)*

10:55-11:10 FrA08.6  
**A Method for Analysis of Simultaneous Equations in Cell Models** ..... 2343-2346  
*Shimayoshi, Takao\* (ASTEM Research Institute of Kyoto); Amano, Akira (Ritsumeikan University); Matsuda, Tetsuya (Kyoto University)*

FrA09: 09:40-11:10 Marquette II  
**5.6.2 Cardiovascular Pulmonary Modeling (Computational) (Oral Session)**  
**Chair:** Masaru Sugimachi, *Natl Cardio Center Research Inst*  
**Co-Chair:** John K-J. Li, *Rutgers Univ.*

09:40-09:55 FrA09.1  
**Large-Scale Integrated Model Is Useful for Understanding Heart Mechanisms and Developments in Medical Therapy** ..... 2347-2350  
*Washio, Takumi\* (University of Tokyo); Okada, Jun-ichi (University of Tokyo); Sugiura, Seiryō (University of Tokyo); Hisada, Toshiaki (University of Tokyo)*

09:55-10:10 FrA09.2  
**Hemodynamic Models of Cerebral Aneurysms for Assessment of Effect of Vessel Geometry on Risk of Rupture** ..... 2351-2353  
*Avolio, Alberto\* (Macquarie University); Farnoush, Azadeh (Macquarie University); Morgan, Michael (Macquarie University); Qian, Yi (Macquarie University)*

10:10-10:25	FrA09.3
<b>Solution of the 'Inverse Problem of Diastole' Via Kinematic Modeling Allows Determination of Ventricular Properties and Provides Mechanistic Insights into Diastolic Heart Failure .....</b>	<b>2354-2357</b>
<i>Kovács, Sándor J* (Washington University in St Louis)</i>	
10:25-10:40	FrA09.4
<b>Simulation of Erythrocyte Deformation in a High Shear Flow .....</b>	<b>2358-2361</b>
<i>Nakamura, Masanori* (Osaka University); Bessho, Sadao (Osaka University); Wada, Shigeo (Osaka University)</i>	
10:40-10:55	FrA09.5
<b>Estimation of the Aortic Pressure Waveform from a Radial Artery Pressure Waveform Via an Adaptive Transfer Function: Feasibility Demonstration in Swine .....</b>	<b>2362-2364</b>
<i>Swamy, Gokul (Michigan State University); Xu, Da (Michigan State University); Mukkamala, Ramakrishna* (Michigan State University)</i>	
10:55-11:10	FrA09.6
<b>Macroscopic Two-Pump Two-Vasculature Cardiovascular Model to Support Treatment of Acute Heart Failure .....</b>	<b>2365-2368</b>
<i>Sugimachi, Masaru* (Natl Cardio Center Research Inst); Sunagawa, Kenji (Kyushu University); UEMURA, KAZUNORI (National Cardio. Center Research Inst); Kamiya, Atsunori (National Cardiovascular Center Research Institute); Shimizu, Shuji (National Cardiovascular Center Research Institute); Shishido, Toshiaki (National Cardiovascular Center Research Institute)</i>	

FrA10: 09:40-11:10	Grand Ballroom - Salon C
<b>6.3.3 Minisymposium: Neuromodulation</b>	
<b>Chair:</b> Dominique Durand, <i>Case Western Res. Univ.</i>	

09:40-10:10	FrA10.1
<b>Electrical Stimulation for Control of Bladder Function .....</b>	<b>2369-2370</b>
<i>Grill, Warren* (Duke University)</i>	
10:10-10:40	FrA10.2
<b>Clinical and Experimental Aspects of Deep Brain Stimulation .....</b>	<b>2371-2374</b>
<i>Kiss, Zelma* (University of Calgary)</i>	
10:40-11:10	FrA10.3
<b>Control of Seizure Activity by Electrical Stimulation: Effect of Frequency .....</b>	<b>2375</b>
<i>Durand, Dominique* (Case Western Reserve University)</i>	

FrA11: 09:40-11:10	Marquette I
<b>6.10.2 Virtual Reality in Rehabilitation (Oral Session)</b>	
<b>Chair:</b> Paolo Bonato, <i>Harvard Medical School</i>	
<b>Co-Chair:</b> Emily Keshner, <i>Temple Univ.</i>	

09:40-09:55	FrA11.1
<b>Real-Time Myoelectric Decoding of Individual Finger Movements for a Virtual Target Task .....</b>	<b>2376-2379</b>
<i>Smith, Ryan J* (The Johns Hopkins University); Huberdeau, David (The Johns Hopkins University); Tenore, Francesco (Johns Hopkins University); Thakor, Nitish (Johns Hopkins University)</i>	
09:55-10:10	FrA11.2
<b>Inductive Pointing Device for Tongue Control System for Computers and Assistive Devices .....</b>	<b>2380-2383</b>
<i>Lontis, Eugen Romulus* (Center for Sensory Motor Interaction, Aalborg University); Caltenco, Hector Alejandro (Aalborg University); Bentsen, Bo (Center for Sensory Motor Interaction, Aalborg University); Christensen, Henrik Vie (CISS, Aalborg University); Lund, Morten Enemark (Center for Sensory Motor Interaction, Aalborg University); Andreasen Struijk, Lotte N. S. (Aalborg University)</i>	
10:10-10:25	FrA11.3
<b>Dynamic Control of a Moving Platform Using the CAREN System to Optimize Walking Invirtual Reality Environments .....</b>	<b>2384-2387</b>
<i>El Makssoud, Hassan* (Laval University); Richards, Carol (Laval University); Comeau, François (CIRRIIS)</i>	

10:25-10:40	FrA11.4
<b>An Acceleration-Based Control Framework for Interactive Gaming</b> .....	<b>2388-2391</b>
<i>Wen, Tiexiang (Shenzhen Institute of Advanced Technology, Chinese AcademyOf Sciences); Wang, Lei (Shenzhen Institute of Advanced Technology); Gu, Jia* (Shenzhen Institute of Advanced Technology, ChineseAcademyOf Sciences); Huang, Bangyu (Shenzhen Institute of Advanced Technology)</i>	
10:40-10:55	FrA11.5
<b>Sensor Evaluation for Tracking Upper Extremity Prosthesis Movements in a Virtual Environment</b> .....	<b>2392-2395</b>
<i>Dinh, Anh* (University of Saskatchewan); Churko, Jonathan (University of Saskatchewan); Linassi, Angelo Gary (University of Saskatchewan)</i>	
10:55-11:10	FrA11.6
<b>Development and Verification of a VR Platform to Evaluate the Wayfinding Abilities</b> .....	<b>2396-2399</b>
<i>Jiang, Ching-Fen* (I-Shou University)</i>	

FrA12: 09:40-11:10	Marquette VI
<b>7.3.1 Biomaterials</b> (Oral Session)	
<b>Chair:</b> Chun Wang, <i>Univ. of Minnesota</i>	
<b>Co-Chair:</b> Shuming Nie, <i>Emory Univ.</i>	

09:40-09:55	FrA12.1
<b>Controlled Formulation of Doxorubicin-Polylactide Nanoconjugates for Cancer Drug Delivery</b> .....	<b>2400-2402</b>
<i>Cheng, Jianjun* (University of Illinois at Urbana-Champaign)</i>	
09:55-10:10	FrA12.2
<b>Nanoparticles for Tumor-Specific Intracellular Drug Delivery</b> .....	<b>2403-2405</b>
<i>Yeo, Yoon* (Purdue University); Xu, Peisheng (Purdue University)</i>	
10:10-10:25	FrA12.3
<b>Injectable Myocardial Matrix As a Scaffold for Myocardial Tissue Engineering</b> .....	<b>2406-2408</b>
<i>Singelyn, Jennifer (University of California, San Diego); DeQuach, Jessica (University of California, San Diego); Christman, Karen* (University of California, San Diego)</i>	
10:25-10:40	FrA12.4
<b>Novel Nano-Composite Biomaterials That Respond to Light</b> .....	<b>2409-2411</b>
<i>Burdick, Jason* (University of Pennsylvania)</i>	
10:40-10:55	FrA12.5
<b>Degradable Polymers for Gene Delivery</b> .....	<b>2412-2415</b>
<i>Sunshine, Joel (Johns Hopkins University School of Medicine); Bhise, Nupura (Johns Hopkins University School of Medicine); Green, Jordan* (Johns Hopkins University)</i>	
10:55-11:10	FrA12.6
<b>Biomaterial Considerations for Drug-Eluting Stents</b> .....	<b>2416-2417</b>
<i>Parsonage, Ed (Boston Scientific); Girton, Tim (Boston Scientific); Knapp, David* (Boston Scientific)</i>	

FrA13: 09:40-11:10	Conrad D
<b>8.1.1 Therapeutic Robotics for Restoration of Function: Upper Extremity</b> (Oral Session)	
<b>Chair:</b> James Patton, <i>Rehab Inst. of Chicago &amp; U. of Illinois at Chicago</i>	
<b>Co-Chair:</b> Eugenio Guglielmelli, <i>Campus Bio-Medico Univ.</i>	

09:40-09:55	FrA13.1
<b>Desirable Features of a "Humanoid" Robot-Therapist</b> .....	<b>2418-2421</b>
<i>Morasso, Pietro* (University of Genova); casadio, maura (Northwestern University); Giannoni, Psiche (ART Education and Rehabilitation Department srl); masia, lorenzo (italian institute of technology); Sanguineti, Vittorio (University of Genoa); Squeri, Valentina (University of Genova); Vergaro, Elena (University of Genoa)</i>	
09:55-10:10	FrA13.2
<b>Design and Implementation of a Home Stroke Telerehabilitation System</b> .....	<b>2422-2425</b>
<i>Durfee, William* (University of Minnesota)</i>	

10:10-10:25	FrA13.3
<b>Results of Training with Gravity Compensation of the Arm in Chronic Stroke Patients</b> .....	<b>2426-2429</b>
<i>van der kooij, herman* (universitij of twente)</i>	
10:25-10:40	FrA13.4
<b>The Neuro-Robotics Paradigm: NEURARM, NEUROExos, HANDEXOS</b> .....	<b>2430-2433</b>
<i>Lenzi, Tommaso (Scuola Superiore Sant'Anna); De Rossi, Stefano Marco Maria (Scuola Superiore Sant'Anna); Vitiello, Nicola (Scuola Superiore Sant'Anna); Chiri, Azzurra (Scuola Superiore sant'Anna); Roccella, Stefano (Scuola Superiore Sant'Anna); Giovacchini, Francesco (Scuola Superiore Sant'Anna); Vecchi, Fabrizio (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara* (Scuola Superiore Sant'Anna)</i>	
10:40-10:55	FrA13.5
<b>Use of a Pneumatic Glove for Hand Rehabilitation Following Stroke</b> .....	<b>2434-2437</b>
<i>Connelly, Lauri (Rehabilitation Institute of Chicago); Stoykov, Mary Ellen (Rehabilitation Institute of Chicago); Jia, Yicheng (Rehabilitation Institute of Chicago); Toro, Maria (Escuela de Ingenieria de Antioquia); Kenyon, Robert (University of Illinois at Chicago); Kamper, Derek* (Rehabilitation Institute of Chicago and Illinois Institute of Technology)</i>	
10:55-11:10	FrA13.6
<b>Do Robotic and Non-Robotic Arm Movement Training Drive Motor Recovery after Stroke by a Common Neural Mechanism?: Experimental Evidence and a Computational Model</b> .....	<b>2438-2441</b>
<i>Reinkensmeyer, David* (University of California); Maier, Marc (UMR 7060 CNRS); Guigon, Emmanuel (UMR 7222 CNRS); Chan, Vicky (University of California in Irvine); Akoner, Mine (University of California at Irvine); Wolbrecht, Eric (University of California, Irvine); Cramer, Steven (University of California, Irvine); Bobrow, James (Univ of Calif, Irvine)</i>	

FrA14: 09:40-11:10	Marquette III
<b>S 3. Benefits and Pitfalls of University - Industry Collaborations</b> (Special Symposium)	
<b>Chair:</b> Deiter Haemmerich, <i>Medical Univ. of South Carolina</i>	
<b>Co-Chair:</b> Wayne McDaniel, <i>Univ. of Missouri</i>	

09:40-09:55	FrA14.1
<b>Academic Entrepreneurs - Taking Research from Bench to Bedside</b> .....	*
<i>Thakor, Nitish (Johns Hopkins University)</i>	
09:55-10:10	FrA14.2
<b>Bridging the Philosophical and Patent Gaps</b> .....	*
<i>Kroll, Mark (Newcardio, Inc.)</i>	
10:10-10:25	FrA14.3
<b>Academic / Industrial Partnerships: Issues and Strategies</b> .....	*
<i>Pearce, John (University of Texas at Austin)</i>	
10:25-10:40	FrA14.4
<b>A comparison of large and small company collaborations with academia - the long and the short of it</b> .....	*
<i>Keimel, John (Medtronic Neuromodulation)</i>	
10:40-10:55	FrA14.5
<b>Joys and Tribulations of Translational Research in Academia</b> .....	*
<i>Kim, Yongmin (University of Washington at Seattle)</i>	

FrA15: 09:40-11:10	Marquette IX
<b>10.1.1 Body Sensor Networks</b> (Oral Session)	
<b>Chair:</b> Yuan-Ting Zhang, <i>The Chinese Univ. of Hong Kong</i>	
<b>Co-Chair:</b> Harry Tyrer, <i>Univ. of Missouri - Columbia</i>	

09:40-09:55	FrA15.1
<b>Low-Power Secure Body Area Network for Vital Sensors toward IEEE802.15.6</b> .....	<b>2442-2445</b>
<i>kuroda, Masahiro* (National Inst of Information &amp; Comm); Tochikubo, Osamu (Yokohama City University); Qiu, Shuye (Dairix corp.)</i>	

09:55-10:10	FrA15.2
<b>A Low-Complexity Medium Access Control Framework for Body Sensor Networks</b> .....	<b>2446-2449</b>
<i>Wang, Bo* (Shenzhen Institute of Advanced Technology); Wang, Lei (Shenzhen Institute of Advanced Technology); Huang, Bangyu (Shenzhen Institute of Advanced Technology); Wu, Dan (Shenzhen Institute of Advanced Technology); Lin, Shaojie (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong); Chen, Wei (Wuhan University of Technology)</i>	
10:10-10:25	FrA15.3
<b>Packet Loss Mitigation for Biomedical Signals in Healthcare Telemetry</b> .....	<b>2450-2453</b>
<i>Garudadri, Harinath* (Qualcomm); Baheti, Pawan (Qualcomm)</i>	
10:25-10:40	FrA15.4
<b>Motion-Based Wake-Up Scheme for Ambulatory Monitoring in Wireless Body Sensor Networks</b> .....	<b>2454-2457</b>
<i>Pek, Isaac (Institute for Infocomm Research); Waluyo, Agustinus Borgy (Institute for Infocomm Research); Yeoh, Wee Soon (Institute for Infocomm Research); Chen, Xiang* (Institute for Infocomm Research)</i>	
10:40-10:55	FrA15.5
<b>Biometrics Based Novel Key Distribution Solution for Body Sensor Networks</b> .....	<b>2458-2461</b>
<i>Miao, Fen (Shenzhen Institute of Advanced Technology); Li, Ye* (Shenzhen Institute of Advanced Technology); Jiang, Lei (Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	
10:55-11:10	FrA15.6
<b>Avatar – A Multi-Sensory System for Real Time Body Position Monitoring</b> .....	<b>2462-2465</b>
<i>Jovanov, Emil* (University of Alabama in Huntsville); Hanish, Nathan (Northrop Grumman Information Systems); Courson, Victor (Northrop Grumman); Stidham, Jonathan (University of Alabama in Huntsville); Stinson, Hunter (University of Alabama in Huntsville); Webb, Christopher (University of Alabama in Huntsville); Kevin Denny, Kevin (UAH)</i>	

FrA17: 09:40-11:10	Directors Row 4
<b>SS 2. How to Effectively Deliver an Oral Presentation</b> (Special Session)	
<b>Chair:</b> Christopher James, <i>Univ. of Southampton</i>	
<b>Co-Chair:</b> Cristian A. Linte, <i>Robarts Res. Inst.</i>	

FrBPo01: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>1.4.4 Biomedical Signal Classification III</b> (Poster Session)	

11:10-12:30	FrBPo01.1
<b>Detection system of motor epileptic seizures through motion analysis with 3D accelerometers</b> .....	<b>2466-2469</b>
<i>Jallon, Pierre* (CEA Grenoble); Bonnet, Stéphane (CEA Léti MINATEC); Antonakios, Michel (CEA Léti Minatec); Guillemaud, Regis (CEA Léti MINATEC)</i>	
11:10-12:30	FrBPo01.2
<b>Robust Common Spatial Filters with a Maxmin Approach</b> .....	<b>2470-2473</b>
<i>Kawanabe, Motoaki (Fraunhofer FIRST); Vidaurre, Carmen (Fraunhofer Institute); Scholler, Simon* (Fraunhofer FIRST); Muller, Klaus-Robert (Fraunhofer FIRST)</i>	
11:10-12:30	FrBPo01.3
<b>Integrated Speech Enhancement for Functional MRI Environment</b> .....	<b>2474-2477</b>
<i>Pathak, Nishank* (UT Dallas); Milani, Ali (University of Texas at Dallas); Panahi, Issa (University of Texas at Dallas); Briggs, Richard (UT Southwestern Medical Center at Dallas)</i>	
11:10-12:30	FrBPo01.4
<b>A New Approach for ICD Rhythm Classification Based on Support Vector Machines</b> .....	<b>2478-2481</b>
<i>Kamoussi, Baharan* (Stanford University/ U of Minnesota); Tewfik, Ahmed (University of Minnesota); wang, Paul (Stanford University)</i>	



11:10-12:30	FrBPo01.5
<b>Classification of Single Trial EEG During Imagined Hand Movement by Rhythmic Component Extraction .....</b>	<b>2482-2485</b>
<i>Higashi, Hiroshi (Tokyo University of Agriculture and Technology); Tanaka, Toshihisa* (Tokyo University of Agriculture and Technology); Funase, Arao (Naogya Institute of Technology)</i>	
11:10-12:30	FrBPo01.6
<b>Nonlinear Dimensionality Reduction of Electroencephalogram (EEG) for Brain Computer Interfaces .....</b>	<b>2486-2489</b>
<i>Teli, Mohammad Nayeem* (Colorado State University); Anderson, Chuck (Colorado State University)</i>	
11:10-12:30	FrBPo01.7
<b>Using Rapid Visually Evoked EEG Activity for Person Identification .....</b>	<b>2490-2493</b>
<i>Das, Koel* (University of California, Santa Barbara); Zhang, Sheng (University of California, Santa Barbara); giesbrecht, barry (University of California, Santa Barbara); Eckstein, Miguel (University of California, Santa Barbara)</i>	
11:10-12:30	FrBPo01.8
<b>ERP Based Decision Fusion for AD Diagnosis across Cohorts .....</b>	<b>2494-2497</b>
<i>Ahiskali, Metin (Rowan University); Green, Deborah (Drexel University); Kounios, John (Drexel University); Clark, Christopher (University of Pennsylvania); Polikar, Robi* (Rowan University)</i>	
11:10-12:30	FrBPo01.9
<b>Preliminary Study on the Detection of Cardiac Arrhythmias based on Multiple Simultaneous Electrograms .....</b>	<b>2498-2501</b>
<i>Sugai, Telma Keiko* (Tohoku University); Yoshizawa, Makoto (Tohoku University); Abe, Makoto (Tohoku University); Inagaki, Masashi (National Cardiovascular Research Inst.); Sugimachi, Masaru (Natl Cardio Center Research Inst); Shimizu, Kazuo (Olympus Corporation); Sunagawa, Kenji (Kyushu University)</i>	
11:10-12:30	FrBPo01.10
<b>Comparison of Several Classifiers to Evaluate Endocardial Electrograms Fractionation in Human .....</b>	<b>2502-2505</b>
<i>Kremen, Vaclav* (Faculty of Electrical Engineering, Czech Technical University in Prague.); Kordik, Pavel (Czech Technical University, Prague); Lhotska, Lenka (Czech Technical University in Prague)</i>	
11:10-12:30	FrBPo01.11
<b>Sleep Stage Classification with Low Complexity and Low Bit Rate .....</b>	<b>2506-2509</b>
<i>Virkkala, Jussi* (Finnish Inst of Occupational Health); Värri, Alpo (Tampere University of Technology); Hasan, Joel (Pirkanmaa Hospital District); Himanen, Sari-Leena (irkanmaa Hospital District); Müller, Kiti (Finnish Institute of Occupational Health, Helsinki)</i>	
11:10-12:30	FrBPo01.12
<b>Estimation of Sleep Stage in the Falling Asleep Period Using a Lorenz Plot of ECG RR Intervals .....</b>	<b>2510-2513</b>
<i>HAGIWARA, HIROSHI* (Ritsumeikan University)</i>	
11:10-12:30	FrBPo01.13
<b>Using Modulation Spectra for Voice Pathology Detection and Classification .....</b>	<b>2514-2517</b>
<i>Markaki, Maria* (University of Crete); Stylianou, Yannis (Univeristy of Crete)</i>	
11:10-12:30	FrBPo01.14
<b>Child Vocalization Composition As Discriminant Information for Automatic Autism Detection .....</b>	<b>2518-2522</b>
<i>Xu, Dongxin* (LENA Foundation); Gilkerson, Jill (LENA Foundation); Richards, Jeff (LENA Foundation); Yapanel, Umit (LENA Foundation); Gray, Sharmi (LENA Foundation)</i>	
11:10-12:30	FrBPo01.15
<b>Detecting Changes in Respiratory Patterns in High Frequency Chest Compression Therapy by Single-Channel Blind Source Separation .....</b>	<b>2523-2526</b>
<i>Zhu, Xiaoming (University of Minnesota); Parhi, Keshab* (University of Minnesota); Warwick, Warren J. (University of Minnesota)</i>	
11:10-12:30	FrBPo01.16
<b>Automated Detection of Gastric Slow Wave Events and Estimation of Propagation Velocity Vector Fields from Serosal High-Resolution Mapping .....</b>	<b>2527-2530</b>
<i>Du, Peng* (The University of Auckland); Qiao, Wenlian (The University of Auckland); O'Grady, Greg (The University of Auckland); Egbuji, John (The University of Auckland); Lammers, Wim (United Arab Emirates University); Cheng, Leo K (The University of Auckland); Pullan, Andrew (University of Auckland)</i>	

11:10-12:30	FrBPo01.17
<b>Active Noise Control for Infant Incubators</b> .....	<b>2531-2534</b>
<i>Yu, Xun (University of Minnesota Duluth); Gujjula, Shruthi (NIU); Kuo, Sen M.* (Northern Illinois University)</i>	
11:10-12:30	FrBPo01.18
<b>Ischemia Detection in the Context of a Cardiovascular Status Assessment Tool</b> .....	<b>2535-2538</b>
<i>Rocha, Teresa* (Inst Superior de Eng de Coimbra); Paredes, Simão (Instituto Superior de Engenharia de Coimbra); Carvalho, Paulo (University of Coimbra); Henriques, Jorge (University of Coimbra); Harris, Matthew (Philips Research); Morais, João (Hospital de Santo André, Leiria)</i>	
11:10-12:30	FrBPo01.19
<b>Classification of Heart Murmurs using Cepstral Features and Support Vector Machines</b> .....	<b>2539-2542</b>
<i>Vepa, Jithendra* (Philips Electronics India Ltd.)</i>	
11:10-12:30	FrBPo01.20
<b>Estimation of Drowsiness Level Based on Eyelid Closure and Heart Rate Variability</b> .....	<b>2543-2546</b>
<i>Tsuchida, Ayumi* (Aichi Prefectural University); Bhuiyan, Shoaib (Suzuka University of Medical Science); Oguri, Koji (Aichi Prefectural University)</i>	
11:10-12:30	FrBPo01.21
<b>Audio Based Surveillance for Cognitive Assistance Using a CMT Microphone within Socially Assistive Technology</b> .....	<b>2547-2550</b>
<i>Rougui, Jamal Eddine* (ESIGETEL, Ecole supérieur d'ingénieur); Istrate, Dan (ESIGETEL); Souidene, Wieded (ESIGETEL, Ecole supérieur d'ingénieur); Opitz, Martin (AKG Acoustics GmbH); Riemann, Marco (AKG Acoustics GmbH)</i>	
11:10-12:30	FrBPo01.22
<b>MUP Shape-Based Validation of a Motor Unit Potential Train</b> .....	<b>2551-2554</b>
<i>Parsaei, Hossein* (University of Waterloo); Stashuk, Daniel William (University of Waterloo)</i>	
11:10-12:30	FrBPo01.23
<b>Reach and Throw Movement Analysis with Support Vector Machines in Early Diagnosis of Autism.</b> .....	<b>2555-2558</b>
<i>Perego, Paolo* (IRCCS "E. Medea"); Forti, Sara (IRCCS "E. Medea"); Crippa, Alessandro (IRCCS "E. Medea"); Valli, Angela (IRCCS "E. Medea"); Reni, Gianluigi (IRCCS)</i>	
11:10-12:30	FrBPo01.24
<b>A Low Power Biomedical Signal Processor ASIC Based on Hardware Software Codesign</b> .....	<b>2559-2562</b>
<i>Nie, Zedong (Shenzhen Institute of Advanced Technology); Wang, Lei* (Shenzhen Institute of Advanced Technology); chen, wangang (Shenzhen Institute of Advanced Technology); zhang, tao (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	
11:10-12:30	FrBPo01.25
<b>Formant Analysis of Breath and Snore Sounds</b> .....	<b>2563-2566</b>
<i>Moussavi, Zahra* (University of Manitoba); Yadollahi, Azadeh (University of Manitoba)</i>	
11:10-12:30	FrBPo01.26
<b>A Comparative Study of a New Cardiotocography Analysis Program</b> .....	<b>2567-2570</b>
<i>Chen, Chen-Yu (National Taiwan University); Yu, Chun* (National Taiwan University); Lin, Chii-Wann (National Taiwan University)</i>	
11:10-12:30	FrBPo01.27
<b>Unsupervised Feature Selection in Cardiac Arrhythmias Analysis</b> .....	<b>2571-2574</b>
<i>Rodríguez-Sotelo, Jose-Luis (Universidad Nacional de Colombia sede Manizales); Cuesta-Frau, David* (Politechnic University of Valencia); Peluffo-Ordóñez, Diego Hernán (National University, Colombia - Manizales); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)</i>	
11:10-12:30	FrBPo01.28
<b>Central-Tendency Estimation and Nearest-Estimate Classification of Multi-Channel Evoked Potentials</b> .....	<b>2575-2578</b>
<i>Kota, Srinivas* (Southern Illinois University); Yarlagadda, Phani Srinivas (Southern Illinois University); Gupta, Lalit (Southern Illinois University); Molfese, Dennis (University of Louisville)</i>	

11:10-12:30	FrBPo01.29
<b>Application of the Empirical Mode Decomposition to the Extraction of Features from EEG Signals for Mental Task Classification .....</b>	<b>2579-2582</b>
<i>Diez, Pablo Federico (Universidad Nacional de San Juan); Mut, Vicente (Universidad Nacional de San Juan); Laciari, Eric (Universidad Nacional de San Juan); Torres, Abel* (Universitat Politècnica de Catalunya (UPC), Institute for Bioengineering of Catalonia (IBEC) and CIBER de Bioingeniería, Biomate); Avila Perona, Enrique Mario (National University of San Juan)</i>	
11:10-12:30	FrBPo01.30
<b>Monte Carlo Method for Evaluating the Effect of Surface EMG Measurement Placement on Motion Recognition Accuracy .....</b>	<b>2583-2586</b>
<i>Nagata, Kentaro* (Kanagawa Rehabilitation Institute); Yamada, Masafumi (Kanagawa Rehabilitation Center); Magatani, Kazushige (TOKAI University)</i>	
11:10-12:30	FrBPo01.31
<b>Self-Organized Clustering Approach for Motion Discrimination Using EMG Signal .....</b>	<b>2587-2590</b>
<i>Kita, Kahori* (The University of Tokyo); Kato, Ryu (The University of Tokyo); Yokoi, Hiroshi (University of Tokyo)</i>	
11:10-12:30	FrBPo01.32
<b>Multi-Modal Intelligent Seizure Acquisition (MISA) System - a New Approach towards Seizure Detection Based on Full Body Motion Measures .....</b>	<b>2591-2595</b>
<i>Conradsen, Isa* (Technical University of Denmark); Beniczky, Sandor (Danish Epilepsy Centre); Wolf, Peter (Danish Epilepsy Centre); Terney, Daniella (Danish Epilepsy Centre); Sams, Thomas (Technical University of Denmark); Sorensen, Helge (Technical University of Denmark)</i>	
11:10-12:30	FrBPo01.33
<b>An Automatic Sleep Spindle Detector Based on Wavelets and the Teager Energy Operator .....</b>	<b>2596-2599</b>
<i>Ahmed, Beena* (Texas A&amp;M University at Qatar); Redissi, Amira (Texas A&amp;M University at Qatar); Tafreshi, Reza (Texas A&amp;M University)</i>	
11:10-12:30	FrBPo01.34
<b>Adaptive Schemes Applied to Online SVM for BCI Data Classification .....</b>	<b>2600-2603</b>
<i>Asghari Oskoei, Mohammadreza* (University of Essex); Gan, John Q. (University of Essex, UK); Hu, Huosheng (University of Essex)</i>	
11:10-12:30	FrBPo01.35
<b>An Electrooculogram-Based Binary Saccade Sequence Classification Technique for Augmentative Communication and Control .....</b>	<b>2604-2607</b>
<i>Keegan, Johnalan* (Dublin Institute of Technology); Burke, Edward (Dublin Institute of Technology); Condron, James (Dublin Institute of Technology)</i>	
11:10-12:30	FrBPo01.36
<b>Assessment of Laryngeal Dysfunctions of Dysarthric Speakers .....</b>	<b>2608-2611</b>
<i>Vijayaraghavan, Surabhi* (SSN College of Engineering (Anna University)); Parthasarathy, Vijayalakshmi (SSN College of Engineering (Anna University)); Tagore, Steffina Lily (SSN College of Engineering (Anna University)); Ra. V, Jayanthan (SSN College of Engineering (Anna University))</i>	
11:10-12:30	FrBPo01.37
<b>Feature Extraction of Linear Predictors at Spectral Bands of Interest .....</b>	<b>2612-2616</b>
<i>Leondopulos, Stathis* (Rutgers University); Chaovalitwongse, W. Art (Rutgers, The State University of New Jersey); Micheli-Tzanakou, Evangelia (Rutgers University); Wu, Brenda (UMDNJ-Robert Wood Johnson Medical School)</i>	
11:10-12:30	FrBPo01.38
<b>Classification of Respiratory Signals by Linear Analysis .....</b>	<b>2617-2620</b>
<i>Aydore, Sergul* (Bogazici University); Sen, Ipek (Bogazici University); Mihcak, M. Kivanc (Bogazici University); Kahya, Yasemin P. (Bogazici University)</i>	
11:10-12:30	FrBPo01.39
<b>Combining Predictive Capabilities of Transcranial Doppler with Electrocardiogram to Predict Hemorrhagic Shock .....</b>	<b>2621-2624</b>
<i>Najarian, Kayvan* (Virginia Commonwealth University); Hakimzadeh, Roya (University of North Carolina at Charlotte); Ward, Kevin (Virginia Commonwealth University); Ji, Soo-Yeon (Virginia Commonwealth University)</i>	

11:10-12:30	FrBPo01.40
<b>Identification of Food Spoilage in the Smart Home Based on Neural and Fuzzy Processing of Odour Sensor Responses</b> .....	<b>2625-2628</b>
<i>Green, Geoffrey* (Carleton University); Chan, Adrian (Carleton University); Goubran, Rafik A. (Carleton University)</i>	
11:10-12:30	FrBPo01.41
<b>A Preliminary Study for Investigating Idiopathic Normal Pressure Hydrocephalus by Means of Statistical Parameters Classification of Intracranial Pressure Recordings</b> .....	<b>2629-2632</b>
<i>Calisto, Andrea* (University of Messina); Bramanti, Alessia (University of Messina); Galeano, Massimiliano (University of Messina); Angileri, Flavio Filippo (University of Messina); Campobello, Giuseppe (University of Messina); Serrano, Salvatore (University of Messina); Azzerboni, Bruno (University of Messina)</i>	
11:10-12:30	FrBPo01.42
<b>Classification of Localized Muscle Fatigue with Genetic Programming on Seng During Isometric Contraction</b> .....	<b>2633-2638</b>
<i>Al-mulla, Mohammed* (Essex university)</i>	
11:10-12:30	FrBPo01.43
<b>Pulse Rate Variability and Gastric Electric Power in Fasting and Postprandial Conditions</b> .....	<b>2639-2642</b>
<i>Mohamed Yacin, Sikkandar (IIT Madras); M, Manivannan* (Indian Institute of Technology Madras); Chakravarthy, V. Srinivas (IIT Madras)</i>	
11:10-12:30	FrBPo01.44
<b>An SVM-Based System and Its Performance for Detection of Seizures in Neonates</b> .....	<b>2643-2646</b>
<i>Temko, Andriy* (University College Cork); Thomas, Eoin (University College Cork); Boylan, Geraldine (University College Cork); Marnane, Liam (University College Cork); Lightbody, Gordon (University College Cork)</i>	
11:10-12:30	FrBPo01.45
<b>Comparison of experts and non-experts in throwing darts based on optimization criteria</b> .....	<b>2647-2650</b>
<i>Obayashi, Chihiro* (Nara Institute of Science and Technology); Shibata, Tomohiro (Nara Institute of Science and Technology); Tamei, Tomoya (Nara Institute of Science and Technology); Imai, Akira (Nara Institute of Science and Technology)</i>	
11:10-12:30	FrBPo01.46
<b>An Epileptic Seizures Detection Algorithm Based on the Empirical Mode Decomposition of EEG</b> .....	<b>2651-2654</b>
<i>OROSCO, LORENA (UNIVERSIDAD NACIONAL DE SAN JUAN); Laciár, Eric* (Universidad Nacional de San Juan); Garces, M Agustina (Universidad Nacional de San Juan); Torres, Abel (Universitat Politècnica de Catalunya (UPC), Institute for Bioengineering of Catalonia (IBEC) and CIBER de Bioingeniería, Biomate); Graffigna, Juan Pablo (Universidad Nacional de San Juan)</i>	
11:10-12:30	FrBPo01.47
<b>Application of Least Square Method for Muscular Strength Estimation in Hand Motion Recognition Using Surface EMG</b> .....	<b>2655-2658</b>
<i>Nakano, Takemi* (Tokai University); Nagata, Kentaro (Kanagawa Rehabilitation Institute); Yamada, Masafumi (Kanagawa Rehabilitation Center); Magatani, Kazushige (TOKAI University)</i>	
11:10-12:30	FrBPo01.48
<b>Analysis of the Electromyogram of Rapid Eye Movement Sleep Using Wavelet Techniques</b> .....	<b>2659-2662</b>
<i>Shokrollahi, Mehmaz* (Ryerson University); Krishnan, Sridhar (Ryerson University); Jewell, Dana (Sunnybrook Health Sciences Center, University of Toronto); Murray, Brian (Sunnybrook Health Sciences Center, University of Toronto)</i>	
11:10-12:30	FrBPo01.49
<b>Estimation of Human Finger Tapping Forces Based on a Fingerpad-Stiffness Model</b> .....	<b>2663-2667</b>
<i>Shima, Keisuke* (Hiroshima University)</i>	
11:10-12:30	FrBPo01.50
<b>Automated Assessment of Physical Stimulus Intensity Based on Functional Near-Infra-Red Data Processing</b> .....	<b>2668-2671</b>
<i>Akbarian Azar, Arezou* (Drexel University); Akhbardeh, Alireza (Johns Hopkins University)</i>	

**2.1.3 MR Acquisition and Reconstruction** (Poster Session)

- 11:10-12:30 FrBPo02.1  
**Pseudo 2D Random Sampling for Compressed Sensing MRI** ..... 2672-2675  
*Wang, Haifeng (University of Wisconsin, Milwaukee); Liang, Dong\* (University of Wisconsin, Milwaukee); Ying, Lei (Leslie) (University of Wisconsin)*
- 11:10-12:30 FrBPo02.2  
**Improved Reconstruction of Non-Cartesian Magnetic Resonance Imaging Data through Total Variation Minimization and POCs Optimization** ..... 2676-2679  
*Feng, Yanqiu (Southern Medical University); Liu, Ping (Southern Medical University); Li, Benxing (Southern Medical University); Yu, Lihong (Southern Medical University); Chen, Wufan\* (Southern Medical University)*
- 11:10-12:30 FrBPo02.3  
**Affine Motion Compensation with Improved Reconstruction in PROPELLER MRI** ..... 2680-2683  
*Feng, Yanqiu (Southern Medical University); Liu, Xiaowu (southern medical university); Ma, Jianhua (southern medical university); Lu, Zhentai (southern medical university); Chen, Wufan\* (Southern Medical University)*
- 11:10-12:30 FrBPo02.4  
**Compressed Sensing MRI with Multi-Channel Data Using Multi-Core Processors** ..... 2684-2687  
*Chang, Ching-Hua (Texas A&M University); Ji, Jim Xiuquan\* (Texas A&M University)*
- 11:10-12:30 FrBPo02.5  
**Implementation of Wavelet Encoding Spectroscopic Imaging Technique on a 3 Tesla Whole Body MR Scanner: In Vitro Results.** ..... 2688-2691  
*Fu, Yao\* (National Research Council of Canada; University of Manitoba); Ijare, Omkar (National Research Council of Canada); Thomas, Gabriel (University of Manitoba); Fazel-Rezai, Reza (University of North Dakota); serrai, hacene (Institute for Biodiagnostics - National Research Council Canada)*
- 11:10-12:30 FrBPo02.6  
**Cramer-Rao Bound Analysis of Echo Time Selection for 1H-MR Spectroscopy** ..... 2692-2695  
*Nguyen, Hien\* (University of Illinois at Urbana-Champaign); Gahvari, Zhubin (University of Illinois at Urbana-Champaign); Haldar, Justin (Univ of Illinois at Urbana-Champaign); Do, Minh (University of Illinois at Urbana-Champaign); Liang, Zhi-Pei (University of Illinois at Urbana-Champaign)*
- 11:10-12:30 FrBPo02.7  
**Effect of Peripheral Nerve Action Currents on Magnetic Resonance Imaging** ..... 2696-2698  
*Wijesinghe, Ranjith S.\* (Ball State University); Roth, Bradley (Oakland University)*

**2.1.4 MR Diffusion Imaging** (Poster Session)

- 11:10-12:30 FrBPo03.1  
**Atlas-Based vs. Individual-Based Deterministic Tractography of Corpus Callosum in Multiple Sclerosis** ..... 2699-2702  
*Lagana, Marcella\* (IRCCS S.Maria Nascente, Fondazione Don Carlo Gnocchi ONLUS); Rovaris, Marco (IRCCS S Maria Nascente, Fondazione Don Carlo Gnocchi ONLUS); Ceccarelli, Antonia (IRCCS S Maria Nascente, Fondazione Don Carlo Gnocchi ONLUS); Venturelli, Chiara (Politecnico Milano); Caputo, Domenico (IRCCS S Maria Nascente, Fondazione Don Carlo Gnocchi ONLUS); Cecconi, Pietro (Fondazione Don Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano); Baselli, Giuseppe (Politecnico di Milano)*
- 11:10-12:30 FrBPo03.2  
**Theoretical and Experimental Analysis of Imaging Gradients in DTI** ..... 2703-2706  
*Ozcan, Alpay\* (Washington University in Saint Louis)*
- 11:10-12:30 FrBPo03.3  
**Decoupling of Imaging and Diffusion Gradients in DTI** ..... 2707-2710  
*Ozcan, Alpay\* (Washington University in Saint Louis)*

11:10-12:30 FrBPo03.4  
**The Effects of Hypercapnia on DTI Quantification in Anesthetized Rat Brain** ..... 2711-2714  
*Ding, Abby Y. (The University of Hong Kong); Hui, Edward S. (The University of Hong Kong);  
Wu, Ed X.\* (The University of Hong Kong)*

11:10-12:30 FrBPo03.5  
**In Vivo Diffusion Tensor Imaging of Chronic Spinal Cord Compression in Rat Model** ..... 2715-2718  
*Cheung, Matthew M. (The University of Hong Kong); Li, Ting Hung Darrell (The University of Hong Kong);  
Hui, Edward S. (The University of Hong Kong); Fan, Shu Juan (The University of Hong Kong); Ding, Abby Y. (The  
University of Hong Kong); Hu, Yong (The University of Hong Kong); Wu, Ed X.\* (The University of Hong Kong)*

11:10-12:30 FrBPo03.6  
**Classification in DTI Using Shapes of White Matter Tracts** ..... 2719-2722  
*Adluru, Nagesh\* (University of Wisconsin-Madison); Hinrichs, Chris (University of Wisconsin-Madison);  
Chung, Moo K. (University of Wisconsin-Madison); Lee, Jee Eun (University of Wisconsin-Madison);  
Singh, Vikas (University of Wisconsin-Madison); Bigler, Erin D. (Brigham Young University); Lange, Nicholas  
(Harvard University); Lainhart, J.E. (University of Utah); Alexander, Andrew (University of Wisconsin)*

FrBPo04: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**2.5.5 Biomedical Microwave Imaging** (Poster Session)

11:10-12:30 FrBPo04.1  
**Development of Non-Uniform Breast Phantom and Its Microwave Imaging for Tumor Detection by CP-MCT** ..... 2723-2726  
*Miyakawa, Michio (Niigata University); Takata, Sadaki (SHISEIDO CO., Ltd.); Inotsume, Kenta\* (Graduate  
School of Science & Technology, Niigata University)*

11:10-12:30 FrBPo04.2  
**A Heterogeneous Breast Phantom for Microwave Breast Imaging** ..... 2727-2730  
*Ostadrhimi, Majid (University of Manitoba); Reopelle, Ryan (University of North Dakota); Noghanian, Sima\*  
(University of North Dakota); Pistorius, Stephen (CancerCare Manitoba / University of Manitoba);  
Vahedi, Arman (University of Manitoba); Safari, Faezeh (University of Manitoba)*

11:10-12:30 FrBPo04.3  
**A Comparison of Data-Independent Microwave Beamforming Algorithms for the Early Detection of Breast Cancer** ..... 2731-2734  
*Byrne, Dallan\* (NUI Galway); Jones, Edward (National University of Ireland); Glavin, Martin (National University  
of Ireland); O'Halloran, Martin (National University of Ireland, Galway)*

11:10-12:30 FrBPo04.4  
**A Comparison of Interpolation Methods for Breast Microwave Radar Imaging.** ..... 2735-2738  
*Flores-Tapia, Daniel\* (CancerCare Manitoba); Thomas, Gabriel (University of Manitoba);  
Pistorius, Stephen (CancerCare Manitoba / University of Manitoba)*

FrBPo05: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**3.6.2 Micro- and Nanotechnologies** (Poster Session)

11:10-12:30 FrBPo05.1  
**Molecular Mechanism for Conformation Mobility of the Active Center of Glucose Oxidase Adsorbed on Single Wall Carbon Nanotubes** ..... 2739-2743  
*Liu, Feng\* (Zhejiang University); Ye, Xuesong (Zhejiang University); Liu, Jun (Zhejiang University)*

11:10-12:30 FrBPo05.2  
**Packaging and Characterization of Mechanically Actuated Microtweezers for Biomedical Applications** ..... 2744-2747  
*Wester, Brock\* (Georgia Institute of Technology); Ross, James (Georgia Institute of Technology);  
Rajaraman, Swami (Georgia Institute of Technology); Allen, Mark (Georgia Institute of Technology)*

11:10-12:30 FrBPo05.3  
**Evaluation of Sensitivity of Stiffness Sensitive Electret Microphones** ..... 2748-2751  
*Sivaramakrishnan, Shyam (University of Minnesota); Rajamani, Rajesh\* (University of Minnesota)*

11:10-12:30	FrBPo05.4
<b>Body Motion for Powering Biomedical Devices</b> .....	<b>2752-2755</b>
<i>Romero, Edwar* (Michigan Technological University); Warrington, Robert O. (Michigan Technological University); Neuman, Michael (Michigan Technological University)</i>	
11:10-12:30	FrBPo05.5
<b>Local Electrical Stimulation of Single Adherent Cells Using Three-Dimensional Electrode Arrays with Small Interelectrode Distances</b> .....	<b>2756-2759</b>
<i>Braeken, Dries* (IMEC); Huys, Roeland (IMEC); Jans, Danny (IMEC); Loo, Josine (IMEC); Severi, Simone (IMEC); Vleugels, Franks (IMEC); Borghs, Gustaaf (IMEC); Callewaert, Geert (KU Leuven Campus Kortrijk); Bartic, Carmen (IMEC)</i>	
11:10-12:30	FrBPo05.6
<b>Label-Free Analysis of DNA Methylation Using Optofluidic Ring Resonators</b> .....	<b>2760-2762</b>
<i>Suter, Jonathan (University of Missouri); Howard, Daniel (University of Missouri); Shi, Huidong (Medical College of Georgia Cancer Center); Caldwell, Charles (University of Missouri); Fan, Xudong* (University of Missouri)</i>	
11:10-12:30	FrBPo05.7
<b>Selective Micro Preconcentration of Propofol for Anesthetic Depth Monitoring by Using Seedless Electroplated Gold as Adsorbent</b> .....	<b>2763-2766</b>
<i>Alfeeli, Bassam* (Virginia Polytechnic Institute and State University); zareian-jahromi, mohammad (university); Agah, Masoud (Virginia Tech)</i>	
11:10-12:30	FrBPo05.8
<b>Breathing Detection with a Portable Impedance Measurement System: First Measurements</b> .....	<b>2767-2770</b>
<i>Cordes, Axel* (RWTH Aachen); Jerome, Foussier (RWTH Aachen); Leonhardt, Steffen (RWTH Aachen University)</i>	
11:10-12:30	FrBPo05.9
<b>Size-Dependent PCR Inhibitory Effect Induced by Gold Nanoparticles</b> .....	<b>2771-2774</b>
<i>Wan, Weijie (University of Waterloo); Yeow, John Tze-Wei* (University of Waterloo); Van Dyke, Michele I. (University of Waterloo)</i>	
11:10-12:30	FrBPo05.10
<b>Development of a Piezoelectric Immunosensor for Matrix Metalloproteinase-1 Detection</b> .....	<b>2775-2778</b>
<i>Caneva Soumetz, Federico (University of Genova); Pastorino, Laura (University of Genova); Ruggiero, Carmelina* (University of Genova)</i>	
11:10-12:30	FrBPo05.11
<b>Molding Single DNA Molecules in Metals and Sample Preparation for Electronic Sequencing</b> .....	<b>2779-2782</b>
<i>Lund, John* (University of Washington); Parviz, Babak (University of Washington)</i>	
11:10-12:30	FrBPo05.12
<b>Optimized bzip2 Compression for Reducing Diffraction Effects in Protein-based Computing: A Study of Feasibility</b> .....	<b>2783-2786</b>
<i>Rajasekaran, Sanguthevar (Univ. of Connecticut); Trinca, Dragos* (Univ. of Connecticut)</i>	

FrBPo06: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>4.3.3 Multiscale Biomedical Modeling (Poster Session)</b>	

11:10-12:30	FrBPo06.1
<b>Tetrahedral and Polyhedral Mesh Evaluation for Cerebral Hemodynamic Simulation - a Comparison</b> .....	<b>2787-2790</b>
<i>Spiegel, Martin* (Friedrich-Alexander University of Erlangen-Nuremberg, Siemens AG Healthcare Sector, Erlangen Graduate School in Advanced Optical); Redel, Thomas (Siemens AG Healthcare Sector); Zhang, Jonathon (The Methodist Hospital); Struffert, Tobias (Friedrich-Alexander University Erlangen-Nuremberg); Hornegger, Joachim (Friedrich-Alexander University Erlangen-Nuremberg); Grossman, Robert (The Methodist Hospital); Doerfler, Arnd (Friedrich-Alexander University Erlangen-Nuremberg); Karmonik, Christof (The Methodist Hospital Neurological Inst)</i>	

- 11:10-12:30 FrBPo06.2  
**Composite Annotations: Requirements for Mapping Multiscale Data and Models to Biomedical Ontologies** ..... 2791-2794  
*Cook, Daniel L.\* (University of Washington); Mejino, Jose L. V. (University of Washington); Neal, Maxwell L (University of Washington); Gennari, John H. (University of Washington)*
- 11:10-12:30 FrBPo06.3  
**Strong Scaling and Speedup to 16, 384 Processors in Cardiac Electro – Mechanical Simulations** ..... 2795-2798  
*Reumann, Matthias\* (IBM T. J. Watson Research Center); Fitch, Blake G (IBM T. J. Watson Research Center); Rayshubskiy, Alex (IBM); Keller, David Urs Josef (Universitaet Karlsruhe (TH)); Seemann, Gunnar (Universitaet Karlsruhe (TH)); Doessel, Olaf (University of Karlsruhe); Pitman, Michael C (IBM T. J. Watson Research Center); Rice, John J (IBM T. J Watson Research Center)*
- 11:10-12:30 FrBPo06.4  
**Orthogonal Recursive Bisection Data Decomposition for High Performance Computing in Cardiac Model Simulations: Dependence on Anatomical Geometry** ..... 2799-2802  
*Reumann, Matthias\* (IBM T. J. Watson Research Center); Fitch, Blake G (IBM T. J. Watson Research Center); Rayshubskiy, Alex (IBM); Keller, David Urs Josef (Universitaet Karlsruhe (TH)); Seemann, Gunnar (Universitaet Karlsruhe (TH)); Doessel, Olaf (University of Karlsruhe); Pitman, Michael C (IBM T. J. Watson Research Center); Rice, John J (IBM T. J Watson Research Center)*
- 11:10-12:30 FrBPo06.5  
**A Platform for in Silico Modeling of Physiological Systems III** ..... 2803-2806  
*Suzuki, Yasuyuki\* (Osaka University); Asai, Yoshiyuki (Osaka University); Kido, Yoshiyuki (Osaka University); Oka, Hideki (Fujitsu Ltd); Heien, Eric (Osaka University); Urai, Takahito (Intasect Communications); Okamoto, Tatsuhide (Osaka University); Yumikura, Yosuke (Osaka University); Tominaga, Keisuke (Osaka University); Nakanishi, Masao (Osaka University); Hagihara, Kenichi (Osaka University); Kurachi, Yoshihisa (Osaka University); Nomura, Taishin (Osaka University)*
- 11:10-12:30 FrBPo06.6  
**A Complete Mathematical Study of a 3D Model of Heterogeneous and Anisotropic Glioma Evolution** ..... 2807-2810  
*Roniotis, Alexandros\* (FORTH & Technical University of Crete); Marias, Kostas (Foundation for Res. & Tech. Hellas); Sakkalis, Vangelis (ICS-FORTH); Tsididis, George (FORTH); Zervakis, Michalis (Technical University of Crete, Greece)*
- 11:10-12:30 FrBPo06.7  
**Metadata and Annotations for Multi-Scale Electrophysiological Data** ..... 2811-2814  
*Bower, Mark\* (Mayo Clinic); Stead, Matt (Mayo Clinic); Brinkmann, Benjamin (Mayo Foundation); Dufendach, Kevin (Mayo Clinic); Worrell, Gregory A. (Mayo Clinic)*
- 11:10-12:30 FrBPo06.8  
**Computerized Optimization of Biventricular Pacing Using Body Surface Potential Map** ..... 2815-2818  
*Miri, Raz\* (University of Karlsruhe); Doessel, Olaf (University of Karlsruhe)*
- 11:10-12:30 FrBPo06.9  
**Electrophysiological Substrate for a Dominant Reentrant Source During Atrial Fibrillation** ..... 2819-2822  
*Aslanidi, Oleg\* (University of Manchester); Robinson, Robert (University of Manchester); Cheverton, Deborah (University of Manchester); Boyett, Mark Richard (University of Manchester); Zhang, Henggui (University of Manchester)*
- 11:10-12:30 FrBPo06.10  
**Influence of Channel Blockers on Cardiac Alternans** ..... 2823-2826  
*Xia, Henian (University of Tennessee); Zhao, Xiaopeng\* (University of Tennessee); Bains, Jujhar (University of Tennessee, Medical Center); Wortham, Dale (University of Tennessee, Medical Center)*
- 11:10-12:30 FrBPo06.11  
**Computational Modeling of Cardiac Dual Calcium-Voltage Optical Mapping** ..... 2827-2830  
*Walton, Richard David (University of Leeds); Bernus, Olivier\* (University of Leeds)*



**5.1.3 Cardiovascular and Pulmonary Mechanics (Poster Session)**

- 11:10-12:30 FrBPo07.1  
**Estimation of Central Aortic Forces in the Ballistocardiogram under Rest and Exercise Conditions ..... 2831-2834**  
*Wiard, Richard M.\* (Stanford University); Kim, Hyun Jin (Stanford University); Figueroa, C. Alberto (Stanford University); Kovacs, Gregory T.A. (Stanford University); Taylor, Charles A. (Stanford University); Giovangrandi, Laurent (Stanford University)*
- 11:10-12:30 FrBPo07.2  
**Evaluation of Biaxial Mechanical Properties of Soft Tubes and Arteries Using Sonometry ..... 2835-2838**  
*Bernal, Miguel\* (Mayo Clinic College of Medicine); Urban, Matthew (Mayo Clinic College of Medicine); Rosario, Daniel (Cornell University); Aquino, Wilkins (Cornell University); Greenleaf, James (Mayo Clinic)*
- 11:10-12:30 FrBPo07.3  
**Biomechanics of the Ergometric Stress Tests: Regional and Local Effects on Elastic, Transitional and Muscular Human Arteries ..... 2839-2842**  
*Bia, Daniel\* (School of Medicine, Republic University); Zócalo, Yanina (School of Medicine, Republic University); Torrado, Juan (School of Medicine, Republic University); Valls, Gabriela (School of Medicine, Republic University); Lluberas, Sebastian (School of Medicine); Craiem, Damian (Favaloro University); Armentano, Ricardo (Favaloro University)*
- 11:10-12:30 FrBPo07.4  
**Cardiac Resynchronization Results in Aortic Blood Flow-Associated Changes in the Arterial Load Components: Basal Biomechanical Conditions Determine the Load Changes ..... 2843-2846**  
*Zócalo, Yanina (School of Medicine, Republic University); Bia, Daniel (School of Medicine, Republic University); González-Moreno, Juan Bautista (Sanatorio Casa de Galicia); Torrado, Juan (School of Medicine, Republic University); Varela-Canavaro, Gonzalo (Sanatorio Casa de Galicia); Calleriza, Fernando (Sanatorio Casa de Galicia); Craiem, Damian (Favaloro University); Reyes-Caorsi, Walter (Sanatorio Casa de Galicia); Armentano, Ricardo\* (Favaloro University)*
- 11:10-12:30 FrBPo07.5  
**Assessment of Pulsatile Wall Shear Stress in Compliant Arteries: Numerical Model, Validation and Experimental Data ..... 2847-2850**  
*Salvucci, Fernando\* (Favaloro University); Barra, Juan (Favaloro University); Armentano, Ricardo (Favaloro University); Perazzo, Carlos (Favaloro University)*
- 11:10-12:30 FrBPo07.6  
**Comparative Analysis of Seismocardiogram Waves with the Ultra-Low Frequency Ballistocardiogram .. 2851-2854**  
*Ngai, Brandon (Simon Fraser University); Tavakolian, Kouhyar\* (Simon Fraser University); Akhbardeh, Alireza (Johns Hopkins University); Kaminska, Bozena (SIMON FRASER UNIVERSITY)*
- 11:10-12:30 FrBPo07.7  
**Noninvasive Deadbeat Control of an Implantable Rotary Blood Pump: A Simulation Study ..... 2855-2858**  
*Lim, Einly (UNSW); Alomari, Abdul-Hakeem H (University of New South Wales); Savkin, Andrey (University of New South Wales); Lovell, Nigel H\* (University of New South Wales)*
- 11:10-12:30 FrBPo07.8  
**Gender Related Differences in Cerebral Autoregulation in Older Healthy Subjects ..... 2859-2862**  
*Deegan, Brian Michael Thomas\* (National University of Ireland, Galway); Sorond, Farzaneh A. (Brigham and Womens Hospital); Lipsitz, Lewis A. (Institute for Aging Research); O'Laighin, Gearoid (National University of Ireland Galway); Serrador, Jorge Manuel (Beth Israel Deaconess Medical Center)*
- 11:10-12:30 FrBPo07.9  
**A Mechanical Model of Soft Biological Tissue: An Application to Lung Parenchyma ..... 2863-2866**  
*De Geeter, Nele\* (University of Ghent, Faculty of Engineering); Ionescu, Clara-Mihaela (Ghent University); De Keyser, Robin (Ghent University)*
- 11:10-12:30 FrBPo07.10  
**CFD Modeling of Turbulent Flow and Particle Deposition in Human Lungs ..... 2867-2870**  
*Radhakrishnan, Harikrishnan\* (University of Cyprus); Kassinos, Stavros (University of Cyprus)*

11:10-12:30	FrBPo07.11
<b>Comparative Analysis of Phase Difference Estimation Methods Quantifying Asynchronies between Compartmental Chest Wall Volume Signals .....</b>	<b>2871-2874</b>
<i>Golemati, Spyretta* (National Kapodistrian University of Athens); Moupagiatzis, Ioannis (University of Central Greece); Athanasopoulos, Dimitrios (National Kapodistrian University of Athens); Vasilopoulou, Maroula (National Kapodistrian University of Athens); Roussos, Charalambos (National Kapodistrian University of Athens); Vogiatzis, Ioannis (National Kapodistrian University of Athens)</i>	
11:10-12:30	FrBPo07.12
<b>A Study of IOS Data Using the aRIC+Ip Model of Respiratory Impedance .....</b>	<b>2875-2878</b>
<i>Nguyen, Thuc-Uyen (Texas Christian University); Diong, Bill* (Texas Christian University); Goldman, Michael David (University of California Los Angeles)</i>	
11:10-12:30	FrBPo07.13
<b>A Comparison of Linear Respiratory System Models Based on Parameter Estimates from PRN Forced Oscillation Data .....</b>	<b>2879-2882</b>
<i>Diong, Bill* (Texas Christian University); Grainger, Jaci (Texas Christian University); Goldman, Michael David (University of California Los Angeles); Nazeran, Homayoun (The University of Texas at El Paso)</i>	
11:10-12:30	FrBPo07.14
<b>Determination of Early Diastolic LV Vortex Formation Time (T*) Via the PDF Formalism: A Kinematic Model of Filling .....</b>	<b>2883-2886</b>
<i>Ghosh, Erina (Washington University in St. Louis); Shmuylovich, Leonid* (Washington University in St. Louis); Kovács, Sándor J (Washington University in St. Louis)</i>	
11:10-12:30	FrBPo07.15
<b>The Influence of Left-Ventricular Shape on End-Diastolic Fiber Stress and Strain. ....</b>	<b>2887-2890</b>
<i>Choi, Hon Fai* (KULeuven); D'hooge, Jan (KULeuven); Rademakers, Frank E (KULeuven); Claus, Piet (Catholic University Leuven)</i>	
11:10-12:30	FrBPo07.16
<b>Shearwave Dispersion Ultrasound Vibrometry Applied to In Vivo Myocardium .....</b>	<b>2891-2894</b>
<i>Pislaru, Cristina* (Mayo Clinic College of Medicine); Urban, Matthew (Mayo Clinic College of Medicine); Nenadic, Ivan (Mayo Clinic College of Medicine); Greenleaf, James (Mayo Clinic)</i>	
11:10-12:30	FrBPo07.17
<b>Ex Vivo Measurements of Myocardial Viscoelasticity Using Shearwave Dispersion Ultrasound Vibrometry (SDUV) .....</b>	<b>2895-2898</b>
<i>Nenadic, Ivan* (Mayo Clinic College of Medicine); Urban, Matthew (Mayo Clinic College of Medicine); Greenleaf, James (Mayo Clinic)</i>	
11:10-12:30	FrBPo07.18
<b>Comparative Analysis of Three Different Modalities for Characterization of the Seismocardiogram .....</b>	<b>2899-2903</b>
<i>Akhbardeh, Alireza (Johns Hopkins University); Tavakolian, Kouhyar* (Simon Fraser University); Gurev, Viatcheslav (Tulane University); New, William (Stanford University); Kaminska, Bozena (SIMON FRASER UNIVERSITY); Trayanova, Natalia (Johns Hopkins University)</i>	
11:10-12:30	FrBPo07.19
<b>Decay of Postextrasystolic Potentiation in the Left and Right Ventricles of Intact Canine Hearts .....</b>	<b>2904-2906</b>
<i>Black, Adam J* (Medtronic); Mulligan, Lawrence (Medtronic, Inc.)</i>	
11:10-12:30	FrBPo07.20
<b>Estimation of Volumetric Myocardial Apparent Conductivity from Endocardial Electro-Anatomical Mapping .....</b>	<b>2907-2910</b>
<i>Chinchapatnam, Phani* (University College London); Rhode, Kawal (King's College London); Ginks, Matthew (King's College London); Mansi, Tommaso (INRIA Sophia-Antipolis); Peyrat, Jean-Marc (INRIA Sophia-Antipolis); Lambiase, Pier (University College London Hospital); Rinaldi, Aldo (King's College London); Razavi, Reza (King's College London); Arridge, Simon (University College London); Sermesant, Maxime (INRIA Sophia-Antipolis)</i>	

**6.8.1 Localization & Connectivity** (Poster Session)

- 11:10-12:30 FrBPo08.1  
**BrainNetVis: Analysis and Visualization of Brain Functional Networks** ..... **2911-2914**  
*Tsiaras, Vassilis\* (University of Crete); Andreou, Dimitrios (ICS FORTH); Tollis, Ioannis (University of Crete)*
- 11:10-12:30 FrBPo08.2  
**Magnetoencephalographic Imaging of Deep Corticostriatal Network Activity During a Rewards Paradigm** ..... **2915-2918**  
*Kanal, Eliezer\* (University of Pittsburgh); Sun, Mingui (University of Pittsburgh); Ozkurt, Tolga Esat (University of Pittsburgh); Jia, Wenyan (University of Pittsburgh); Sciabassi, Robert (University of Pittsburgh)*
- 11:10-12:30 FrBPo08.3  
**Fmri Correlates of Behavioural Microsleeps During a Continuous Visuomotor Task** ..... **2919-2922**  
*Poudel, Govinda\* (Dept of Medicine, Univ of Otago); Jones, Richard D. (Van der Veer Institute); nnes, Carrie R. H. (Canterbury District Health Board); Watts, Richard (University of Canterbury); Signal, T. L. (Massey University); Bones, P. J. (University of Canterbury)*
- 11:10-12:30 FrBPo08.4  
**Influence of White Matter Anisotropy on EEG Source Localization: An Experimental Study** ..... **2923-2925**  
*Lee, Won Hee (Columbia University); Liu, Zhongming (National Institute of Neurological Disorders and Stroke, National Institutes of Health); He, Bin\* (University of Minnesota)*
- 11:10-12:30 FrBPo08.5  
**Estimation and Visualization of Neuronal Functional Connectivity in Motor Tasks** ..... **2926-2929**  
*Li, Lin\* (University of Florida); Seth, Sohan (University of Florida); Park, Il (University of Florida); Sanchez, Justin C. (University of Florida); Principe, Jose (University of Florida)*
- 11:10-12:30 FrBPo08.6  
**Patch-basis electrocortical source imaging in epilepsy** ..... **2930-2933**  
*Akalin Acar, Zeynep (University of California, San Diego); Worrell, Gregory A. (Mayo Clinic); Makeig, Scott\* (University of California San Diego)*
- 11:10-12:30 FrBPo08.7  
**Simultaneous Recording of Brain Activity and Functional Connectivity in the Mouse Brain** ..... **2934-2936**  
*Lee, Mina\* (Korea Institute of Science and Technology, University of Science and Technology); Choi, Jee Hyun (Korea Institute of Science and Technology, University of Science and Technology)*
- 11:10-12:30 FrBPo08.8  
**Signal Characteristics of Cerebellar Activity Recorded with 2D Micro-Electrode Arrays** ..... **2937-2939**  
*Groth, Jonathan\* (New Jersey Institute of Technology, Newark); Sahin, Mesut (New Jersey Institute of Technology)*
- 11:10-12:30 FrBPo08.9  
**In Vivo Localization of Fascicular Activity** ..... **2940-2942**  
*Wodlinger, Brian\* (Case Western Reserve University); Durand, Dominique (Case Western Reserve University)*
- 11:10-12:30 FrBPo08.10  
**Somatosensory Evoked Potential Components with and without Contact Cold Stimulus** ..... **2943-2946**  
*Xie, XB (Institute of Biomedical Engineering, Chinese Academy Of Medical Sciences and Peking Union Medical College); Hu, Li (The University of Hong Kong); Cui, Hongyan (Chinese Academy of Medical Sciences); Hu, Yong\* (The University of Hong Kong)*

**6.8.3 EMG and Neuromuscular Systems** (Poster Session)

- 11:10-12:30 FrBPo09.1  
**Mechanical Perturbations Applied During Impending Movement Evoke Startle-Like Responses** ..... **2947-2950**  
*Ravichandran, Vengateswaran\* (Northwestern University); Shemmell, Jonathan (Northwestern University); Perreault, Eric (Northwestern University)*

11:10-12:30	FrBPo09.2
<b>Classification of the Mechanomyogram: Its Potential As a Multifunction Access Pathway .....</b>	<b>2951-2954</b>
<i>Alves, Natasha* (University of Toronto); Chau, Tom (University of Toronto)</i>	
11:10-12:30	FrBPo09.3
<b>Contraction-Based Variations in Upper Limb EMG-Force Models under Isometric Conditions .....</b>	<b>2955-2959</b>
<i>Mountjoy, Katherine* (Queen's University); Morin, Evelyn (Queen's University); Hashtrudi-Zaad, Keyvan (Queen's University)</i>	
11:10-12:30	FrBPo09.4
<b>Analysis of Surface EMG-Force Relation of the First Dorsal Interosseous Muscle .....</b>	<b>2960-2962</b>
<i>Murali, Karthik (Northwestern University); Suresh, Nina (Rehabilitation Institute of Chicago); Stiller, Robin (Northwestern University McCormick School of Engineering); Rymer, William Zev (Northwest. &amp; Rehab Inst of Chicago); Zhou, Ping* (Northwestern University &amp; Rehab Inst of Chicago)</i>	
11:10-12:30	FrBPo09.5
<b>Measurement of Rectus Femoris Muscle Velocities During Patellar Tendon Jerk Using Vector Tissue Doppler Imaging .....</b>	<b>2963-2966</b>
<i>Sikdar, Siddhartha* (George Mason University); Lebedowska, Maria (National Institutes of Health); Eranki, Avinash (George Mason University); Garmirian, Lindsay (National Institutes of Health); Damiano, Diane (National Institutes of Health)</i>	
11:10-12:30	FrBPo09.6
<b>Estimation of Joint Stiffness with a Compliant Load .....</b>	<b>2967-2970</b>
<i>Ludvig, Daniel* (McGill University); Kearney, Robert Edward (McGill University)</i>	
11:10-12:30	FrBPo09.7
<b>Detection of synchrony in biosignals using cross fuzzy entropy .....</b>	<b>2971-2974</b>
<i>Xie, Hong-Bo* (The Hong Kong Polytechnic University)</i>	
11:10-12:30	FrBPo09.8
<b>Quantitative Estimation of Muscle Fatigue Using Surface Electromyography During Static Muscle Contraction .....</b>	<b>2975-2978</b>
<i>Soo, Yewguan* (The University of Tokyo); Sugi, Masao (The University of Tokyo); NISHINO, Masataka (The University of Tokyo); Yokoi, Hiroshi (University of Tokyo); Arai, Tamio (The Univeristy of Tokyo); Kato, Ryu (The University of Tokyo); Nakamura, Tatsuhiro (The University of Tokyo); Ota, Jun (The University of Tokyo)</i>	
11:10-12:30	FrBPo09.9
<b>Towards a Genioglossus Surface EMG Model of Obstructive Sleep Apnea .....</b>	<b>2979-2982</b>
<i>Chua, Eric Chern-Pin* (University College Dublin); McSharry, David (St Vincent's University Hospital); Mc Nicholas, Walter (St. Vincent's University Hospital); Lowery, Madeleine (University College Dublin)</i>	
11:10-12:30	FrBPo09.10
<b>Feasibility of Building Robust Surface Electromyography-Based Gesture Interfaces .....</b>	<b>2983-2986</b>
<i>Chen, Xiang* (University of Science &amp; Technology of China); Lantz, Vuokko (Nokia); Wang, Kong-qiao (Nokia); Zhao, Zhang-yan (University of Science &amp; Technology of China); Zhang, Xu (University of Science &amp; Technology of China); Yang, Jihai (University of Science and Technology of China)</i>	
11:10-12:30	FrBPo09.11
<b>Optimal Electrode Configurations for Finger Movement Classification Using EMG .....</b>	<b>2987-2990</b>
<i>Andrews, Alex* (Queen's University); Morin, Evelyn (Queen's University); McLean, Linda (Queen's University)</i>	
11:10-12:30	FrBPo09.12
<b>Robust Motion Discrimination Based on Human Forearm Myoelectric Potential by Adaptive Fuzzy Inference Considering Muscle Fatigue .....</b>	<b>2991-2995</b>
<i>Kiso, Atsushi* (Chiba Institute of Technology); Seki, Hirokazu (Chiba Institute of Technology)</i>	
11:10-12:30	FrBPo09.13
<b>Filtering of Intended Motion in Real-Time Tremor Compensation for Human Upper Limb Using Surface Electromyography .....</b>	<b>2996-2999</b>
<i>Widjaja, Ferdinan* (Nanyang Technological University); Shee, Chengyap (Nanyang Technological University); POIGNET, Philippe (LIRMM, UMR CNRS 5506, University of Montpellier II); Ang, Wei Tech (Nanyang Technological University)</i>	

11:10-12:30 FrBPo09.14  
**EMG-Biofeedback and Load Sharing Problem in Assistive and Rehabilitation Orthotic Devices** ..... 3000-3003  
*Rahimi, Fariborz\* (University of Waterloo); Callaghan, Jack (University of Waterloo);  
Janabi-Sharifi, Farrokh (Ryerson University); Wang, David (University of Waterloo)*

11:10-12:30 FrBPo09.15  
**Development of a Myoelectric Control Scheme Based on a Time Delayed Neural Network** ..... 3004-3007  
*Smith, Alan\* (Rochester Institute of Technology); Nanda, Pooja (Rochester Institute of Technology);  
Brown, Edward (Rochester Institute of Technology)*

FrBPo10: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**9.1.3 Internally Applied Therapeutic Devices II (Poster Session)**

11:10-12:30 FrBPo10.1  
**A Precision ECG Signal Generator Providing Full Lead II QRS Amplitude Variability and an Accurate Timing Profile.** ..... 3008-3011  
*Shorten, Gavin\* (Trinity College Dublin); Burke, Martin J. (Trinity College Dublin)*

11:10-12:30 FrBPo10.2  
**Defibrillator Synchronization Tester** ..... 3012-3015  
*Krajnak, Michael\* (GE Healthcare); Demirbilek, Fatma (GE Healthcare); Stolarczyk, George (GE Healthcare)*

11:10-12:30 FrBPo10.3  
**Heart Sounds Based Measures of Cardiac Status for Heart Failure Patient Management** ..... 3016-3019  
*Patangay, Abhilash\* (Boston Scientific Corporation); Siejko, Kris (Boston Scientific Corporation);  
Wariar, Ramesh (Boston Scientific Corporation); DeLurgio, David (Emory Crawford Long Hospital);  
Leon, Angel (Emory Crawford Long Hospital)*

11:10-12:30 FrBPo10.4  
**Predicting Charge-Times of Implantable Cardioverter Defibrillators** ..... 3020-3023  
*Gomadam, PARTHASarathy\* (Medtronic Inc); Brown, Jason (Medtronic Inc); Scott, Erik (Medtronic Inc);  
Schmidt, Craig (Medtronic Inc)*

11:10-12:30 FrBPo10.5  
**Optimization of Antitachycardia Pacing Protocols Applied to Atrial Fibrillation: Insights from a Biophysical Model** ..... 3024-3027  
*Uldry, Laurent\* (Swiss Federal Institute of Technology Lausanne (EPFL)); Virag, Nathalie (Medtronic Europe);  
Kappenberger, Lukas (University Hospital CHUV); Vesin, Jean-Marc (EPFL)*

11:10-12:30 FrBPo10.6  
**Investigating Brain Hemodynamics of ADHD Patients by Functional Near Infrared Spectroscopy** ..... 3028-3030  
*Serap, Sinem\* (Bogazici University)*

11:10-12:30 FrBPo10.7  
**Automated Method for Calculation of a Load-Independent Index of Isovolumic Pressure Decay from Left Ventricular Pressure Data** ..... 3031-3034  
*Shmuylovich, Leonid\* (Washington University in St Louis); Kovács, Sándor J (Washington University in St Louis)*

11:10-12:30 FrBPo10.8  
**Endothelium Function Assessment with Radial Pulse Wave Signals** ..... 3035-3038  
*Wu, Hsien-Tsai\* (National Dong Hwa University); Lee, Chun-Ho (National Dong Hwa University);  
Wu, Tsang-Chin (National Dong Hwa University); Liu, An-Bang (Buddhist Tzu Chi General Hospital)*

11:10-12:30 FrBPo10.9  
**Dynamic Model-Inversion Techniques for Breath-By-Breath Measurement of Carbon Dioxide from Low-Bandwidth Sensors** ..... 3039-3042  
*Sivaramakrishnan, Shyam\* (University of Minnesota); Rajamani, Rajesh (University of Minnesota);  
Johnson, Bruce (Mayo Clinic)*

11:10-12:30 FrBPo10.10  
**Comparison of Conductance to Volume Equations: The Gain Coefficient ?** ..... 3043-3046  
*Porterfield, John\* (The University of Texas at Austin); Pearce, John Anthony (University of Texas at Austin)*

11:10-12:30	FrBPo10.11
<b>Assessment of Synchronization Measures for Effective Ventricular Support by Using the Shape Memory Alloy Fibred Artificial Myocardium in Goats</b> .....	<b>3047-3050</b>
<i>Shiraishi, Yasuyuki* (Tohoku University); Yambe, Tomoyuki (Tohoku Univ); Sugai, Telma Keiko (Tohoku University)</i>	
11:10-12:30	FrBPo10.12
<b>Popliteal blood flow and plantar flexion force due to neuromuscular electrical stimulation (NMES) of the calf muscle pump are strongly associated with NMES intensity.</b> .....	<b>3051-3054</b>
<i>Corley, Gavin* (National University of Ireland Galway); Birlea, Sinziana Iulia (National University of Ireland, Galway); OLaighin, Gearoid (National University of Ireland Galway)</i>	
11:10-12:30	FrBPo10.13
<b>Preliminary Optimization of Non-Destructive High Intensity Focused Ultrasound Exposures for Hyperthermia Applications</b> .....	<b>3055-3059</b>
<i>Wang, Shutao (The George Washington University); Frenkel, Victor (NIH); Zderic, Vesna* (The George Washington University)</i>	
11:10-12:30	FrBPo10.14
<b>Geant4 Estimation Model of High Z Atom Concentration for Tumor Vessel Ablation</b> .....	<b>3060-3063</b>
<i>Huang, Ke* (Thomas Jefferson University Hospital); Pradhan, Anil (The Ohio State University); Nahar, Sultana (The Ohio State University); Montenegro, Maximiliano (The Ohio State University); Yan, Kaiguo (Thomas Jefferson University); Yu, Yan (Thomas Jefferson University Hospital)</i>	
11:10-12:30	FrBPo10.15
<b>Heating Properties of the Re-Entrant Type Cavity Applicator for Brain Tumor with Several Resonant Frequencies</b> .....	<b>3064-3067</b>
<i>Suzuki, Masataka* (Meiji University); Kato, Kazuo (Meiji University); Hirashima, Taku (Meiji University); Shindo, Yasuhiro (Meiji university)</i>	
11:10-12:30	FrBPo10.16
<b>Heating Properties of Needle Type Applicator Made of Shape Memory Alloy by 3-D Anatomical Human Head Model</b> .....	<b>3068-3071</b>
<i>Mimoto, Naoki* (Meiji University); Kato, Kazuo (Meiji University); Shindo, Yasuhiro (Meiji university)</i>	
11:10-12:30	FrBPo10.17
<b>Improvement of the Matching Speed of AIMS for Development of an Automatic Totally Tuning System for Hyperthermia Treatment Using a Resonant Cavity Applicator</b> .....	<b>3072-3075</b>
<i>Shindo, Yasuhiro* (Meiji university); Kato, Kazuo (Meiji University); Hirashima, Taku (Meiji University); Suzuki, Masataka (Meiji University)</i>	
11:10-12:30	FrBPo10.18
<b>Electromagnetic Measurement and Modeling Techniques for Microwave Ablation Probes</b> .....	<b>3076-3078</b>
<i>Brannan, Joseph* (Covidien, Energy-based Devices)</i>	
11:10-12:30	FrBPo10.19
<b>Evaluation of Three Automatic Oxygen Therapy Control Algorithms on Ventilated Low Birth Weight Neonates</b> .....	<b>3079-3082</b>
<i>Morozoff, Edmund* (Medtronic Inc.); Smyth, John (Children's and Womens Health Centre of British Columbia)</i>	
11:10-12:30	FrBPo10.20
<b>Fuzzy Control for Closed-Loop, Patient-Specific Hypnosis in Intraoperative Patients: A Simulation Study</b> .....	<b>3083-3086</b>
<i>Moore, Brett* (Texas Tech University); Doufas, Anthony (Stanford University); Pyeatt, Larry (Texas Tech University)</i>	
11:10-12:30	FrBPo10.21
<b>Mathematical Modeling of Triamcinolone Acetonide Drug Release from the I-Vation™ Intravitreal Implant (A Controlled Release Platform)</b> .....	<b>3087-3090</b>
<i>Barnett, Peter* (SurModics)</i>	
11:10-12:30	FrBPo10.22
<b>Primary Experimental Study on Safety of Deep Brain Stimulation in RF Electromagnetic Field</b> .....	<b>3091-3094</b>
<i>Xu, Jun (Tsinghua University); Li, Luming* (Tsinghua University); Hao, Hongwei (Tsinghua University)</i>	

11:10-12:30 FrBPo10.23  
**Construction of Modular Novel Bioartificial Liver Support System** ..... **3095-3098**  
*Liu, Jianfeng (Institute of Electrical Engineering, Chinese Academy of Sciences); Song, Tao\* (Chinese Academy of Sciences); Jiang, Wei (Institute of Electrical Engineering, Chinese Academy of Sciences); Yimin, Zhang (Zhejiang University); Lanjuan, Li (Zhejiang University)*

11:10-12:30 FrBPo10.24  
**Direct Current Ablation Destroys Multi-Stage Fibrosarcomas in Rats** ..... **3099-3104**  
*Schroepfel, Edward (OncoStim, Inc.); Kroll, Kai (OncoStim, Inc.); Damon, Michael (OncoStim, Inc.); Kroll, Ashford\* (OncoStim, Inc.)*

FrKN3L: 13:30-15:00 Grand Ballroom - Salon A  
**Theme Keynote III**  
**Chair:** Zhi-Pei Liang, *Univ. of Illinois at Urbana-Champaign*  
**Co-Chair:** Gregory A. Worrell, *Mayo Clinic*

13:30-14:15 FrKN3L.1  
**Frontiers in Biomedical Imaging with Ultrahigh Magnetic Fields** ..... \*  
*Ugurbil, Kamil\* (University of Minnesota)*

14:15-15:00 FrKN3L.2  
**Magnetic Resonance Elastography** ..... \*  
*Ehman, Richard L.\* (Mayo Clinic)*

FrC01: 13:30-15:00 Conrad B  
**1.2.3 Heart Sound Analysis (Oral Session)**  
**Chair:** Todd R. Reed, *Univ. of Hawaii, Manoa*  
**Co-Chair:** Paulo Carvalho, *Univ. of Coimbra*

13:30-13:45 FrC01.1  
**A Computational Model of Cardiovascular Physiology and Heart Sound Generation** ..... **3105-3110**  
*Watrous, Raymond L.\* (Zargis Medical Corporation)*

13:45-14:00 FrC01.2  
**A Portable Graphical Representation Tool for Phonocardiograms** ..... **3111-3114**  
*Reed, Nancy E.\* (University of Hawaii); Nie, Yanhan (University of Hawaii); Mahnke, Christopher (TRIPLER ARMY MEDICAL CENTER)*

14:00-14:15 FrC01.3  
**Automated Heart Sound Analysis/Computer-Aided Auscultation: A Cardiologist's Perspective and Suggestions for Future Development** ..... **3115-3118**  
*Mahnke, Christopher\* (TRIPLER ARMY MEDICAL CENTER)*

14:15-14:30 FrC01.4  
**Noise Detection During Heart Sound Recording** ..... **3119-3123**  
*Kumar, Dinesh\* (University of Coimbra); Carvalho, Paulo (University of Coimbra); Antunes, Manual (University of Coimbra); Henriques, Jorge (University of Coimbra)*

14:30-14:45 FrC01.5  
**Assessing Systolic Time-Intervals from Heart Sound: A Feasibility Study** ..... **3124-3128**  
*Carvalho, Paulo\* (University of Coimbra); Paiva, Rui Pedro (University of Coimbra); Couceiro, Ricardo (University of Coimbra); Henriques, Jorge (University of Coimbra); Quintal, Isabel (Centro Hospitalar de Coimbra); Muehlsteff, Jens (Philips); Aubert, Xavier (Philips Research Laboratories Europe, Aachen, GERMANY); Antunes, Manual (University of Coimbra)*

14:45-15:00 FrC01.6  
**Assessing PEP and LVET from Heart Sounds: Algorithms and Evaluation** ..... **3129-3133**  
*Paiva, Rui Pedro\* (University of Coimbra); Carvalho, Paulo (University of Coimbra); Aubert, Xavier (Philips Research Laboratories Europe, Aachen, GERMANY); Muehlsteff, Jens (Philips); Henriques, Jorge (University of Coimbra); Antunes, Manual (University of Coimbra)*

FrC02: 13:30-15:00

Conrad C

**1.5.1 Principal Component Analysis and Independent Component Analysis (Oral Session)**

**Chair:** Christopher James, *Univ. of Southampton*

**Co-Chair:** Issa Panahi, *Univ. of Texas at Dallas*

13:30-13:45

FrC02.1

**Overcoming Measurement Time Variability in Brain Machine Interface ..... 3134-3137**

*Gowreesunker, B. Vikram\* (University of Minnesota Twin Cities); Tewfik, Ahmed (University of Minnesota); Tadipatri, Vijay Aditya (University of Minnesota); Ince, Nuri Firat (University of Minnesota); Ashe, James (University of Minnesota); Pellizzer, Giuseppe (VA Medical Center)*

13:45-14:00

FrC02.2

**An Optimal Spatial Filtering Electrode for Brain Computer Interface ..... 3138-3141**

*Besio, W. G.\* (University of Rhode Island); Kay, Steven (University of Rhode Island); Liu, Xiang (University of Rhode Island)*

14:00-14:15

FrC02.3

**A Graph-Laplacian-Based Feature Extraction Algorithm for Neural Spike Sorting ..... 3142-3145**

*Ghanbari, Yasser\* (Southern Methodist University); Spence, Larry (Plexon Inc); Papamichalis, Panos (Southern Methodist University)*

14:15-14:30

FrC02.4

**A Motion Sequence Fusion Technique Based on PCA for Activity Analysis in Body**

**Sensor Networks ..... 3146-3149**

*Ghasemzadeh, Hassan (University of Texas at Dallas); Guenterberg, Eric (University of California, Los Angeles); Ostadabbas, Sarah (University of Texas at Dallas); Jafari, Roozbeh\* (University of Texas at Dallas)*

14:30-14:45

FrC02.5

**Selective-Tap Blind Signal Processing for Speech Separation ..... 3150-3153**

*Kokkinakis, Kostas (University of Texas at Dallas); Loizou, Philipos\* (University of Texas at Dallas)*

14:45-15:00

FrC02.6

**On Spatio-Temporal Component Selection in Space-Time Independent Component Analysis:**

**An Application to Ictal EEG ..... 3154-3157**

*James, Christopher\* (University of Southampton); Demanuele, Charmaine (University of Southampton)*

FrC03: 13:30-15:00

Grand Ballroom - Salon B

**2.5.3 Electrical Impedance Imaging (Oral Session)**

**Chair:** Ryan Halter, *Dartmouth Coll.*

**Co-Chair:** Ulrich Katscher, *Philips Res. Europe - Hamburg*

13:30-13:45

FrC03.1

**Electrical Conductivity Imaging Using MRI Measurement of the Magnetic Field Vector ..... 3158-3161**

*Joy, Michael L.G.\* (University of Toronto); Nachman, Adrian I. (University of Toronto); DeMonte, Tim P. (Field Metrica Inc.); Wang, Dinghui (University of Toronto); Ma, Weijing (University of Toronto)*

13:45-14:00

FrC03.2

**Electrical Conductivity Imaging Using Magnetic Resonance Tomography ..... 3162-3164**

*Katscher, Ulrich\* (Philips Research Europe - Hamburg); Voigt, Tobias (Philips Research Europe - Hamburg); Findekle, Christian (Philips Research Europe - Hamburg)*

14:00-14:15

FrC03.3

**Animal and Human Imaging Experiments in Magnetic Resonance Electrical Impedance**

**Tomography (MREIT) ..... 3165-3168**

*Woo, Eung Je\* (Kyung Hee University)*

14:15-14:30

FrC03.4

**Detection of Intraventricular Blood Using EIT in a Neonatal Piglet Model ..... 3169-3172**

*Sadleir, Rosalind\* (University of Florida); Tang, Te (University of Florida); Tucker, Aaron (University of Florida); Borum, Peggy (University of Florida); Weiss, Michael D. (University of Florida)*



14:30-14:45 FrC03.5  
**Magnetoacoustic Tomography with Magnetic Induction (MAT-MI) for Electrical Conductivity Imaging ... 3173-3176**  
*Li, Xu\* (University of Minnesota); He, Bin (University of Minnesota)*

14:45-15:00 FrC03.6  
**In-Vivo Measurement of Relationship between Applied Current Amplitude and Current Density Magnitude from 10 Ma to 110 Ma ..... 3177-3180**  
*DeMonte, Tim P.\* (Field Metrics Inc.); Wang, Dinghui (University of Toronto); Ma, Angela W. (University of Toronto); Gao, Jia-Hong (University of Chicago); Joy, Michael L.G. (University of Toronto)*

FrC05: 13:30-15:00 Marquette IV & V  
**9.2.1 Neuromuscular Incapacitation Devices (Oral Session)**  
**Chair:** Dorin Panescu, *NewCardio, Inc.*  
**Co-Chair:** Wayne McDaniel, *Univ. of Missouri*

13:30-13:45 FrC05.1  
**Human Research Review of the Taser® Electronic Control Device ..... 3181-3183**  
*Ho, Jeffrey\* (University of MN-Hennepin Co Medical Center)*

13:45-14:00 FrC05.2  
**Electrical Parameters of Projectile Stun Guns ..... 3184-3187**  
*McDaniel, Wayne\* (University of Missouri)*

14:00-14:15 FrC05.3  
**Theoretical Comparisons of Nerve and Muscle Activation by Neuromuscular Incapacitation Devices .... 3188-3190**  
*Sweeney, James\* (Florida Gulf Coast University)*

14:15-14:30 FrC05.4  
**Medical Safety of TASER Conducted Energy Weapon in a Hybrid 3-Point Deployment Mode ..... 3191-3194**  
*Panescu, Dorin\* (NewCardio, Inc.); Kroll, Mark (University of Minnesota); Stratbucker, Robert (Stratbucker & Associates)*

14:30-14:45 FrC05.5  
**Cardiac Effects of Varying Pulse Charge and Polarity of TASER® Conducted Electrical Weapons ..... 3195-3198**  
*Kroll, Mark\* (University of Minnesota); Panescu, Dorin (NewCardio, Inc.); Carver, Matthew (TASER International); Kroll, Ryan M (Medical Univ. of South Carolina); Hinz, Andrew (TASER International)*

14:45-15:00 FrC05.6  
**TASER Conducted Electrical Weapons and Implanted Pacemakers and Defibrillators ..... 3199-3204**  
*Vanga, Subba Reddy (University of Kansas City Hospitals); Bommana, Sudha Rani (University of Kansas Hospitals); Kroll, Mark (University of Minnesota); Swerdlow, Charles (University of California Los Angeles); Lakkireddy, Dhanunjaya\* (UNiversity of Kansas Hospitals)*

FrC06: 13:30-15:00 Conrad A  
**3.5.1 Wireless Sensors and Telemetry (Oral Session)**  
**Chair:** Sameer Sonkusale, *Tufts Univ.*  
**Co-Chair:** Maysam Ghovanloo, *Georgia Inst. of Tech.*

13:30-13:45 FrC06.1  
**Ultra-Low-Power Wearable Biopotential Sensor Nodes ..... 3205-3208**  
*Yazicioglu, Refet Firat (IMEC); Torfs, Tom (IMEC); Penders, Julien (Stichting IMEC Nederland); Romero, Iñaki (IMEC); Kim, Hyejung (KAIST); Merken, Patrick (IMEC); Gyselinckx, Bert (Stichting IMEC-NL); Yoo, Hoi-Jun (KAIST); Van Hoof, Chris\* (IMEC)*

13:45-14:00 FrC06.2  
**Low Energy Wearable Body-Sensor-Network ..... 3209-3212**  
*Yoo, Hoi-Jun\* (KAIST); Cho, Namjun (KAIST); Yoo, Jerald (KAIST)*

14:00-14:15 FrC06.3  
**Circuit Techniques for Wireless Brain Interfaces** ..... 3213-3216  
*Otis, Brian\* (University of Washington); Moritz, Chet (University of Washington); Holleman, Jeremy (University of Washington); Mishra, Apurva (University of Washington); Pandey, Jagdish (University of Washington); Rai, Shailesh (UW); Yeager, Dan (UW); Zhang, Fan (UW)*

14:15-14:30 FrC06.4  
**Miniaturization of Implantable Wireless Power Receiver** ..... 3217-3220  
*Poon, Ada S Y\* (Stanford University)*

14:30-14:45 FrC06.5  
**Wireless Powering and Data Telemetry for Biomedical Implants** ..... 3221-3224  
*Young, Darrin\* (Case Western Reserve University)*

14:45-15:00 FrC06.6  
**Evaluation of the Autonomic Nervous System for Fall Detection** ..... 3225-3228  
*Nocua Cifuentes, Ronald\* (Université Joseph Fourier); Noury, Norbert (Université Claude Bernard Lyon 1); Gehin, Claudine (INSA Lyon); Dittmar, Andre (INSA Lyon); McAdams, Eric (University of Ulster)*

FrC07: 13:30-15:00 Marquette VII  
**12.1.3 Recent Advances in Novel Optical Imaging Technologies** (Oral Session)  
**Chair:** Xingde Li, *Johns Hopkins Univ.*  
**Co-Chair:** Lev Perelman, *Beth Israel Deaconess Medical Center, Harvard Medical School*

13:30-13:45 FrC07.1  
**Widefield Fluorescence Sectioning with HiLo Microscopy** ..... 3229-3230  
*Mertz, Jerome\* (Boston University); Lim, Daryl (Boston University); Chu, Kengyeh K. (Boston University); Bozinovic, Nenad (Boston University); Ford, Timothy (Boston University)*

13:45-14:00 FrC07.2  
**Confocal Microscopy of Skin Cancers: Translational Advances Toward Clinical Utility** ..... 3231-3233  
*Rajadhyaksha, Milind\* (Memorial Sloan-Kettering Cancer Center)*

14:00-14:15 FrC07.3  
**Depth Resolved Wide Field Illumination for Biomedical Imaging and Fabrication** ..... 3234-3235  
*So, Peter\* (MIT); Kim, Daekeun (Massachusetts Institute of Technology)*

14:15-14:30 FrC07.4  
**Model Based Reconstruction for Simultaneously Imaging Cerebral Blood Flow and De-Oxygen Hemoglobin Distribution** ..... 3236-3239  
*Miao, Peng\* (Shanghai Jiao Tong University); Li, Nan (Johns Hopkins University); Tong, Shanbao (Shanghai Jiao Tong University); Thakor, Nitish (Johns Hopkins University)*

14:30-14:45 FrC07.5  
**Characteristics of Motion Artifacts in Cardiac Optical Mapping Studies** ..... 3240-3243  
*Svrcek, Martin\* (Brno University of Technology); Rutherford, Sally (University of Auckland); Chen, Andy (University of Auckland); Provaznik, Ivo (Brno University Of Technology); Smaill, Bruce (University of Auckland)*

14:45-15:00 FrC07.6  
**Functional Imaging of Neoadjuvant Chemotherapy Response in Women with Locally Advanced Breast Cancer Using Diffuse Optical Spectroscopy** ..... 3244-3246  
*Soliman, Hany (University of Toronto, Sunnybrook Health Sciences Centre); Yaffe, Martin (University of Toronto); Czarnota, Gregory\* (University of Toronto, Sunnybrook Health Sciences Centre)*

FrC08: 13:30-15:00 Marquette VIII  
**4.3.2 Model Identification and Parameter Estimation** (Oral Session)  
**Chair:** May Dongmei Wang, *Georgia Tech. and Emory Univ.*

13:30-13:45 FrC08.1  
**A Cell-Electrode Interface Noise Model for High-Density Microelectrode Arrays** ..... 3247-3250  
*Joye, Neil\* (EPFL); Schmid, Alexandre (EPFL); Leblebici, Yusuf (EPFL)*

13:45-14:00	FrC08.2
<b>Optimisation on the Least Squares Identification of Dynamical Systems with Application to Hemodynamic Modelling</b> .....	<b>3251-3254</b>
<i>Pan, Yi* (University of Sheffield); Zheng, Ying (University of Sheffield); Harris, Sam (University of Sheffield); Coca, Danial (University of Sheffield); Johnston, David (University of Sheffield); Mayhew, John (University of Sheffield); Billings, Stephen (University of Sheffield)</i>	
14:00-14:15	FrC08.3
<b>Free-Knot Spline Model for Analysis of Pulmonary Function</b> .....	<b>3255-3258</b>
<i>Lee, Yong Wan* (University of Minnesota); Lee, Jongwon (UNIVERSITY OF MINNESOTA); Yoo, Wha (Physical Medicine and Rehabilitation Science Department, University of Minnesota, Minneapolis); Yoo, Hyeong (School of Computer Science and Engineering, Inha University, Incheon, 402-751 Korea); Warwick, Warren J. (University of Minnesota)</i>	
14:15-14:30	FrC08.4
<b>Fitting rVOR Responses Using Current Models</b> .....	<b>3259-3262</b>
<i>Bertolini, Giovanni* (University of Pavia); Palla, Antonella (Zürich University Hospital); Ramat, Stefano (Università di Pavia)</i>	
14:30-14:45	FrC08.5
<b>Parameter Estimation in Rational Models of Molecular Biological Systems</b> .....	<b>3263-3266</b>
<i>Wu, FangXiang* (University of Saskatchewan)</i>	
14:45-15:00	FrC08.6
<b>Modeling of Segmentation Clock Mechanism in Presomitic Mesoderm</b> .....	<b>3267-3270</b>
<i>Kazama, Akihiro (Tohoku University); Karashima, Akihiro (Tohoku University); Katayama, Norihiro (Tohoku Univ); Nakao, Mitsuyuki* (Tohoku University)</i>	
FrC09: 13:30-15:00	Marquette II
<b>5.3.2 Cardiac Electrophysiology (Mapping, CRT, ICD, Ablation, Arrhythmias) (Oral Session)</b>	
<b>Chair:</b> Nick Skadsberg, <i>Medtronic, Inc.</i>	
<b>Co-Chair:</b> Guanglin Li, <i>Chinese Acad. of Sciences</i>	
13:30-13:45	FrC09.1
<b>Noninvasive Three-Dimensional Cardiac Activation Imaging on a Rabbit Model</b> .....	<b>3271-3273</b>
<i>Han, Chengzong* (University of Minnesota); Liu, Chenguang (University of Minnesota); Pogwizd, Steven (University of Illinois at Chicago); He, Bin (University of Minnesota)</i>	
13:45-14:00	FrC09.2
<b>Electrocardiographic Inverse Problem: Spatial Characterization of the Left Ventricle Potential</b> .....	<b>3274-3277</b>
<i>Stenroos, Matti* (Helsinki University of Technology); Toivonen, Lauri (Helsinki University Central Hospital)</i>	
14:00-14:15	FrC09.3
<b>A Computer Study of the Effects of Branching Dimension on Safety Factor Distribution and Propagation in a Cardiac Conduction Network</b> .....	<b>3278-3281</b>
<i>Zhao, Jichao* (University of Auckland); Smaill, Bruce (University of Auckland); Pullan, Andrew (University of Auckland)</i>	
14:15-14:30	FrC09.4
<b>Exit vs. Entrance Block Testing for Cardiac Lesion Assessment</b> .....	<b>3282-3285</b>
<i>Ahlberg, Sarah* (Medtronic, Inc.); Hong, Jinback (Medtronic); Stewart, Mark (Medtronic CardioVascular); Francischelli, David (Medtronic, Inc.); Kress, David C (Aurora St. Luke's Medical Center)</i>	
14:30-14:45	FrC09.5
<b>Computer Simulation Comparison of Tripolar, Bipolar, and Spline Laplacian Electrocardiogram Estimators</b> .....	<b>3286-3289</b>
<i>Chen, Ting (Louisiana Tech University); Besio, W. G.* (University of Rhode Island); Dai, Weizhong (Louisiana Tech University)</i>	

14:45-15:00 FrC09.6  
**Near-Realtime Simulations of Bioelectric Activity in Small Mammalian Hearts Using Graphical Processing Units** ..... 3290-3293  
*Vigmond, Edward (University of Calgary); Boyle, Patrick M.\* (University of Calgary); Leon, Josh (Dalhousie University); Plank, Gernot (Medical University of Graz)*

FrC10: 13:30-15:00	Grand Ballroom - Salon C
<b>6.7.2 Deep Brain Stimulation I</b> (Oral Session)	
<b>Chair:</b> Kendall Lee, <i>Mayo Clinic</i>	
<b>Co-Chair:</b> David Mogul, <i>Illinois Inst. of Tech.</i>	

13:30-13:45 FrC10.1  
**Microthalamotomy Effect During Deep Brain Stimulation: Potential Involvement of Adenosine and Glutamate Efflux** ..... 3294-3297  
*Chang, Su-Youne (Mayo Clinic); Shon, Young-Min (Mayo Clinic); Agnesi, Filippo (Mayo Clinic); Lee, Kendall\* (Mayo Clinic)*

13:45-14:00 FrC10.2  
**High Efficiency Electrodes for Deep Brain Stimulation** ..... 3298-3301  
*Grill, Warren\* (Duke University); Wei, Xuefeng F. (Duke University)*

14:00-14:15 FrC10.3  
**Neuronal Pathways Involved in Deep Brain Stimulation of the Subthalamic Nucleus for Treatment of Parkinson's Disease** ..... 3302-3305  
*Lester, Deranda (University of Memphis); Rogers, Tiffany (University of Memphis); Blaha, Charles\* (University of Memphis)*

14:15-14:30 FrC10.4  
**Using Fast-Scan Cyclic Voltammetry to Evaluate Striatal Dopamine Release Elicited by Subthalamic Nucleus Stimulation** ..... 3306-3309  
*Covey, Daniel (Mayo Clinic); Garris, Paul\* (Mayo Clinic)*

14:30-14:45 FrC10.5  
**Modulation of Instantaneous Synchrony During Seizures by Deep Brain Stimulation** ..... 3310-3313  
*Fine, Ananda (University of Illinois at Chicago); Nicholls, David (University of Illinois at Chicago); Mogul, David\* (Illinois Institute of Technology)*

14:45-15:00 FrC10.6  
**Modulation of Arousal Regulation with Central Thalamic Deep Brain Stimulation** ..... 3314-3317  
*Shah, Sudhin A\* (Weill Cornell Graduate School of Biomedical Sciences); Baker, Jonathan (Weill Cornell Medical College); Ryou, Jae-Wook (Weill Cornell Medical College); Purpura, Keith (Weill Cornell Graduate School of Biomedical Sciences); Schiff, Nicholas (Weill Cornell Medical College)*

FrC11: 13:30-15:00	Marquette I
<b>6.1.1 Neural Modeling and Computing I</b> (Oral Session)	
<b>Chair:</b> John White, <i>University of Utah</i>	
<b>Co-Chair:</b> Tay Netoff, <i>Univ. of Minnesota</i>	

13:30-14:00 FrC11.1  
**Kalman Meets Neuron: The Emerging Intersection of Control Theory with Neuroscience** ..... 3318-3321  
*Schiff, Steven\* (Pennsylvania State University)*

14:00-14:15 FrC11.2  
**Seizure Prediction Using Support Vector Machine** ..... 3322-3325  
*Netoff, Tay\* (University of Minnesota)*

14:15-14:30 FrC11.3  
**Models of the Peripheral Nerves for Detection and Control of Neural Activity** ..... 3326-3329  
*Durand, Dominique\* (Case Western Reserve University); Wodlinger, Brian (Case Western Reserve University); Park, Hyunjoo (Case Western Reserve University)*

14:30-14:45 FrC11.4  
**Nonlinear Model of Single Hippocampal Neurons with Dynamical Thresholds** ..... 3330-3334  
*Lu, Ude\** (University of Southern California); *Song, Dong* (University of Southern California);  
*Berger, Theodore* (University of Southern California)

14:45-15:00 FrC11.5  
**Biophysical Synaptic Dynamics in an Analog VLSI Network of Hodgkin-Huxley Neurons** ..... 3335-3338  
*Yu, Theodore\** (UCSD); *Cauwenberghs, Gert* (University of California San Diego)

FrC12: 13:30-15:00 Marquette VI  
**7.6.1 Cellular Force Transduction** (Oral Session)  
**Chair:** Nathan Sniadecki, *University of Washington*  
**Co-Chair:** Kris Noel Dahl, *Carnegie Mellon University*

13:30-14:00 FrC12.1  
**Traction Forces and Rigidity Sensing of Adherent Cells** ..... 3339-3340  
*Wang, Yu-li\** (Carnegie Mellon University)

14:00-14:15 FrC12.2  
**The Foldome in Cellular Force Transduction** ..... 3341-3342  
*Discher, Dennis\** (University of Pennsylvania)

14:15-14:30 FrC12.3  
**The Effects of Substrate Elasticity on Endothelial Cell Network Formation and Traction Force Generation** ..... 3343-3345  
*Califano, Joseph P.* (Cornell University); *Reinhart-King, Cynthia A.\** (Cornell University)

14:30-14:45 FrC12.4  
**Distribution of Traction Forces Associated with Shape Changes During Amoeboid Cell Migration** ..... 3346-3349  
*Lasheras, Juan C.\** (University of California San Diego)

14:45-15:00 FrC12.5  
**Cell-Matrix Mechanobiology: Applications to Brain Tumors and Design of Tissue Engineering Scaffolds** ..... 3350-3352  
*Kumar, Sanjay\** (University of California, Berkeley)

FrC13: 13:30-15:00 Conrad D  
**8.4.1 Human-Robot Interaction I** (Oral Session)  
**Chair:** José del R. Millán, *Swiss Federal Inst. of Tech. Lausanne*  
**Co-Chair:** Jose M. Carmena, *Univ. of California, Berkeley*

13:30-13:45 FrC13.1  
**Non-Invasive Control of Neuroprostheses for the Upper Extremity: Temporal Coding of Brain Patterns** ..... 3353-3356  
*Müller-Putz, Gernot\** (Graz University of Technology); *Scherer, Reinhold* (Graz University of Technology);  
*Neuper, Christa* (Graz University of Technology); *Pfurtscheller, Gert* (Graz University of Technology);  
*Rupp, Rüdiger* (Heidelberg University)

13:45-14:00 FrC13.2  
**Knowing When to Assist: Developmental Issues in Lifelong Assistive Robotics** ..... 3357-3360  
*Demiris, Yiannis\** (Imperial College London)

14:00-14:15 FrC13.3  
**Asynchronous Non-Invasive Brain-Actuated Control of an Intelligent Wheelchair** ..... 3361-3364  
*Millán, José del R.\** (Swiss Federal Institute of Technology, Lausanne)

14:15-14:30 FrC13.4  
**An Actor-Critic Architecture and Simulator for Goal-Directed Brain-Machine Interfaces** ..... 3365-3368  
*Mahmoudi, Babak\** (University of Florida); *Principe, Jose* (University of Florida);  
*Sanchez, Justin C.* (University of Florida)

14:30-14:45 FrC13.5  
**Neural Prosthetic Systems: Current Problems and Future Directions** ..... 3369-3375  
*Chestek, Cynthia\** (Stanford University); *Cunningham, John Patrick* (Stanford University); *Gilja, Vikash* (Stanford University); *Nuyujukian, Paul* (Stanford University); *Ryu, Stephen* (Stanford University); *Shenoy, Krishna* (Stanford University)

14:45-15:00 FrC13.6  
**Toward a Biomimetic, Bidirectional, Brain Machine Interface** ..... 3376-3380  
*Fagg, Andrew* (University of Oklahoma); *Hatsopoulos, Nicholas* (University of Chicago); *London, Brian* (Northwestern University); *Reimer, Jacob* (University of Chicago); *Solla, Sara A.* (Feinberg School of Medicine, Northwestern University); *Wang, Di* (University of Oklahoma); *Miller, Lee\** (Northwestern University)

FrC14: 13:30-15:00 Marquette III  
**9.1.2 Ablation Therapies** (Oral Session)  
**Chair:** Timothy Bigelow, *Iowa State Univ.*  
**Co-Chair:** John Anthony Pearce, *Univ. of Texas at Austin*

13:30-13:45 FrC14.1  
**Cardiac Ablation Via Electroporation** ..... 3381-3384  
*Hong, Jinback\** (Medtronic); *Stewart, Mark* (Medtronic CardioVascular); *Cheek, Daniel* (Medtronic); *Francischelli, David* (Medtronic, Inc.); *Kirchhof, Nicole* (Medtronic)

13:45-14:00 FrC14.2  
**1-D Steady State Analysis of a Two-Equation Coupled System for Determination of Tissue Temperature in Liver During Radio Frequency Ablation** ..... 3385-3388  
*Peng, Tingying\** (University of Oxford); *O'Neill, David Patrick* (University of Oxford); *Payne, Stephen John* (University of Oxford)

14:00-14:15 FrC14.3  
**Heating Properties of Non-Invasive Hyperthermia Treatment for Abdominal Deep Tumors by 3-D FEM** ..... 3389-3392  
*Morita, Emi\** (Meiji University); *Kato, Kazuo* (Meiji University); *Ono, Shintaro* (Meiji University); *Shindo, Yasuhiro* (Meiji university)

14:15-14:30 FrC14.4  
**Improved Heating Efficiency with High-Intensity Focused Ultrasound Using a New Ultrasound Source Excitation** ..... 3393-3396  
*Bigelow, Timothy\** (Iowa State University)

14:30-14:45 FrC14.5  
**Quantification and Controllability Study of Minimally Invasive Exothermic Chemo-Ablation Therapy for Tumor Ablation** ..... 3397-3400  
*Liu, Ran\** (Tsinghua University); *Liu, Jing* (Tsinghua University)

14:45-15:00 FrC14.6  
**The Development of a Novel Radiation Treatment Modality– Volumetric Modulated Arc Therapy** ..... 3401-3404  
*Song, Yulin\** (Memorial Sloan-Kettering Cancer Ctr); *Zhang, Pengpeng* (Memorial Sloan-Kettering Cancer Center); *Wang, Ping* (Memorial Sloan-Kettering Cancer Center); *Obcemea, Ceferino* (Memorial Sloan-Kettering Cancer Center); *Mueller, Boris* (Memorial Sloan-Kettering Cancer Center); *Burman, Chandra* (Memorial Sloan-Kettering Cancer Center); *Mychalczak, Borys* (Memorial Sloan-Kettering Cancer Center)

FrC15: 13:30-15:00 Marquette IX  
**10.5.1 Computer-Aided Decision Making I** (Oral Session)  
**Chair:** Donna L. Hudson, *Univ. of California, San Francisco*  
**Co-Chair:** Raouf Naguib, *Coventry Univ.*

13:30-13:45 FrC15.1  
**Multidimensional Medical Decision Making** ..... 3405-3408  
*Hudson, Donna L\** (University of California, San Francisco); *Cohen, Maurice* (University of California San Francisco)

13:45-14:00	FrC15.2
<b>Fuzzy Naive Bayesian Model for Medical Diagnostic Decision Support</b> .....	<b>3409-3412</b>
<i>Waghlikar, Kavishwar* (University of Pune); Vijayraghavan, Sundararajan (Center for Development of Advanced Computing (CDAC)); Deshpande, Ashok (University of California.)</i>	
14:00-14:15	FrC15.3
<b>Piecewise-Linear Trend Detection in Longitudinal Physiological Measurements</b> .....	<b>3413-3416</b>
<i>Redmond, Stephen James* (University of New South Wales); Basilakis, Jim (University of NSW); Celler, Branko George (University of New South Wales); Lovell, Nigel H (University of New South Wales)</i>	
14:15-14:30	FrC15.4
<b>A Platform for Testing and Comparing of Real-Time Decision-Support Algorithms in Mobile Environments</b> .....	<b>3417-3420</b>
<i>Khitrov, Maxim* (U.S. Army Medical Res. and Materiel Command); Rutishauser, Matthew (Intelesense Technologies, Inc.); Montgomery, Kevin (Intelesense Technologies); Reisner, Andrew (Massachusetts General Hospital); Reifman, Jaques (U.S. Army Medical Research)</i>	
14:30-14:45	FrC15.5
<b>REFEROCOD: A Probabilistic Method to Medical Coding Support</b> .....	<b>3421-3424</b>
<i>Lecornu, Laurent* (GET ENST Bretagne); THILLAY, Gregoire (Institut Telecom, telecom Bretagne); Le Guillou, Clara (University Hospital); Garreau, Pierre Jean (University Hospital (CHU)); SALIOU, Philippe (University Hospital (CHU)); JANTZEM, Hélène (University Hospital (CHU)); Puentes, John (TELECOM Bretagne - INSERM); Cauvin, Jean-Michel (Universitary Hospital (CHU))</i>	
14:45-15:00	FrC15.6
<b>Decision Support System for Resource Allocation in Emergency Management</b> .....	<b>3425-3428</b>
<i>Kondaveti, Russell* (University of Massachusetts, Amherst); Ganz, Aura (University of Massachusetts, Amherst)</i>	

FrC17: 13:30-15:00	Directors Row 4
<b>SS 1. Meet the Editors</b> (Special Session)	
<b>Chair:</b> Andrew Laine, <i>Columbia Univ.</i>	
<b>Co-Chair:</b> Bruce Wheeler, <i>Univ. of Florida</i>	

FrDPo01: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>1.3.4 Biomedical Nonlinear Dynamics</b> (Poster Session)	

15:00-16:40	FrDPo01.1
<b>Fractal, Entropic and Chaotic Approaches to Complex Physiological Time Series Analysis: A Critical Appraisal</b> .....	<b>3429-3432</b>
<i>Li, Cheng (Fudan University); Ding, Guang-Hong (Fudan University); Wu, Guoqiang (Fudan University); Poon, Chi-Sang* (Massachusetts Institute of Technology)</i>	

15:00-16:40	FrDPo01.2
<b>Bifurcations in Morris-Lecar Model Exposed to DC Electric Field</b> .....	<b>3433-3436</b>
<i>Che, Yanqiu (Tianjin University); Wang, Jiang* (Tianjin University); Li, Huiyan (Tianjin Univ of Technology &amp; Ed); wei, xile (Tianjin University); Deng, Bin (Tianjin University); Dong, Feng (tianjin University)</i>	

15:00-16:40	FrDPo01.3
<b>A Comparison of Linear and Chaotic Measures for Rat Hippocampal EEG during Different Vigilance States</b> .....	<b>3437-3440</b>
<i>Ning, Taikang* (Trinity College); Grare, Adam (Trinity College); Ning, James (Dartmouth College)</i>	

15:00-16:40	FrDPo01.4
<b>Detrended Fluctuation Analysis of EEG in Detecting Cross Modal Plasticity in Brain for Blind</b> .....	<b>3441-3444</b>
<i>Manickam, Kalaivani* (Jerusalem College of Engineering,); Gurubharan, Ravindaran (Anna University)</i>	

15:00-16:40	FrDPo01.5
<b>Somatosensory-Evoked Potentials and Cortical Activities Evoked by Magnetic Stimulation on Acupoint in Human</b> .....	<b>3445-3448</b>
<i>Yu, Hongli* (Hebei University of Technology); Xu, Guizhi (Hebei University of Technology); Yang, Ruifeng (Hebei University of Technology); Yang, Shuo (Hebei University of Technology); Geng, Yuehua (Hebei University of Technology); Li, Ying (Hebei University of Technology); Dong, Guoya (Hebei University of Technology)</i>	
15:00-16:40	FrDPo01.6
<b>Modeling of the Steady-State Disturbance Term in Isometric Force Using Components of the Power Spectrum</b> .....	<b>3449-3452</b>
<i>Stitt, Joseph* (Pennsylvania State University); Newell, Karl (Pennsylvania State University)</i>	
15:00-16:40	FrDPo01.7
<b>Analysis of RR Intervals Time Series of Congestive Heart Failure Patients with Higuchi's Fractal Dimension</b> .....	<b>3453-3456</b>
<i>Muñoz-Diosdado, Alejandro* (Instituto Politécnico Nacional México); Gálvez-Coyt, Gonzalo (UPIBI, Instituto Politécnico Nacional MEXICO); Arellanes, Jazmin (UPIBI-IPN); Perez Uribe, Brenda Magdalena (UPIBI-IPN)</i>	
15:00-16:40	FrDPo01.8
<b>Robust Complete Synchronization of Electrical Coupling Neurons under Uncertain Heterogeneous Disturbances Using Adaptive Internal Model</b> .....	<b>3457-3460</b>
<i>wei, xile (Tianjin University); Wang, Jiang* (Tianjin University); Che, Yanqiu (Tianjin University); Deng, Bin (Tianjin University); Dong, Feng (Tianjin University)</i>	
15:00-16:40	FrDPo01.9
<b>Measuring Body Temperature Time Series Regularity Using Approximate Entropy and Sample Entropy</b> .....	<b>3461-3464</b>
<i>Cuesta-Frau, David* (Politechnic University of Valencia); Miró i Martínez, Pau (Universidad Politecnica de Valencia); Oltra Crespo, Sandra (Universidad Politecnica de Valencia); varela, manuel (hospital de mostoles); Aboy, Mateo (Oregon Institute of Technology); Novak, Daniel (Czech Technical University in Prague); Austin, Daniel (University of Southern California)</i>	
15:00-16:40	FrDPo01.10
<b>Screening of Patients with Obstructive Sleep Apnea Syndrome Using C4.5 Algorithm Based on Non Linear Analysis of Respiratory Signals During Sleep</b> .....	<b>3465-3469</b>
<i>Kaimakamis, Evangelos* (Aristotle University of Thessaloniki); Bratsas, Charalampos (Aristotle University of Thessaloniki); Sichletidis, Lazaros (Aristotle University of Thessaloniki); Karvounis, Charalampos (AHEPA Hospital Aristotle University of Thessaloniki); Maglaveras, Nikolaos (Aristotle University of Thessaloniki)</i>	
15:00-16:40	FrDPo01.11
<b>Analysis of Epicardial Mapping Electrogram of Sustained Atrial Fibrillation Based on Shannon Entropy</b> .....	<b>3470-3472</b>
<i>Zhou, Tuo* (Fudan University of China); LIN, Dudu (FUDAN UNIVERSITY); Yang, Cuiwei (Fudan University); Wu, Xiaomei (Fudan University); Fang, Zuxiang (Fudan University)</i>	
15:00-16:40	FrDPo01.12
<b>Automatic Identification of Various Nuclei in the Basal Ganglia for Parkinson's Disease Neurosurgery</b> .....	<b>3473-3476</b>
<i>Pinzon Morales, Ruben Dario* (Universidad Tecnológica de Pereira); Garcés-Arboleda, Maribel (Universidad Tecnológica de Pereira); Orozco, Alvaro (Universidad Tecnológica de Pereira)</i>	
15:00-16:40	FrDPo01.13
<b>Nonlinearity Testing in the Case of Non Gaussian Surrogates, Applied to Improving Analysis of Synchronicity in Uterine Contraction</b> .....	<b>3477-3480</b>
<i>TERRIEN, Jeremy* (Reykjavik University); HASSAN, Mahmoud (UTC-France); GERMAIN, Guy (CEA-INSERM); Marque, Catherine (University of technology of compiegne); Karlsson, Brynjar (Reykjavik University)</i>	
15:00-16:40	FrDPo01.14
<b>Radial Basis Function Neural Network-based PID Model for Functional Electrical Stimulation System Control</b> .....	<b>3481-3484</b>
<i>Cheng, Longlong (Tianjin University); Wan, Bai-kun (Tianjin University); Qi, Hongzhi (Tianjin University); Ming, Dong* (Tianjin University)</i>	



15:00-16:40 FrDPo01.15  
**Study of the MEG Background Activity in Alzheimer's Disease Patients with Scaling**  
**Analysis Methods** ..... **3485-3488**  
*Gomez, Carlos (University of Valladolid, CIF: Q4718001C); Hornero, Roberto\* (University Of Valladolid);*  
*Abásolo, Daniel (University of Valladolid); Fernandez, Alberto (Universidad Complutense de Madrid);*  
*Poza, Jesús (University of Valladolid)*

FrDPo02: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**1.9.3 Pattern Recognition Methods for Data Mining (Poster Session)**

15:00-16:40 FrDPo02.1  
**Optimal Sensor Location for Body Sensor Network to Detect Self-Stimulatory Behaviors of Children with Autism Spectrum Disorder** ..... **3489-3492**  
*Min, Cheol-Hong\* (University of Minnesota); Tewfik, Ahmed (University of Minnesota);*  
*Kim, Youngchun (University of Minnesota); Menard, Rigel (University of Minnesota)*

15:00-16:40 FrDPo02.2  
**Detection and Prediction of Concentrations of Neurotransmitters Using Voltammetry and Pattern Recognition** ..... **3493-3496**  
*Sazonova, Nadezhda\* (Clarkson University); Njagi, John I. (Clarkson University);*  
*Marchese, Zachary (Clarkson University); Ball, Michael (Clarkson University);*  
*Andreescu, Silvana (Clarkson University); Schuckers, Stephanie (Clarkson University)*

15:00-16:40 FrDPo02.3  
**A Multi-Level Parcellation Approach for Brain Functional Connectivity Analysis** ..... **3497-3500**  
*Karkar, Slim\* (Université de Strasbourg); Faisan, Sylvain (LSIIT); Thoraval, Laurent (Strasbourg University);*  
*Foucher, Jack R (INSERM)*

15:00-16:40 FrDPo02.4  
**Audio Sound Event Identification for Distress Situations and Context Awareness** ..... **3501-3504**  
*Rougui, Jamal Eddine\* (ESIGETEL, Ecole supérieur d'ingénieur); Istrate, Dan (ESIGETEL);*  
*Souidene, Wieded (ESIGETEL, Ecole supérieur d'ingénieur)*

15:00-16:40 FrDPo02.5  
**Acoustic Fall Detection Using One-Class Classifiers** ..... **3505-3508**  
*Popescu, Mihail\* (University of Missouri); Mahnot, Abhishek (University of Missouri)*

15:00-16:40 FrDPo02.6  
**Integrity Mechanism for eHealth Tele-monitoring System in Smart Home Environment** ..... **3509-3512**  
*Mantas, Georgios (University of Patras); Lymberopoulos, Dimitrios (University of Patras);*  
*Komninos, Nikos\* (Athens Information Technology)*

FrDPo03: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**2.4.2 X-ray CT (Poster Session)**

15:00-16:40 FrDPo03.1  
**X-Ray Elastography: A Feasibility Study** ..... **3513-3516**  
*Kim, Gyu Won (Kyung Hee University); Choi, J. M. (Kyung Hee University); Han, Byung Hee (Kyung Hee University);*  
*Cho, Min Hyoung (Kyung Hee University); Lee, Soo Yeol\* (Kyung Hee University)*

15:00-16:40 FrDPo03.2  
**Detection of the Root Canal's Centerline from Dental Micro-CT Records** ..... **3517-3520**  
*Benyo, Balazs Istvan (Szechenyi Istvan University); Szilagyi, Laszlo (Budapest Univ of Tech & Economics);*  
*Haidegger, Tamas\* (Budapest University of Technology and Economics/Dept. of Control Engineering and Information Technology (BME - IIT)); Kovacs, Levente (Budapest Univ of Tech & Economics);*  
*Dobó-Nagy, Csaba (Simmelweis University)*

15:00-16:40 FrDPo03.3  
**A Personalized and Optimal Approach for Dosing Contrast Material at Coronary Computed Tomography Angiography** ..... **3521-3524**  
*Kalafut, John\* (MEDRAD Inc); Kemper, Corey (MEDRAD Inc); Suranyi, Pal (Medica University of South Carolina);*  
*Schoepf, U Joseph (Medical University of South Carolina)*

15:00-16:40	FrDPo03.4
<b>Long Term Three Dimensional Tracking of Orthodontic Patients Using Registered Data from CBCT and Photogrammetry</b> .....	<b>3525-3528</b>
<i>Boulanger, Pierre* (University of Alberta); Flores-Mir, Carlos (University of Alberta); Ramirez, Juan (National University of Colombia); Mesa, Elizabeth (National University of Colombia); Branch, John (National University of Colombia)</i>	
15:00-16:40	FrDPo03.5
<b>Comparative Study of Two Image Space Noise Reduction Methods for Computed Tomography: Bilateral Filter and Nonlocal Means</b> .....	<b>3529-3532</b>
<i>Ramirez Giraldo, Juan Carlos* (Mayo Graduate School, Mayo Clinic); Kelm, Zachary (Mayo Clinic); Guimaraes, Luis (Mayo Clinic); Yu, Lifeng (Mayo Clinic); Fletcher, Joel (Mayo Clinic); Erickson, Bradley (Mayo Clinic); McCollough, Cynthia (Mayo Clinic)</i>	
15:00-16:40	FrDPo03.6
<b>Hierarchical Object Recognition in Pelvic CT Images</b> .....	<b>3533-3536</b>
<i>Vasilache, Simina* (Virginia Commonwealth University); Chen, Wenan (Virginia Commonwealth University); Najarian, Kayvan (Virginia Commonwealth University)</i>	
15:00-16:40	FrDPo03.7
<b>A Study on Using Texture Analysis Methods for Identifying Lobar Fissure Regions in Isotropic CT Images</b> .....	<b>3537-3540</b>
<i>Wei, Qiao (University of Calgary); Hu, Yaoping* (The University of Calgary)</i>	
15:00-16:40	FrDPo03.8
<b>4D CT Image Simulation Using B-Spline Deformable Model and Cosine Interpolation of Deformation Field</b> .....	<b>3541-3544</b>
<i>Tian, Zhen (Tsinghua University); Yuan, Kehong* (Tsinghua University); Bai, Yanling (Tumor Hospital, Harbin Medical University)</i>	
15:00-16:40	FrDPo03.9
<b>Image Analysis for Cystic Fibrosis: Automatic Lung Airway Wall and Vessel Measurement on CT Images</b> .....	<b>3545-3548</b>
<i>Mumcuoglu, Erkan* (The Ohio State University); Prescott, Jeffrey William (Ohio State University); Baker, Brian (Ohio State University); Clifford, Bronte (Nationwide Children's Hospital); Frederick, Long R. (Children's Hospital); Castile, Robert G. (Ohio State University School of Medicine and Public Health); Gurcan, Metin (The Ohio State University)</i>	
15:00-16:40	FrDPo03.10
<b>Dental Identification System Based on Unwrapped CT Image</b> .....	<b>3549-3552</b>
<i>Tohnak, Sirilawan* (The University of Queensland); Mehnert, Andrew James Heinrich (The University of Queensland); Mahoney, Michael (The University of Queensland); Crozier, Stuart (The University of Queensland)</i>	
15:00-16:40	FrDPo03.11
<b>Automated Segmentation for Patella from Lateral Knee X-Ray Images</b> .....	<b>3553-3556</b>
<i>Chen, Hsin-Chen (National Cheng Kung University); Wu, Chia-Hsing (National Cheng Kung University); Lin, Chii-Jeng (National Cheng Kung Medical Center); Liu, Yuh-Hwan (Chia Nan Univ of Pharmacy &amp; Science); Sun, Yung-Nien* (National Cheng Kung University)</i>	
15:00-16:40	FrDPo03.12
<b>Automated Recognition of the Psoas Major Muscles on X-Ray CT Images</b> .....	<b>3557-3560</b>
<i>Kamiya, Naoki* (Graduate School of Medicine, Gifu University); Zhou, Xiangrong (Gifu University); Chen, Huayue (Graduate School of Medicine, Gifu University); Hara, Takeshi (Gifu Univ Graduate Sch of Medicine); Fujita, Hiroshi (Gifu University); Yokoyama, Ryujiro (Gifu University); kanematsu, massayuki (gifu univ); Hoshi, Hiroaki (Gifu University)</i>	
15:00-16:40	FrDPo03.13
<b>Gradient Vector Flow Based Active Shape Model for Lung Field Segmentation in Chest Radiographs</b> .....	<b>3561-3564</b>
<i>Xu, Tao (University of Alberta); Mandal, Mrinal (University of Alberta); Long, Richard (University of Alberta); Basu, Anup* (University of Alberta)</i>	

15:00-16:40 FrDPo03.14  
**Automated Liver Segmentation for Whole-Body Low-Contrast CT Images from PET/CT Scanners** ..... 3565-3568  
*Wang, Xiu Ying (The University of Sydney); Li, Changyang\* (University of Sydney); Eberl, Stefan (Royal Prince Alfred Hospital); Feng, Dagan (The University of Sydney)*

15:00-16:40 FrDPo03.15  
**Automatic Delineation of the Inner Thoracic Region in Non-Contrast CT Data** ..... 3569-3572  
*Chittajallu, Deepak Roy (University of Houston); balanca, paul (University of Houston); Kakadiaris, Ioannis\* (University of Houston)*

15:00-16:40 FrDPo03.16  
**Automated Measurement of Bone-Mineral-Density (BMD) Values of Vertebral Bones Based on X-Ray Torso CT Images** ..... 3573-3576  
*Zhou, Xiangrong\* (Gifu University); Hayashi, Tatsuro (Gifu University); Chen, Huayue (Graduate School of Medicine, Gifu University); Hara, Takeshi (Gifu Univ Graduate Sch of Medicine); Fujita, Hiroshi (Gifu University); Yokoyama, Ryujiro (Gifu University); kanematsu, massayuki (gifu univ); Hoshi, Hiroaki (Gifu University)*

15:00-16:40 FrDPo03.17  
**Precision of Syndesmophyte Volume Measurement for Ankylosing Spondylitis: A Phantom Study Using High Resolution CT** ..... 3577-3580  
*Tan, Sovira\* (NIH); Yao, Jianhua (National Institutes of Health); Yao, Lawrence (NIH); Ward, Michael (NIH)*

15:00-16:40 FrDPo03.18  
**A Method for Automatic Detection and Classification of Stroke from Brain CT Images** ..... 3581-3584  
*Chawla, Mayank (International Institute of Information Technology, Hyderabad); Sharma, Saurabh (International Institute of Information Technology, Hyderabad); Sivaswamy, Jayanthi\* (International Institute of Information Technology-Hyderabad); LT, Kishore (Care Hospital)*

FrDPo04: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**2.7.4 Biomedical Image Analysis and Processing** (Poster Session)

15:00-16:40 FrDPo04.1  
**Detection of the Temporal Arcade in Fundus Images of the Retina Using the Hough Transform** ..... 3585-3588  
*Oloumi, Faraz\* (University of Calgary); Rangayyan, Raj (University of Calgary)*

15:00-16:40 FrDPo04.2  
**Exploiting the Multiplicative Nature of Fluoroscopic Image Stochastic Noise to Enhance Calcium Imaging Recording Quality** ..... 3589-3592  
*Esposti, Federico (Politecnico di Milano); Ripamonti, Maddalena (Università Vita e Salute San Raffaele); Signorini, Maria G.\* (Politecnico di Milano)*

15:00-16:40 FrDPo04.3  
**Sharpening of Neurite Morphology Using Complex Coherence Enhanced Diffusion** ..... 3593-3596  
*Mustaffa, Izadora\* (Saarland Univ Hospital); Trenado, Carlos (Saarland University Hospital); Abdul Rahim, Hazli Rafis (Saarland University Hospital); Schaefer, Karl-Herbert (University of Applied Sciences Kaiserslautern); Strauss, Daniel J. (Comp. Diagn. & Biocyb. Unit)*

15:00-16:40 FrDPo04.4  
**Automatic Analysis of Local Nasal Features in 22q11.2DS Affected Individuals** ..... 3597-3600  
*Wu, Jia (University of Washington); Wilamowska, Katarzyna\* (University of Washington); Shapiro, Linda G. (University of Washington); Heike, Carrie (University of Washington)*

15:00-16:40 FrDPo04.5  
**Enhancement of the Classification of Multichannel Chromosome Images Using Support Vector Machines** ..... 3601-3604  
*Karvelis, Petros\* (University of Ioannina); Fotiadis, Dimitrios I. (University of Ioannina); Georgiou, Ioannis (University of Ioannina)*

15:00-16:40 FrDPo04.6  
**Quantification of SPIO Nanoparticles Using Phase Gradient Mapping** ..... 3605-3608  
*Langley, Jason\* (University of Georgia); Zhao, Qun (University of Georgia)*

- 15:00-16:40 FrDPo04.7  
**Automatic Detection of Pathological Myopia Using Variational Level Set** ..... **3609-3612**  
*Tan, Ngan Meng\* (A\*STAR, Institute for Infocomm Research); Liu, Jiang (Inst for Infocomm Resrch, A STAR); Wong, Damon (Institute for Infocomm Research); Lim, Joo Hwee (Institute for Infocomm Research); Zhang, Zhuo (A\*STAR); Lu, Shijian (Inst for Infocomm Research, A STAR); Li, Huiqi (Institute for Infocomm Research); Saw, Seang Mei (National University of Singapore); Tong, Louis (Singapore National Eye Centre); Wong, Tien Yin (National University of Singapore)*
- 15:00-16:40 FrDPo04.8  
**Unsupervised Segmentation of the Prostate Using MR Images Based on Level Set with a Shape Prior** ..... **3613-3616**  
*Liu, Xin\* (Illinois Institute of Technology); Langer, Deanna Lyn (University of Toronto); Haider, Masoom (University of Toronto); van der Kwast, Theodorus (Princess Margaret Hospital); Evans, Andrew (Toronto General Hospital); Wernick, Miles (Illinois Institute of Technology); Yetik, Imam Samil (Illinois Institute of Technology)*
- 15:00-16:40 FrDPo04.9  
**Linear Measurement of Polyps in CT Colonography Using Level Sets on 3D Surfaces** ..... **3617-3620**  
*Tan, Sovira\* (NIH); Yao, Jianhua (National Institutes of Health); Ward, Michael (NIH); Summers, Ronald (National Institutes of Health)*
- 15:00-16:40 FrDPo04.10  
**Streaming Level Set Algorithm for 3D Segmentation of Confocal Microscopy Images** ..... **3621-3624**  
*Gouaillard, Alexandre\* (Harvard Medical School); Mosaliganti, Kishore (Harvard Medical School); Obholzer, Nikolaus (Harvard Medical School); Megason, Sean (Harvard Medical School)*
- 15:00-16:40 FrDPo04.11  
**3D Liver Segmentation in Preoperative CT Images Using a Level-Sets Active Surface Method** ..... **3625-3628**  
*Fernández-de-Manuel, Laura\* (Universidad Politécnica de Madrid); Rubio-Guivernau, Jose Luis (Universidad Politécnica de Madrid); Ledesma-Carbayo, Maria J. (Universidad Politécnica de Madri); Pascau, Javier (Hospital General Universitario Gregorio Marañón); Tellado, José M. (Hospital General Universitario Gregorio Marañón); Ramón, Enrique (Hospital General Universitario Gregorio Marañón); Desco, Manuel (Hospital General Universitario Gregorio Marañón); Santos, Andres (Universidad Politecnica Madrid)*
- 15:00-16:40 FrDPo04.12  
**Microarray Image Segmentation Using Chan-Vese Active Contour Model and Level Set Method** ..... **3629-3632**  
*Mendhurwar, Kaustubha (Concordia University); Kakumani, Rajasekhar (Concordia University); Devabhaktuni, Vijay\* (University of Toledo)*
- 15:00-16:40 FrDPo04.13  
**Fast and Automatic LV Mass Calculation from Echocardiographic Images Via B-Spline Snake Model and Markov Random Fields** ..... **3633-3636**  
*marsousi, mahdi (K.N. Toosi university of technology); Eftekhari, Armin (K.N. Toosi University of Technology); Alirezaie, Javad (Ryerson University, Univ of Waterloo); Kocharian, Armen (Tehran University of Medical Science); Sharifahmadian, Ershad\* (Tehran University)*
- 15:00-16:40 FrDPo04.14  
**A New Model-Based Estimation of Ellipses for Object Representation** ..... **3637-3640**  
*Kong, Jun\* (Emory University); Boyer, Kim (Rensselaer Polytechnic Institute); Saltz, Joel (Emory University); Huang, Kun (Ohio State University)*
- 15:00-16:40 FrDPo04.15  
**Feasibility of Regional and Global Left Ventricular Shape Analysis from Real-Time 3d Echocardiography** ..... **3641-3644**  
*Maffessanti, Francesco\* (Politecnico di Milano); Sugeng, Lissa (University of Chicago); Takeuchi, Masaaki (University of Occupational and Environmental Health); Weinert, Lynn (University of Chicago); Mor-Avi, Victor (University of Chicago); Lang, Roberto (University of Chicago); Caiani, Enrico (Polytechnic of Milan)*
- 15:00-16:40 FrDPo04.16  
**Towards a New Image Guidance System for Assisting Transapical Minimally Invasive Aortic Valve Implantation** ..... **3645-3648**  
*Karar, Mohamed Esmail\* (University of Leipzig); Gessat, Michael (University of Leipzig); Walther, Thomas (Heart Center, Leipzig); Falk, Volkmar (Universitätsspital Zürich, Klinik für Herz- und Gefäßschirurgie); Burgert, Oliver (University of Leipzig)*

15:00-16:40	FrDPo04.17
<b>Computational Hemodynamic Modeling based on Transesophageal Echocardiographic Imaging .....</b>	<b>3649-3652</b>
<i>Sprouse, Chad (Johns Hopkins University); Yuh, David (Johns Hopkins University); Abraham, Theodore (Johns Hopkins Medical School); Burlina, Philippe* (Johns Hopkins University)</i>	
15:00-16:40	FrDPo04.18
<b>Mammographic Images Segmentation Using Texture Descriptors .....</b>	<b>3653-3656</b>
<i>Mascaro, Angelica (Federal University of Pernambuco); Mello, Carlos (University of Pernambuco); dos Santos, Wellington* (Universidade de Pernambuco); Cavalcanti, George (Federal University of Pernambuco)</i>	
15:00-16:40	FrDPo04.19
<b>Motion-Compensated Temporal Summation of Cardiac Gated SPECT Images Using a Deformable Mesh Model .....</b>	<b>3657-3660</b>
<i>Marin, Thibault* (Illinois Institute of Technology); Wernick, Miles (Illinois Institute of Technology); Yang, Yongyi (Illinois Institute of Technology); Brankov, Jovan G (Illinois Institute of Technology)</i>	
15:00-16:40	FrDPo04.20
<b>Temporal Compounding of Cardiac Ultrasound Data: Improving Image Quality and Clinical Measurement Repeatability. ....</b>	<b>3661-3664</b>
<i>Perperidis, Antonios* (University of Edinburgh); Cusack, David (Western General Hospital.); McDicken, Norman (University of Edinburgh); MacGillivray, Thomas (University Of Edinburgh); Anderson, Tom (University of Edinburgh)</i>	
15:00-16:40	FrDPo04.21
<b>Development of an Automatic Quantification Method for Cancer Tissue Microarray Study .....</b>	<b>3665-3668</b>
<i>Sanders, Teresa (Georgia Institute of Technology); Stokes, Todd* (Georgia Institute of Technology); Moffitt, Richard A. (Georgia Institute of Technology); Chaudry, Qaiser (Georgia Institute of Technology); Parry, R. Mitchell (Georgia Institute of Technology); Wang, May Dongmei (Georgia Tech and Emory University)</i>	
15:00-16:40	FrDPo04.22
<b>Detection of Tissue Folds in Whole Slide Images .....</b>	<b>3669-3672</b>
<i>Bautista, Pinky* (Harvard medical school); Yagi, Yukako (Massachusetts General Hospital)</i>	
15:00-16:40	FrDPo04.23
<b>Variance Stabilizing Transformations in Patch-based Bilateral Filters for Poisson Noise Image Denoising .....</b>	<b>3673-3676</b>
<i>De Decker, Arnaud* (Universite Catholique de Louvain (UCL)); Lee, John Aldo (Universite Catholique de Louvain (UCL)); Verleysen, Michel (Universite Catholique de Louvain - UCL)</i>	
15:00-16:40	FrDPo04.24
<b>Evaluation of Spatial Interpolation Strategies for the Removal of Comb-Structure in Fiber-Optic Images .....</b>	<b>3677-3680</b>
<i>Rupp, Stephan (Fraunhofer Institute (IIS)); Winter, Christian* (Fraunhofer IIS); Elter, Matthias (Fraunhofer Institute for Integrated Circuits (IIS))</i>	
15:00-16:40	FrDPo04.25
<b>Mammogram Enhancement Using Alpha Weighted Quadratic Filter .....</b>	<b>3681-3684</b>
<i>Zhou, Yicong* (Tufts University); Panetta, Karen (Tufts University); Agaian, Sos (University of Texas at San Antonio)</i>	
15:00-16:40	FrDPo04.26
<b>Extraction of Color Features in the Spectral Domain to Recognize Centrioblasts in Histopathology .....</b>	<b>3685-3688</b>
<i>Belkacem-Boussaid, Kamel* (Ohio State University); Sertel, Olcay (The Ohio State University); Lozanski, Gerard (The Ohio State University, Medical Center); Shana'ah, Arwa (Ohio State University Medical Center); Gurcan, Metin (The Ohio State University)</i>	
15:00-16:40	FrDPo04.27
<b>Noise-Resilient Edge Detection Algorithm for Brain MRI Images .....</b>	<b>3689-3692</b>
<i>Agaian, Sos (University of Texas at San Antonio); Almutashri, Ali* (University of Texas at San Antonio)</i>	

- 15:00-16:40 FrDPo04.28  
**An Automatic Diagnosis System of Nuclear Cataract Using Slit-Lamp Images** ..... 3693-3696  
*Li, Huiqi\** (Institute for Infocomm Research); *Lim, Joo Hwee* (Institute for Infocomm Research); *Liu, Jiang* (Inst for Infocomm Resrch, A STAR); *Wong, Damon* (Institute for Infocomm Research); *Tan, Ngan Meng* (A\*STAR, Institute for Infocomm Research); *Lu, Shijian* (Inst for Infocomm Research, A STAR); *Zhang, Zhuo* (A\*STAR); *Wong, Tien Yin* (National University of Singapore)
- 15:00-16:40 FrDPo04.29  
**A Cognitive Virtual Microscopic Framework for Knowledge-Based Exploration of Large Microscopic Images in Breast Cancer Histopathology** ..... 3697-3702  
*Roux, Ludovic\** (Université Joseph Fourier); *Tutac, Adina* (Politechnica University of Timisoara); *Veillard, Antoine* (National University of Singapore / IPAL); *Lomenie, Nicolas* (University Paris Descartes); *Racoceanu, Daniel* (French National Research Center); *Leow, Wee Kheng* (National University of Singapore); *Klossa, Jacques* (TRIBVN Company); *Putti, Thomas* (National University Hospital)
- 15:00-16:40 FrDPo04.30  
**Multiscale Data Reduction with Flexible Saliency Criterion for Biological Image Analysis** ..... 3703-3706  
*Bosl, William\** (Harvard Medical School / Children's Hospital Boston)
- 15:00-16:40 FrDPo04.31  
**A Lossless Encryption Method for Medical Images Using Edge Maps** ..... 3707-3710  
*Zhou, Yicong\** (Tufts University); *Panetta, Karen* (Tufts University); *Agaian, Sos* (University of Texas at San Antonio)
- 15:00-16:40 FrDPo04.32  
**Capsule Endoscope Localization Based on Computer Vision Technique** ..... 3711-3714  
*Liu, Li* (Shenzhen Institute of Advanced Integration Technology, Chinese Academy of Sciences); *Hu, Chao\** (Shenzhen Institute of Advanced Technology); *Cai, Wentao* (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); *Meng, Max Q.-H.* (The Chinese University of Hong Kong)
- 15:00-16:40 FrDPo04.33  
**A Public Image Database to Support Research in Computer Aided Diagnosis** ..... 3715-3718  
*Reeves, Anthony\** (Cornell University); *Biancardi, Alberto* (Cornell University); *Yankelevitz, David* (Weill Cornell Medical College); *Fotin, Sergei* (Cornell University); *Keller, Brad* (Cornell University); *Jirapatnakul, Artit* (Cornell University); *Lee, Jaesung* (Cornell University)
- 15:00-16:40 FrDPo04.34  
**Content Based Sub-Image Retrieval System for High Resolution Pathology Images Using Salient Interest Points** ..... 3719-3722  
*Alomari, Raja'* (University at Buffalo, SUNY); *Chaudhary, Vipin* (Wayne State University); *Sabata, Bikash* (Biolumagene); *Mehta, Neville\** (University At Buffalo)
- 15:00-16:40 FrDPo04.35  
**Video-Based Detection of Clinical Depression in Adolescents** ..... 3723-3726  
*Maddage, Namunu\** (Royal Melbourne Institute of Technology University); *Senaratne, Rajinda* (None); *Low, Alex* (RMIT University Melbourne); *Lech, Margaret* (RMIT)
- 15:00-16:40 FrDPo04.36  
**Low-Complexity Video Compression for Capsule Endoscope Based on Compressed Sensing Theory** ..... 3727-3730  
*Wu, Jing\** (Shenzhen Institutes of Advanced Technology, Chinese Academy of Science); *Li, Ye* (Shenzhen Institute of Advanced Technology)
- 15:00-16:40 FrDPo04.37  
**A Comparative Study of Shape Features for Polyp Detection in Wireless Capsule Endoscopy Images** ..... 3731-3734  
*Li, Baopu\** (The Chinese University of Hong Kong); *Meng, Max Q.-H.* (The Chinese University of Hong Kong); *Xu, Lisheng* (Northeastern University)
- 15:00-16:40 FrDPo04.38  
**Texture-Based Computer-Assisted Diagnosis for Fiberscopic Images** ..... 3735-3738  
*Münzenmayer, Christian\** (Fraunhofer IIS); *Winter, Christian* (Fraunhofer IIS); *Rupp, Stephan* (Fraunhofer Institute (IIS)); *Kage, Andreas* (Fraunhofer IIS); *Wittenberg, Thomas* (Fraunhofer Institute for Integrated Circuits (IIS))

15:00-16:40	FrDPo04.39
<b>Singular Value Decomposition-Based Analysis on Fluorescence Molecular Tomography in the Mouse Atlas</b> .....	<b>3739-3742</b>
<i>Xu, Zhun (School of Medicine, Tsinghua University); Song, Xiaolei (Tsinghua University); Bai, Jing* (Tsinghua University)</i>	
15:00-16:40	FrDPo04.40
<b>Dosimetric Capabilities of the Iview GT Portal Imager Using MCNP5 Monte Carlo Simulations</b> .....	<b>3743-3746</b>
<i>Juste, Belen (Polytechnic University of Valencia); Miró, Rafael* (Polytechnic University of Valencia); Díez, Sergio (Hospital Clínic de València); Campayo, Juan Manuel (Hospital Clínic de València); Verdu, Gumersindo (Polytechnic University of Valencia)</i>	
15:00-16:40	FrDPo04.41
<b>Parameterized Computational Imaging: Data Driven Computational Modeling for Image Extension</b> .....	<b>3747-3750</b>
<i>Evans, Daniel* (University of Idaho); Manwaring, Mark (University of Idaho); Soule, Terence (University of Idaho)</i>	
15:00-16:40	FrDPo04.42
<b>SORTEO: Monte Carlo-Based Simulator with List-Mode Capabilities</b> .....	<b>3751-3754</b>
<i>McLennan, Andrew* (University of Oxford); Reilhac, Anthonin (Biospective); Brady, Michael (University of Oxford)</i>	
15:00-16:40	FrDPo04.43
<b>Computer Oriented Image Acquisition of the Liver: Toward a Better Numerical Model for Radiofrequency Ablation</b> .....	<b>3755-3758</b>
<i>Muehl, Judith* (Technical University of Graz); Kainz, Bernhard (Graz University of Technology); Portugaller, Horst Rupert (Medical University of Graz); Stiegler, Philipp (Medical University of Graz)</i>	
15:00-16:40	FrDPo04.44
<b>DoctorEye: A Multifunctional Open Platform for Fast Annotation and Visualization of Tumors in Medical Images</b> .....	<b>3759-3762</b>
<i>Skounakis, Emmanouil (Brunel University); Sakkalis, Vangelis (ICS-FORTH); Marias, Kostas (Foundation for Res. &amp; Tech. Hellas); Banitsas, Konstantinos* (Brunel University); Graf, Norbert (University Hospital of the Saarland)</i>	
15:00-16:40	FrDPo04.45
<b>Stability Analysis and Breast Tumor Classification from 2D ARMA Models of Ultrasound Images</b> .....	<b>3763-3766</b>
<i>AbdulSadda, Ahmad (University of Arkansas at Little Rock); Iqbal, Kamran (University of Arkansas at Little Rock); Bouaynaya, Nidhal* (University of Arkansas at Little Rock)</i>	

FrDPo05: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>3.3.2 Bioelectric Sensors II (Poster Session)</b>	

15:00-16:40	FrDPo05.1
<b>Novel Muscle Activation Sensors for Estimating Upper Limb Motion Intention</b> .....	<b>3767-3770</b>
<i>Han, Hyonyoung (KAIST); Kim, Jung* (Korea Advanced Institute of Science and Technology)</i>	
15:00-16:40	FrDPo05.2
<b>Development of an Arterial Tonometer Sensor</b> .....	<b>3771-3774</b>
<i>Kim, Eun Geun (Korea Electrotechnology Research Inst); Heo, Hyun (Korea Electrotechnology Resrch Inst); Nam, Ki Chang (Korea Electrotech Resrch Institute); Huh, Young* (Korea Electrotechnology Resrch Inst)</i>	
15:00-16:40	FrDPo05.3
<b>A Portable Device for Real Time Drowsiness Detection Using Novel Active Dry Electrode System</b> .....	<b>3775-3778</b>
<i>Tsai, Pai-Yuan (Chung Yuan Christian University); Hu, Wei-Chih (Chung Yuan Christian University); Kuo, Terry B.J. (National Yang-Ming University); Shyu, Liang-Yu* (Chung Yuan Christian University)</i>	
15:00-16:40	FrDPo05.4
<b>Cole Equation and Parameter Estimation from Electrical Bioimpedance Spectroscopy Measurements - A Comparative Study</b> .....	<b>3779-3782</b>
<i>Ayllon, David (University of Borås); Seoane, Fernando* (University College of Borås); Gil Pita, Roberto (University of Alcalá)</i>	

15:00-16:40	FrDPo05.5
<b>Method to Quantify the Effect of Passivation Layer in Bio-Impedance Sensors</b> .....	<b>3783-3786</b>
<i>Sreedharan Nair, Shree Narayanan* (Virginia Tech); Nikkhah, Mehdi (Virginia Tech); Strobl, Jeannine (Edward Via Virginia College of Osteopathic Medicine); Agah, Masoud (Virginia Tech)</i>	
15:00-16:40	FrDPo05.6
<b>Analysis of Interstitial Concentrations of ATP from Rat Soleus Muscle Using Microdialysis Combined with Ion-Pairing High Performance Liquid Chromatography (HPLC)</b> .....	<b>3787-3789</b>
<i>TU, Jie* (Chinese Academy of Sciences, Shenzhen Institute of Advanced Technology); Yang, Fan (Chinese Academy of Sciences, Shenzhen Institute of Advanced Technology Chinese Academy of Sciences); Wang, Liping (Chinese Academy of Sciences, Shenzhen Institute of Advanced Technology)</i>	
15:00-16:40	FrDPo05.7
<b>Instrumentation for Small-Animal Capnometry</b> .....	<b>3790-3793</b>
<i>Sultan, Firas (University of Wisconsin - Milwaukee); Klemer, David* (University of Wisconsin - Milwaukee); Oaks, Katie (University of Wisconsin - Milwaukee)</i>	
15:00-16:40	FrDPo05.8
<b>An Ultra-Sensitive <math>\Delta</math> R/R Measurement System for Biochemical Sensors Using Piezoresistive Micro-Cantilevers</b> .....	<b>3794-3797</b>
<i>Nag, Sudip* (Indian Institute of Technology Bombay); Kale, Nitin (Indian Institute of Technology Bombay); Rao, Ramgopal (Indian Institute of Technology Bombay); Sharma, Dinesh (Indian Institute of Technology Bombay)</i>	
15:00-16:40	FrDPo05.9
<b>New Electrode Layout for Internal Selectivity of Nerves</b> .....	<b>3798-3801</b>
<i>Rossel, Olivier* (LIRMM - UMII/CNRS); Soulier, Fabien (Univ. Montpellier II); Bernard, Serge (CNRS); Cathébras, Guy (Univ. Montpellier II)</i>	
15:00-16:40	FrDPo05.10
<b>A Low Power Wearable Tranceiver for Human Body Communication</b> .....	<b>3802-3805</b>
<i>huang, jin (Shenzhen Institutes of Advance Technology Chinese Academy of Sciences); Wang, Lei* (Shenzhen Institute of Advanced Technology)</i>	
15:00-16:40	FrDPo05.11
<b>A Low-Noise Low-Power Amplifier for Implantable Device for Neural Signal Acquisition</b> .....	<b>3806-3809</b>
<i>Li, Ming-Ze* (National Tsing Hua University); Tang, Kea Tiong (National Tsing Hua University)</i>	
15:00-16:40	FrDPo05.12
<b>Exploiting Sub-Threshold and Above-Threshold Characteristics in a Silver-Enhanced Gold Nanoparticle Based Biochip</b> .....	<b>3810-3813</b>
<i>Liu, Yang* (Michigan State University); Alocilja, Evangelyn (Michigan State University); Chakrabarty, Shantanu (Michigan State University)</i>	
15:00-16:40	FrDPo05.13
<b>Design of a CMOS-Based Multichannel Integrated Biosensor Chip for Bioelectronic Interface with Neurons</b> .....	<b>3814-3817</b>
<i>Zhang, Xin* (University of California, Irvine); Wong, Wai Man (University of California, Irvine); Zhang, Yulong (Xiamen University); Zhang, Yandong (Beijing CRX Science &amp; Technology LLC); Gao, Fei (Beijing CRX Science &amp; Technology LLC); Nelson, Richard (University of California, Irvine); LaRue, John (University of California, Irvine)</i>	

FrDPo06: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>3.5.3 Wireless Sensors and Systems</b> (Poster Session)	

15:00-16:40	FrDPo06.1
<b>Effect of a Magnetic Core in the Receiver Coil of a Biomedical Inductive Power System</b> .....	<b>3818-3821</b>
<i>Noor, Furqan* (National University of Ireland Galway); Duffy, Maeve (NUI Galway)</i>	
15:00-16:40	FrDPo06.2
<b>Real-Time Detection of Nocturnal Hypoglycemic Episodes Using a Novel Non-Invasive Hypoglycemia Monitor</b> .....	<b>3822-3825</b>
<i>Nguyen, Hung T.* (University of Technology, Sydney); Ghevondian, Nejhdeh (AIMedics Pty Ltd); Jones, Timothy (Princess Margaret Hospital for Children)</i>	



15:00-16:40		FrDPo06.3
<b>SHIMMER: A New Tool for Temporal Gait Analysis</b> .....		<b>3826-3829</b>
<i>O'Donovan, Karol (Intel Corporation); Greene, Barry R. (Intel); McGrath, Denise (University College Dublin); O'Neill, Ross (National University of Ireland Maynooth); Burns, Adrian (Intel); Caulfield, Brian* (UCD)</i>		
15:00-16:40		FrDPo06.4
<b>A Wireless System for the Objective Assessment of Dyskinesia</b> .....		<b>3830-3832</b>
<i>Riehle, Timothy* (Koronis Biomed. Technologies Corp.); Lichter, Patrick (Koronis Biomedical Technologies); Anderson, Shane (Koronis Biomedical Technologies)</i>		
15:00-16:40		FrDPo06.5
<b>Low Cost Wireless Neural Recording System and Software</b> .....		<b>3833-3836</b>
<i>Gregory, Jeffrey* (University of Michigan); Borna, Amir (Graduate Student Research Assistant); Roy, Sabyasachi (Johns Hopkins University); Schmidt, Marc (University of Pennsylvania); Lewandowski, Brian (University of Pennsylvania); Wang, Xiaojin (Johns Hopkins University School of Medicine); Najafi, Khalil (University of Michigan)</i>		
15:00-16:40		FrDPo06.6
<b>Respiratory Monitoring Using a Doppler Radar with Passive Harmonic Tags to Reduce Interference from Environmental Clutter</b> .....		<b>3837-3840</b>
<i>Singh, Aditya* (University of Hawaii at Manoa); Lubecke, Victor (University of Hawaii Manoa)</i>		
15:00-16:40		FrDPo06.7
<b>A Closed Loop Wireless Power Transmission System Using a Commercial RFID Transceiver for Biomedical Applications</b> .....		<b>3841-3844</b>
<i>Kiani, Mehdi* (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)</i>		
FrDPo07: 15:00-16:40		Grand Ballroom - Salon E, F, G
<b>4.2.2 Algorithms and Tools for Genomics and Proteomics (Poster Session)</b>		
15:00-16:40		FrDPo07.1
<b>An Efficient and High Performance Linear Recursive Variable Expansion Implementation of the Smith-Waterman Algorithm</b> .....		<b>3845-3848</b>
<i>Hasan, Laiq* (TU Delft); Al-Ars, Zaid (TU Delft)</i>		
15:00-16:40		FrDPo07.2
<b>Visual Exploration of Genetic Association with Voxel-Based Imaging Phenotypes in an MCI/AD Study</b> .....		<b>3849-3852</b>
<i>Kim, Sungeun (Indiana University School of Medicine); Shen, Li* (Indiana University); Saykin, Andrew (Indiana University); West, John (Indiana University)</i>		
15:00-16:40		FrDPo07.3
<b>Effect of Mutations on the Detection of Translational Signals Based on a Communications Theory Approach</b> .....		<b>3853-3856</b>
<i>Al Bataineh, Mohammad* (University); Alonso, Maria (Illinois Institute of Technology (IIT)); Huang, Lun (Illinois Institute of Technology (IIT)); Atkin, Guillermo (Illinois Institute of Technology (IIT)); Menhart, Nick (Illinois Institute of Technology (IIT))</i>		
15:00-16:40		FrDPo07.4
<b>A Novel Gene Detection Method Based on Period-3 Property</b> .....		<b>3857-3860</b>
<i>Huang, Lun* (Illinois Institute of Technology (IIT)); Al Bataineh, Mohammad (University); Atkin, Guillermo (Illinois Institute of Technology (IIT)); Wang, Siyun (Illinois Institute of Technology (IIT)); Zhang, Wei (Illinois Institute of Technology (IIT))</i>		
15:00-16:40		FrDPo07.5
<b>Use of Average Mutual Information for Studying Changes in HIV Populations</b> .....		<b>3861-3864</b>
<i>Sayood, Khalid* (University of Nebraska-Lincoln); Hoffman, Federico (ICC-Fiocruz); Wood, Charles (University of Nebraska Lincoln)</i>		
15:00-16:40		FrDPo07.6
<b>A New Validity Measure for a Correlation-Based Fuzzy C-Means Clustering Algorithm</b> .....		<b>3865-3868</b>
<i>Zhang, Mingrui* (Winona State University); Zhang, Wei (Winona State University); Sicotte, Hugues (Mayo Clinic); Yang, Ping (Mayo Clinic)</i>		

15:00-16:40 FrDPo07.7  
**Comparison and Unification of Genomic Signatures in Breast Cancer** ..... 3869-3872  
*Blazadonakis, Michalis (Technical University of Crete);*  
*Zervakis, Michalis\* (Technical University of Crete, Greece)*

15:00-16:40 FrDPo07.8  
**An Asymmetric Approach to Modeling Ion Channels Using Finite Element Analysis** ..... 3873-3876  
*Siksik, May\* (University of British Columbia); Krishnamurthy, Vikram (University of British Columbia)*

FrDPo08: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**4.3.4 Physiological Modeling and Algorithms for Physiome** (Poster Session)

15:00-16:40 FrDPo08.1  
**Simulation of a Presynaptic Nerve Terminal with a Tethered Particle System Model** ..... 3877-3880  
*Goldstein, Rhys\* (Carleton University); Wainer, Gabriel (Carleton University)*

15:00-16:40 FrDPo08.2  
**Extensible Biosignal Metadata -- a Model for Physiological Time-Series Data** ..... 3881-3884  
*Brooks, David\* (University of Auckland)*

15:00-16:40 FrDPo08.3  
**Evaluation of Cardiac Oxygen Consumption under Hypoxia with Tissue Model Integrating Microcirculation Model and Cell Model** ..... 3885-3888  
*Amano, Akira\* (Ritsumeikan University); Kubota, Yuuta (Kyoto University); Shimayoshi, Takao (ASTEM Research Institute of Kyoto); Matsuda, Tetsuya (Kyoto University)*

15:00-16:40 FrDPo08.4  
**Enhancement of the Immune Response to Chronic Myeloid Leukaemia Via Controlled Treatment Scheduling** ..... 3889-3892  
*Chang, Hyeygjeon\* (Imperial College London); Astolfi, Alessandro (Imperial College London and University of Rome)*

15:00-16:40 FrDPo08.5  
**A Two-Equation Coupled System Model for Determination of Liver Tissue Temperature During Radio Frequency Ablation** ..... 3893-3896  
*O'Neill, David Patrick\* (University of Oxford); Peng, Tingying (University of Oxford); Payne, Stephen John (University of Oxford)*

15:00-16:40 FrDPo08.6  
**A Shooting Algorithm for Complex Immunodominance Control Problems** ..... 3897-3900  
*Zhao, Xiaopeng\* (University of Tennessee); Yang, Ruoting (The University of Tennessee); Zhang, Mingjun (The University of Tennessee)*

15:00-16:40 FrDPo08.7  
**Numerical Analysis of a Comprehensive in Silico Subcutaneous Insulin Absorption Compartmental Model** ..... 3901-3904  
*Sebald, Daniel\* (Hospira); Ruchti, Timothy (Hospira)*

15:00-16:40 FrDPo08.8  
**Modeling Electrical Activities of a Growing Breast Cancerous Cell Based on a Semiconductor Approach** ..... 3905-3908  
*Hassan, Ahmed\* (University of Arkansas); El-Shenawee, Magda (University of Arkansas)*

15:00-16:40 FrDPo08.9  
**A Model of Pathological Oscillations in the Basal Ganglia and Deep Brain Stimulation in Parkinson's Disease.** ..... 3909-3912  
*Kang, Guiyeom\* (University College Dublin)*

**5.4.1 Respiratory Function** (Poster Session)

- 15:00-16:40 FrDPo09.1  
**Optimal Tissue Types in the Thoracic Electrical Impedance Model for Thoracic Electrical Bioimpedance (TEB) Studies** ..... **3913-3916**  
*Akhand, Mohammad Shafiul Haque (The University of Queensland); Trakic, Adnan (The University of Queensland); Terrill, Philip Ian\* (University of Queensland); Liu, Feng (The University of Queensland); Wilson, Stephen (University of Queensland); Crozier, Stuart (The University of Queensland)*
- 15:00-16:40 FrDPo09.2  
**Simulated Central Apnea Detection Using the Pressure Variance** ..... **3917-3920**  
*Townsend, Daphne\* (Carleton University); Holtzman, Megan (Carleton University); Goubran, Rafik A. (Carleton University); Frize, Monique (Carleton University); Knoefel, Frank-Dietrich (SCO Health Service)*
- 15:00-16:40 FrDPo09.3  
**Classification of Breathing Events Using Load Cells under the Bed** ..... **3921-3924**  
*Beattie, Zachary Todd\* (Oregon Health & Science University); Hagen, Chad (Oregon Health & Science University); Pavel, Michael (Oregon Health and Science University); Hayes, Tamara (Oregon Health and Science University)*
- 15:00-16:40 FrDPo09.4  
**Evaluation of the Respiratory Muscular Function by Means of Diaphragmatic Mechanomyographic Signals in COPD Patients** ..... **3925-3928**  
*Sarlabous, Leonardo\* (Universitat Politècnica de Catalunya (UPC)); Torres, Abel (Universitat Politècnica de Catalunya (UPC), Institute for Bioengineering of Catalonia (IBEC) and CIBER de Bioingeniería, Biomate); Fiz Fernandez, José Antonio (Navarra Hospital); Gea, Joaquim (IMIM- Hospital del Mar, UPF, CIBERES); Martínez-Llorens, Juana M. (IMIM- Hospital del Mar, UPF, CIBERES); Jané, Raimon (Universitat Politècnica de Catalunya)*

**5.6.1 Cardiovascular Modeling** (Poster Session)

- 15:00-16:40 FrDPo10.1  
**On the Ill-Conditioned Nature of the Intracardiac Inverse Problem** ..... **3929-3931**  
*Bates, Jason H T\* (University of Vermont, College of Medicine); Spector, Peter (University of Vermont and Fletcher Allen Health Care)*
- 15:00-16:40 FrDPo10.2  
**Simulation of AV Hysteresis Pacing Using an Integrated Dual Chamber Heart and Pacer Model** ..... **3932-3935**  
*Lian, Jie\* (Micro Systems Engineering, Inc.); Garner, Garth (Micro Systems Engineering Inc); Kraetschmer, Hannes (Micro Systems Engineering Inc); Muessig, Dirk (Micro Systems Engineering, Inc.)*
- 15:00-16:40 FrDPo10.3  
**Effects of Elevated Homocysteine Hormone on Electrical Activity in the Human Atrium: A Simulation Study** ..... **3936-3939**  
*Law, Phillip R\* (The University of Manchester); Kharche, Sanjay (University of Manchester); Stott, Jonathan (The University of Manchester); Zhang, Henggui (University of Manchester)*
- 15:00-16:40 FrDPo10.4  
**The Pressure Recovery Ratio: The Invasive Index of LV Relaxation During Filling. Model-Based Prediction with In-Vivo Validation** ..... **3940-3943**  
*Zhang, Wei (Washington University); Shmuylovich, Leonid (Washington University in St Louis); Kovács, Sándor J\* (Washington University in St Louis)*
- 15:00-16:40 FrDPo10.5  
**The Effects of Non-Linearities on Shear Stress in Periodic Flow in Axi-Symmetric Vessels** ..... **3944-3947**  
*Park, Chang Sub\* (University of Oxford); Payne, Stephen John (University of Oxford)*
- 15:00-16:40 FrDPo10.6  
**Shock Induced Electrical Activation in Structurally Detailed Models of Pig Left-Ventricular Tissue** ..... **3948-3951**  
*Trew, Mark L.\* (University of Auckland); Ashton, Jesse L (University of Auckland); Caldwell, Bryan (University of Auckland); Smaill, Bruce (University of Auckland)*

15:00-16:40	FrDPo11.1
<b>Neurophysiology Study of Early Visual Processing of Face and Non-Face Recognition under Simulated Prosthetic Vision</b> ..... <b>3952-3955</b>	
<i>YANG, YUAN (Shanghai Jiao Tong University); Guo, Hong (Shanghai Jiao Tong University); Tong, Shanbao (Shanghai Jiao Tong University); Zhu, Yisheng (Shanghai Jiaotong University); Qiu, Yihong* (Shanghai Jiao Tong University)</i>	
15:00-16:40	FrDPo11.2
<b>Impaired Lower Limb Muscle Synergies Post-Stroke</b> ..... <b>3956-3959</b>	
<i>Cruz, Theresa* (Northwestern University); Dhafer, Yasin (Northwestern University)</i>	
15:00-16:40	FrDPo11.3
<b>Micromanipulation Accuracy in Pointing and Tracing Investigated with a Contact-Free Measurement System</b> ..... <b>3960-3963</b>	
<i>Su, Eileen Lee Ming* (Imperial College London); Tun Latt, Win (Nanyang Technological University); Ang, Wei Tech (Nanyang Technological University); Lim, Thiam Chye (National University Hospital); Teo, Cheeiong (National University of Singapore); Burdet, Etienne (Imperial College London)</i>	
15:00-16:40	FrDPo11.4
<b>Novel Algorithm for the Hemiplegic Gait Evaluation using a Single 3-axis Accelerometer</b> ..... <b>3964-3966</b>	
<i>Lee, Hyo Ki (Yonsei University); Hwang, Sung-Jae (Yonsei University); Cho, Sung Pil (Yonsei University); Lee, Dong-Ryul (Wonju City Medical Center); You, Joshua H. (Yonsei University); Lee, Kyoung Joung* (Yonsei University); Kim, Young Ho (Yonsei University); Choi, Ho Seon (Daewon University College)</i>	
15:00-16:40	FrDPo11.5
<b>Human Brain Performance in Learning Complex Temporal Patterns</b> ..... <b>3967-3970</b>	
<i>Samadani, Ali-Akbar* (University of Manitoba); Moussavi, Zahra (University of Manitoba)</i>	
15:00-16:40	FrDPo11.6
<b>Evaluation of Applied Forces and EMG of the Young, Aged &amp; Stroke Population in a 3D Arm Workspace</b> ..... <b>3971-3974</b>	
<i>Hazra, Promita* (Marquette University); Myklebust, Joel (Center for Devices and Radiological Health, FDA); Winters, Jack (Marquette University)</i>	
15:00-16:40	FrDPo11.7
<b>Assessment of Aversive Stimuli Dependent Attentional Binding by the N170 VEP Component</b> ..... <b>3975-3978</b>	
<i>Busse, Michael* (Saarland University Hospital); Haab, Lars (Saarland University Hospital); Mohamed Aminuddin, Mai Mariam (Saarland Univ Hospital); Krick, Christoph (Saarland University Hospital); Weis, Tina (Saarland University Hospital); Reith, Wolfgang (Saarland University Hospital); Strauss, Daniel J. (Comp. Diagn. &amp; Biocyb. Unit)</i>	
15:00-16:40	FrDPo11.8
<b>A Low-Cost Video-Based Tool for Clinical Gait Analysis</b> ..... <b>3979-3982</b>	
<i>Soda, Paolo (Università CAMPUS Bio-Medico); Carta, Alfonso (Università Campus Bio-Medico di Roma); Formica, Domenico* (Campus Bio-Medico University); Guglielmelli, Eugenio (Campus Bio-Medico University)</i>	
15:00-16:40	FrDPo11.9
<b>Real-Time Identification and Visualization of Human Segment Parameters</b> ..... <b>3983-3986</b>	
<i>Venture, Gentiane* (Tokyo University of Agriculture and Technology); Ayusawa, Ko (University of Tokyo); Nakamura, Yoshihiko (University of Tokyo)</i>	
15:00-16:40	FrDPo11.10
<b>Muscle Activation Patterns During Force Generation of the Index Finger</b> ..... <b>3987-3990</b>	
<i>Qiu, Dan* (Illinois Institute of Technology); Fischer, Heidi (Rehabilitation Institute of Chicago); Kamper, Derek (Rehabilitation Institute of Chicago and Illinois Institute of Technology)</i>	
15:00-16:40	FrDPo11.11
<b>Relation between NIRS Signal and Motor Capability</b> ..... <b>3991-3994</b>	
<i>Morihiro, Masamichi* (Nagaoka University of Technology); Tsubone, Tadashi (Nagaoka University of Technology); Wada, Yasuhiro (Nagaoka University of Technology)</i>	

15:00-16:40

FrDPo11.12

**Performance Evaluation of an Algorithm for the Identification of Time-Varying Joint Stiffness** ..... 3995-3998

Starret Visser, Tanya\* (McGill University); Ludvig, Daniel (McGill University);  
Kearney, Robert Edward (McGill University)

FrE01: 16:40-18:10

Conrad B

**1.2.4 Signal Processing and Physiological System Modeling** (Oral Session)

**Chair:** Zahra Moussavi, Univ. of Manitoba

16:40-16:55

FrE01.1

**Changes in the Spectral Powers of Finger Photoplethysmographic Waveform Variability in Hemodialysis Patients** ..... 3999-4002

Javed, Faizan\* (University of New South Wales); Chan, Gregory S H (The University of New South Wales);  
Middleton, Paul MacConachie (University of New South Wales); Malouf, Philip (Prince of Wales Hospital,  
Sydney); Steel, Elizabeth (Prince of Wales Hospital Sydney); Savkin, Andrey (University of New South Wales);  
Mackie, James (Prince of Wales Hospital, Sydney); Lovell, Nigel H (University of New South Wales)

16:55-17:10

FrE01.2

**3D Numerical Simulation of Coronary Blood Flow and Its Effect on Endothelial Cell Activation** ..... 4003-4006

Yin, Wei\* (Oklahoma State University); Shanmugavelayudam, Saravan Kumar (Oklahoma State University);  
Rubenstein, David (Oklahoma State University)

17:10-17:25

FrE01.3

**Time-Varying Respiratory Pattern Characterization in Chronic Heart Failure Patients and Healthy Subjects** ..... 4007-4010

Garde, Ainara (Universitat Politècnica de Catalunya); Giraldo, Beatriz\* (Universitat Politècnica de Catalunya);  
Jané, Raimon (Universitat Politècnica de Catalunya); Sornmo, Leif (Lund University)

17:25-17:40

FrE01.4

**Detecting Changes in Motion Characteristics During Sports Training** ..... 4011-4014

Kulic, Dana\* (University of Waterloo); Venture, Gentiane (Tokyo University of Agriculture and Technology);  
Nakamura, Yoshihiko (University of Tokyo)

17:40-17:55

FrE01.5

**Detection and Prediction of Drowsiness by Reflexive Eye Movements** ..... 4015-4018

Hirata, Yutaka\* (Chubu University, College of Eng); Nishiyama, Junpei (Chubu University College of Eng);  
Kinoshita, Shinichi (Chubu University College of Eng)

FrE02: 16:40-18:10

Conrad C

**1.5.2 Independent Component Analysis** (Oral Session)

**Chair:** Metin Akay, Arizona State Univ.

**Co-Chair:** Jose Principe, Univ. of Florida

16:40-16:55

FrE02.1

**Multi-Neuron Action Potentials Recorded with Tetrode Are Not Instantaneous Mixtures of Single Neuronal Action Potentials** ..... 4019-4022

Shiraishi, Yasushi\* (Graduate school of information sciences); Katayama, Norihiro (Tohoku univ); Takahashi, Tetsuya  
(Tohoku University); Karashima, Akihiro (Tohoku University); Nakao, Mitsuyuki (Tohoku University)

16:55-17:10

FrE02.2

**Improved Separability of Dipole Sources by Tripolar versus Conventional Disk Electrodes: A Modeling Study Using Independent Component Analysis** ..... 4023-4026

Cao, Hongbao (Louisiana Tech University); Besio, W. G.\* (University of Rhode Island);  
Jones, Steven A (Louisiana Tech University); Medvedev, Andrei (Georgetown University)

17:10-17:25

FrE02.3

**Focal Artifact Removal from Ongoing EEG - A Hybrid Approach Based on Spatially-Constrained ICA and Wavelet De-Noising** ..... 4027-4030

Akhtar, Muhammad Tahir\* (The University of Electro-Communications);  
James, Christopher (University of Southampton)

17:25-17:40 FrE02.4  
**Extraction of P300 Using Constrained Independent Component Analysis** ..... 4031-4034  
*Khan, Ozair Idris (Kyung Hee University); Kim, Sang-Hyuk\* (Kyung-Hee university); Raheed, Tahir (Kyung Hee University); Khan, Adil Mehmood (Kyung Hee University); Kim, Tae-Seong (Kyung Hee University)*

17:40-17:55 FrE02.5  
**Single Trial Independent Component Analysis for BCI System** ..... 4035-4038  
*Li, Kun (University of South Florida); Sankar, Ravi\* (University of South Florida); Arbel, Yael (University of South Florida); Donchin, Emanuel (University of South Florida)*

17:55-18:10 FrE02.6  
**Independent Component Analysis Applied to Pulse Oximetry in the Estimation of the Arterial Oxygen Saturation (SpO2) - a Comparative Study** ..... 4039-4044  
*Jensen, Thomas (Technical University of Denmark); Duun, Sune (Technical University of Denmark); Larsen, Jan\* (Technical University of Denmark); Haahr, Rasmus G (Technical University of Denmark); Toft, Mette (University of Copenhagen); Belhage, Bo (University of Copenhagen); Thomsen, Erik V (Technical University of Denmark)*

FrE03: 16:40-18:10 Grand Ballroom - Salon B  
**2.1.5 Magnetic Resonance Imaging** (Oral Session)  
**Chair:** Ed X. Wu, *The Univ. of Hong Kong*  
**Co-Chair:** Jim Xiuquan Ji, *Texas A&M Univ.*

16:40-16:55 FrE03.1  
**Channel Reduction in Massive Array Parallel MRI** ..... 4045-4048  
*FENG, SHUO (Texas A&M University); Ji, Jim Xiuquan\* (Texas A&M University)*

16:55-17:10 FrE03.2  
**Gas-Filled Microbubbles – a Novel Susceptibility Contrast Agent for Brain and Liver MRI** ..... 4049-4052  
*Chow, April M. (The University of Hong Kong); Cheung, Jerry S. (The University of Hong Kong); Wu, Ed X.\* (The University of Hong Kong)*

17:10-17:25 FrE03.3  
**Highly Parallel Transmit/Receive Systems for Dynamic MRI** ..... 4053-4056  
*Wright, Steven M.\* (Texas A&M University)*

17:25-17:40 FrE03.4  
**Rapid Comprehensive Evaluation of Luminography and Hemodynamic Function with 3D Radially Undersampled Phase Contrast Imaging MRI** ..... 4057-4060  
*Johnson, Kevin M. (University of Wisconsin-Madison); Francois, Chris (University of Wisconsin-Madison); Lum, Darren (University of Wisconsin-Madison); Bley, Thorsten (University of Wisconsin-Madison); Nett, Elisabeth (University of Wisconsin-Madison); Landgraf, Benjamin (University of Wisconsin-Madison); Reeder, Scott B. (University of Wisconsin-Madison); Grist, Thomas M (University of Wisconsin-Madison); Wieben, Oliver\* (University of Wisconsin-Madison)*

17:40-17:55 FrE03.5  
**Functional MRI Study of Brain Function under Resting and Activated States** ..... 4061-4063  
*Chen, Wei\* (University of Minnesota); Liu, Xiao (University of Minnesota); Zhu, Xiao-Hong (University of Minnesota); Zhang, Nanyin (University of Massachusetts)*

17:55-18:10 FrE03.6  
**Perturbation Analysis of the Effects of B1+ Errors on Parallel Excitation in MRI** ..... 4064-4066  
*Ma, Chao\* (University of Illinois at Urbana-Champaign); Xu, Dan (Univ of Illinois, Urbana-Champaign); King, Kevin (GE Healthcare); Liang, Zhi-Pei (University of Illinois at Urbana-Champaign)*

FrE04: 16:40-18:10 Duluth Room  
**2.3.1 Optical Imaging, Microscopy, and Infrared Imaging I** (Oral Session)  
**Chair:** Taner Akkin, *Univ. of Minnesota*  
**Co-Chair:** Hao Zhang, *Univ. of Wisconsin-Milwaukee*

16:40-16:55 FrE04.1  
**Optical Coherence Tomography Imaging for Cancer Diagnosis and Therapy Guidance** ..... 4067-4069  
*Iftimia, Nicusor\* (Physical Sciences)*

16:55-17:10	FrE04.2
<b>Mapping the Human Brain at Rest with Diffuse Optical Tomography .....</b>	<b>4070-4072</b>
<i>White, Brian (Washintgon Univ. in St. Louis); Snyder, Abraham (Washintgon Univ. in St. Louis);</i>	
<i>Cohen, L. (Washintgon Univ. in St. Louis); Petersen, Steven E. (Washintgon Univ. in St. Louis);</i>	
<i>Raichle, Marcus E. (Washintgon Univ. in St. Louis); Schlaggar, Bradley L. (Washintgon Univ. in St. Louis);</i>	
<i>Culver, Joseph* (Washington University School of Medicine)</i>	
17:10-17:25	FrE04.3
<b>Methods to Enhance Laser Speckle Imaging of High-Flow and Low-Flow Vasculature .....</b>	<b>4073-4076</b>
<i>Choi, Bernard* (University of California, Irvine)</i>	
17:25-17:40	FrE04.4
<b>Nonlinear Optical Microscopy and Computational Analysis of Intrinsic Signatures in Breast Cancer .....</b>	<b>4077-4080</b>
<i>Rueden, Curtis (University of Wisconsin at Madison); Conklin, Matthew (University of Wisconsin at Madison);</i>	
<i>Provenzano, Paolo (University of Wisconsin at Madison); Keely, Patricia (University of Wisconsin at Madison);</i>	
<i>Eliceiri, Kevin* (University of Wisconsin at Madison)</i>	
17:40-17:55	FrE04.5
<b>Bio-Inspired Fluidic Lens Surgical Camera for MIS .....</b>	<b>4081-4084</b>
<i>Tsai, Frank S.* (University of California at San Diego); Johnson, Daniel (University of California at San Diego);</i>	
<i>Cho, Sung Hwan (University of California San Diego); Qiao, Wen (University of California, San Diego);</i>	
<i>Arianpour, Ashkan (University of California at San Diego); Lo, Yu-Hwa (University of California San Diego)</i>	
17:55-18:10	FrE04.6
<b>Analysis of Fixed Point FFT for Fourier Domain Optical Coherence Tomography Systems .....</b>	<b>4085-4088</b>
<i>Ali, Murtaza* (Texas Instruments); Parlapalli, Renuka (Texas Instruments);</i>	
<i>Magee, David (Texas Instruments); Dasgupta, Udayan (Texas Instruments Inc.)</i>	

FrE05: 16:40-18:10	Marquette IV & V
<b>3.8.1 BioNano Technology</b> (Oral Session)	
<b>Chair:</b> Jordan Green, <i>Johns Hopkins Univ.</i>	
<b>Co-Chair:</b> Ilko Ilev, <i>US FDA</i>	

16:40-16:55	FrE05.1
<b>Quantum Dots in Molecular Detection of Disease .....</b>	<b>4089-4092</b>
<i>Wang, Tza-Huei* (Johns Hopkins University)</i>	
16:55-17:10	FrE05.2
<b>Traceable Sirna Delivery with Quantum Dots .....</b>	<b>4093-4094</b>
<i>Gao, Xiaohu* (University of Washington)</i>	
17:10-17:25	FrE05.3
<b>Off-Resonance Saturation Magnetic Resonance Imaging of Superparamagnetic Polymeric Micelles .....</b>	<b>4095-4097</b>
<i>Khemtong, Chalermchai (The University of Texas Southwestern Medical Center); Kessinger, Chase W. (The</i>	
<i>University of Texas Southwestern Medical Center); Togao, Osamu (The University of Texas Southwestern</i>	
<i>Medical Center); Ren, Jimin (The University of Texas Southwestern Medical Center); Takahashi, Masaya (The</i>	
<i>University of Texas Southwestern Medical Center); Sherry, A. Dean (The University of Texas Southwestern</i>	
<i>Medical Center); Gao, Jinming* (The University of Texas Southwestern Medical Center)</i>	
17:25-17:40	FrE05.4
<b>Dissolved Core Alginate Microspheres As "Smart-Tattoo" Glucose Sensors .....</b>	<b>4098-4101</b>
<i>Chaudhary, Ayesha* (Indian institute of Technology Bombay); Raina, Monica (Indian institute of Technology</i>	
<i>Bombay); McShane, Mike (Texas A&amp;M University); Srivastava, Rohit (Indian institute of Technology Bombay)</i>	
17:40-17:55	FrE05.5
<b>Single-Walled Carbon Nanotube Based Ph Sensors on a Flexible Parylene-C Substrate .....</b>	<b>4102-4105</b>
<i>Yang, Chih Feng (Northeastern University); Chen, Chia-Ling (Northeastern University);</i>	
<i>Busnaina, Ahmed (Northeastern University); Dokmeci, Mehmet R.* (Northeastern University)</i>	
17:55-18:10	FrE05.6
<b>Molecular Therapeutic Agents for Noninvasive Photoacoustic Image-Guided Photothermal Therapy .....</b>	<b>4106-4109</b>
<i>Chen, Yun-Sheng* (University of Texas at Austin); Joshi, Pratixa P. (University of Texas at Austin); Kim, Seungsoo</i>	
<i>(University of Texas at Austin); Shah, Jignesh (Volcano Inc.); Emelianov, Stanislav (University of Texas at Austin)</i>	

FrE06: 16:40-18:10 Conrad A  
**3.11.1 Wearable Technologies I** (Oral Session)  
**Chair:** Maysam Ghovanloo, *Georgia Inst. of Tech.*  
**Co-Chair:** Claudine Gehin, *INSA Lyon*

16:40-16:55 FrE06.1  
**Development of Data Communication System with Ultra High Frequency Radio Wave for Implantable Artificial Hearts** ..... 4110-4115  
*Tsujimura, Shinichi\* (University of Tsukuba); Yamagishi, Hiroto (University of Tsukuba); Sankai, Yoshiyuki (University of Tsukuba)*

16:55-17:10 FrE06.2  
**Development of CNT-Based Inductors for Integrated Biosensors** ..... 4116-4119  
*Kim, Bruce\* (University of Alabama)*

17:10-17:25 FrE06.3  
**Design and Validation of an Ambulatory System for the Measurement of the Microcirculation in the Capillaries:  $\mu$ Hematron Device** ..... 4120-4123  
*TOUMI, DAREEN (INSA Lyon); Gehin, Claudine\* (INSA Lyon); Dittmar, Andre (INSA Lyon); McAdams, Eric (University of Ulster)*

17:25-17:40 FrE06.4  
**Stretchable Interconnections for Flexible Electronic Systems** ..... 4124-4127  
*Lin, Jianhui\* (Tsinghua University); YAN, Bing (Tsinghua University); WU, Xiaoming (Tsinghua University); REN, Tianling (Tsinghua University); LIU, Litian (Tsinghua University)*

17:40-17:55 FrE06.5  
**Thermal Parameters Measurement on Fire Fighter During Intense Fire Exposition** ..... 4128-4131  
*Oliveira, Aurélien\* (INSA Lyon); Gehin, Claudine (INSA Lyon); DELHOMME, Georges (INSA Lyon); Dittmar, Andre (INSA Lyon); McAdams, Eric (University of Ulster)*

17:55-18:10 FrE06.6  
**Design, Simulation and Fabrication of a Low Cost Capacitive Tactile Shear Sensor for a Robotic Hand** ..... 4132-4135  
*Shashank, Arridh\* (University of New South Wales and Sydney Medical School.); Tiwana, Mohsin I. (University of New South Wales); Redmond, Stephen James (University of New South Wales); Lovell, Nigel H (University of New South Wales)*

FrE07: 16:40-18:10 Marquette VII  
**3.4.1 Biological and Chemical Sensors** (Oral Session)  
**Chair:** Ruikang Wang, *Oregon Health & Science Univ.*  
**Co-Chair:** Babak Parviz, *Univ. of Washington*

16:40-16:55 FrE07.1  
**Skin Characteristics by Laser Generated Surface Waves** ..... 4136-4139  
*Huang, Zhihong\* (University of Dundee); L'Etang, Adele J (University Of Dundee)*

16:55-17:10 FrE07.2  
**A Comparison of Retinal Prosthesis Electrode Array Substrate Materials** ..... 4140-4143  
*Weiland, James\* (University of Southern California); Humayun, Mark (University of Southern California); Eckhardt, Helmut (Premitec, Inc.); Ufer, Stefan (Premitec Inc.); LAUDE, Lucien (USC); Basinger, Brooke (University of Southern California); Tai, Yu-Chong (California Institute of Technology)*

17:10-17:25 FrE07.3  
**Combining Microfluidics and Electrochemical Detection** ..... 4144-4146  
*Ferrigno, Rosaria\* (Université Claude Bernard Lyon 1); Pittet, Patrick (Université Claude Bernard Lyon 1); STEPHAN, Khaled (Université Claude Bernard Lyon 1); Leca-Bouvier, Béatrice (Université Claude Bernard Lyon 1); Galvan, Jean-Marc (CPE); Renaud, Louis (Université Claude Bernard Lyon 1); Morin, Pierre (Université Lyon1 Claude Bernard)*



17:25-17:40	FrE07.4
<b>Microfluidic Cellular and Molecular Detection for Lab-On-A-Chip Applications</b> .....	<b>4147-4149</b>
<i>Lee, Abraham* (University of California, Irvine)</i>	
17:40-17:55	FrE07.5
<b>Novel Laser Therapy and Diagnosis Using Mid-Infrared Laser</b> .....	<b>4150-4153</b>
<i>Awazu, Kunio* (Osaka University); Ishii, Katsunori (Osaka University); Hazama, Hisanao (Osaka University)</i>	
17:55-18:10	FrE07.6
<b>Fluorescence Biosensing in Nanopores</b> .....	<b>4154-4157</b>
<i>Karolin, Jan Olof* (University of Strathclyde); Birch, David (University of Strathclyde)</i>	

FrE08: 16:40-18:10	Marquette VIII
<b>4.7.1 Emerging Topics in Computational Bioinformatics and Systems Biology</b> (Oral Session)	
<b>Chair:</b> May Dongmei Wang, <i>Georgia Tech and Emory University</i>	
<b>Co-Chair:</b> Daniel A. Beard, <i>Medical Coll. of Wisconsin</i>	

16:40-16:55	FrE08.1
<b>Ontologies for Cancer Nanotechnology Research</b> .....	<b>4158-4161</b>
<i>Thomas, Dennis George* (Washington University in St. Louis); Pappu, Rohit (Washington University in St. Louis); Baker, Nathan (Washington University in St. Louis)</i>	

16:55-17:10	FrE08.2
<b>Emerging Translational Bioinformatics: Knowledge-Guided Biomarker Identification for Cancer Diagnostics</b> .....	<b>4162-4165</b>
<i>Phan, John H.* (Georgia Institute of Technology); Yin-Goen, Qiqin (Emory University); Young, Andrew N (Emory University); Wang, May Dongmei (Georgia Tech and Emory University)</i>	

17:10-17:25	FrE08.3
<b>Structure of Brain Functional Networks</b> .....	<b>4166-4170</b>
<i>Kuchaiev, Oleksii (University of California, Irvine); Wang, Po T (University of California Irvine); Nenadic, Zoran* (UC Irvine); Przulj, Natasa (University of California Irvine)</i>	

17:25-17:40	FrE08.4
<b>Design of Experiments for Identification of Complex Biochemical Systems with Applications to Mitochondrial Bioenergetics</b> .....	<b>4171-4174</b>
<i>Vinnakota, Kalyan* (Medical College of Wisconsin); Beard, Daniel A. (Medical College of Wisconsin); Dash, Ranjan (Medical College of Wisconsin)</i>	

17:40-17:55	FrE08.5
<b>Visual Annotation of the Gene Database</b> .....	<b>4175-4177</b>
<i>Wen, Jing (University of Illinois At Chicago); Wang, Xishu (University of Illinois At Chicago); Kibbe, Warren (Northwestern University); Lin, Simon (Northwestern University); Lu, Hui* (University of Illinois at Chicago)</i>	

17:55-18:10	FrE08.6
<b>SimpleVisGrid: Grid Services for Visualization of Diverse Biomedical Knowledge and Molecular Systems Data</b> .....	<b>4178-4181</b>
<i>Stokes, Todd* (Georgia Institute of Technology); Wang, May Dongmei (Georgia Tech and Emory University)</i>	

FrE09: 16:40-18:10	Marquette II
<b>5.11.1 Nonlinear Dynamics in Cardiac Electrophysiology</b> (Oral Session)	
<b>Chair:</b> Alena Talkachova, <i>University of Minnesota</i>	

16:40-17:10	FrE09.1
<b>Effects of Hypocalcemia on Electrical Restitution and Ventricular Fibrillation</b> .....	<b>4182-4185</b>
<i>Riccio, Mark (Cornell University); Hua, Fei (Cornell University); Lomonte, Dina (Cornell University); Venator, Kurt (Cornell University); Cerda-Gonzalez, Sophia (Cornell University); Gilmour, Robert* (Cornell University)</i>	

17:10-17:25	FrE09.2
<b>Spatial Heterogeneity of Restitution Properties and the Onset of Alternans</b> .....	<b>4186-4189</b>
<i>Dobrovolsky, Hana Maria* (Ryerson University); Berger, Carolyn (Duke University Physics Department); Brown, Ninita H. (Duke University); Neu, Wanda Krassowska (Duke University); Gauthier, Daniel J (Duke University)</i>	

17:25-17:40	FrE09.3
<b>Electrotonic Effects on Action Potential Duration in Perfused Rat Hearts</b> .....	<b>4190-4193</b>
<i>Walton, Richard David (University of Leeds); Bernus, Olivier* (University of Leeds)</i>	
17:40-17:55	FrE09.4
<b>Monitoring Intramyocardial Reentry Using Alternating Transillumination</b> .....	<b>4194-4197</b>
<i>Mitrea, Bogdan G* (SUNY Upstate Medical University); Wellner, Marcel (SUNY Upstate Medical University); Pertsov, Arkady M. (SUNY Upstate Medical University)</i>	
17:55-18:10	FrE09.5
<b>Measures of Cardiac Contractility Variability During Ischemia</b> .....	<b>4198-4201</b>
<i>Patangay, Abhilash* (Boston Scientific Corporation); Zhang, Yi (Boston Scientific Corporation); Lewicke, Aaron (Boston Scientific)</i>	

FrE10: 16:40-18:10	Grand Ballroom - Salon C
<b>6.5.1 Neural Sensing and Applications</b> (Oral Session)	
<b>Chair:</b> Pedram Mohseni, <i>Case Western Reserve University</i>	
<b>Co-Chair:</b> Dustin Tyler, <i>Case Western Res. Univ.</i>	

16:40-16:55	FrE10.1
<b>A Micropower Support Vector Machine Based Seizure Detection Architecture for Embedded Medical Devices</b> .....	<b>4202-4205</b>
<i>Shoeb, Ali (Massachusetts Institute of Technology); Carlson, David* (Medtronic); Panken, Eric (Medtronic); Denison, Timothy (Medtronic)</i>	

16:55-17:10	FrE10.2
<b>Improved Decoding of Limb-State Feedback from Natural Sensors</b> .....	<b>4206-4209</b>
<i>Wagenaar, Joost (University of Pittsburgh); Ventura, Valerie (Carnegie Mellon University); Weber, Douglas* (University of Pittsburgh)</i>	

17:10-17:25	FrE10.3
<b>Neural Sensing of Electrical Activity with Stretchable Microelectrode Arrays</b> .....	<b>4210-4213</b>
<i>Yu, Zhe (Columbia University); Graudejus, Oliver (Princeton University); Lacour, Stéphanie (University of Cambridge); Wagner, Sigurd (Princeton University); Morrison, Barclay* (Columbia University)</i>	

17:25-17:40	FrE10.4
<b>A Biomimetic Adaptive Algorithm and Low-Power Architecture for Implantable Neural Decoders</b> .....	<b>4214-4217</b>
<i>Rapoport, Benjamin Isaac* (Massachusetts Institute of Technology); Wattanapanitch, Woradorn (Massachusetts Institute of Technology); Penagos, Hector L. (Massachusetts Institute of Technology); Musallam, Sam (Caltech); Anderson, Richard A. (Caltech); Sarpeshkar, Rahul (Massachusetts Institute of Technology)</i>	

17:40-17:55	FrE10.5
<b>Micropower Non-Contact EEG Electrode with Active Common-Mode Noise Suppression and Input Capacitance Cancellation</b> .....	<b>4218-4221</b>
<i>Chi, Yu* (UCSD); Cauwenberghs, Gert (University of California San Diego)</i>	

17:55-18:10	FrE10.6
<b>A Configurable IC for Wireless Real-Time In Vivo Monitoring of Chemical and Electrical Neural Activity</b> .....	<b>4222-4225</b>
<i>Roham, Masoud (Case Western Reserve University); Blaha, Charles (University of Memphis); Garris, Paul (Mayo Clinic); Lee, Kendall (Mayo Clinic); Mohseni, Pedram* (Case Western Reserve University)</i>	

FrE11: 16:40-18:10	Marquette I
<b>6.1.2 Neural Modeling and Computing II</b> (Oral Session)	
<b>Chair:</b> John White, <i>University of Utah</i>	
<b>Co-Chair:</b> Dominique Durand, <i>Case Western Res. Univ.</i>	

16:40-17:10	FrE11.1
<b>Mechanisms of Coherent Activity in Hippocampus and Entorhinal Cortex</b> .....	<b>4226-4227</b>
<i>White, John* (University of Utah); Fernandez, Fernando (University of Utah); Kispersky, Tilman (Boston University)</i>	

17:10-17:25	FrE11.2
<b>Customizing Deep Brain Stimulation to the Patient Using Computational Models</b> .....	<b>4228-4229</b>
<i>McIntyre, Cameron* (Cleveland Clinic Foundation)</i>	
17:25-17:40	FrE11.3
<b>Deep Brain Stimulation That Abolishes Parkinsonian Activity in Basal Ganglia Improves Thalamic Relay Fidelity in a Computational Circuit</b> .....	<b>4230-4233</b>
<i>Dorval, Alan* (University of Utah); Panjwani, Neil (Duke University); Qi, Rosa (Duke University); Grill, Warren (Duke University)</i>	
17:40-17:55	FrE11.4
<b>Modeling Limbic Influences on Habituation Deficits in Chronic Tinnitus Aurium</b> .....	<b>4234-4237</b>
<i>Haab, Lars* (Saarland University Hospital); Wallhäusser-Franke, Elisabeth (Zentralinstitut für seelische Gesundheit); Trenado, Carlos (Saarland University Hospital); Strauss, Daniel J. (Comp. Diagn. &amp; Biocyb. Unit)</i>	
17:55-18:10	FrE11.5
<b>simEngine: A Low-Cost, High-Performance Platform for Embedded Biophysical Simulations</b> .....	<b>4238-4241</b>
<i>Weinstein, Randy* (Simatra Modeling Technologies); Church, Christopher (Simatra Modeling Technologies); Lebsack, Carl (Simatra Modeling Technologies); Cook, Joshua E (Simatra Modeling Technologies); Sorensen, Michael (Georgia Institute of Technology)</i>	

FrE12: 16:40-18:10	Marquette VI
<b>7.8.1 Cellular Therapies and Regenerative Medicine (Oral Session)</b>	
<b>Chair:</b> Bradley E. Layton, <i>Drexel Univ.</i>	
<b>Co-Chair:</b> Chun Wang, <i>Univ. of Minnesota</i>	

16:40-16:55	FrE12.1
<b>Characterizing the Effects of Aligned Collagen Fibers and Ascorbic Acid Derivatives on Behavior of Rabbit Corneal Fibroblasts</b> .....	<b>4242-4245</b>
<i>Phu, Donna* (Harvey Mudd College); Orwin, Elizabeth (Harvey Mudd College)</i>	
16:55-17:10	FrE12.2
<b>Thermoresponsive Hydrogel with Embedded Magnetic Nanoparticles for the Implementation of Shrinkable Medical Microrobots and for Targeting and Drug Delivery Applications</b> .....	<b>4246-4249</b>
<i>Lapointe, Jacinthe* (Ecole Polytechnique de Montreal); Martel, Sylvain (Ecole Polytechnique de Montreal)</i>	
17:10-17:25	FrE12.3
<b>Conduction Analysis in Mixed Cardiomyocytes-Fibroblasts Cultures Using Microelectrode Arrays</b> .....	<b>4250-4253</b>
<i>Roy, Shilpi* (Stanford University); Chen, Michael Q. (Stanford University); Kovacs, Gregory T.A. (Stanford University); Giovangrandi, Laurent (Stanford University)</i>	
17:25-17:40	FrE12.4
<b>Multidisciplinary Approach for In-Deep Assessment of Joint Prosthesis Failure</b> .....	<b>4254-4257</b>
<i>Tessarolo, Francesco* (University of Trento); Caola, Iole (Azienda Provinciale per i Servizi Sanitari); Piccoli, Federico (Azienda Provinciale per i Servizi Sanitari); Dorigotti, Paolo (Azienda Provinciale per i Servizi Sanitari); Demattè, Ettore (Azienda Provinciale per i Servizi Sanitari); Molinari, Marco (Azienda Provinciale per i Servizi Sanitari); Malavolta, Michele (Azienda Provinciale per i Servizi Sanitari); Barbareschi, Mattia (Azienda Provinciale per i Servizi Sanitari); Caciagli, Patrizio (Azienda Provinciale per i Servizi Sanitari); Nollo, Giandomenico (University of Trento)</i>	
17:40-17:55	FrE12.5
<b>Association between Mechanics and Structure in Arteries and Veins: Theoretical Approach to Vascular Graft Confection</b> .....	<b>4258-4261</b>
<i>Salvucci, Fernando* (Favaloro University); Armentano, Ricardo (Favaloro University); Bia, Daniel (School of Medicine, Republic University); Barra, Juan (Favaloro University); Zócalo, Yanina (School of Medicine, Republic University); Craiem, Damian (Favaloro University); Atienza, Jose (Technical University of Madrid); Rojo, Francisco (Technical University of Madrid); Guinea, Gustavo (Technical University of Madrid); Baguear, Federico (Universidad Favaloro); Fernandez, Juan (Universidad de la República)</i>	

17:55-18:10 FrE12.6  
**Ultrasound Elastography to Determine the Layered Mechanical Properties of Articular Cartilage and the Importance of Such Structural Characteristics under Load** ..... 4262-4265  
*McCredie, Alexandra Jane\* (University College London); Stride, Eleanor (University College, London); Saffari, Nader (University College London)*

FrE13: 16:40-18:10 Conrad D  
**8.8.1 Multiscale Biomechanics** (Oral Session)  
**Chair:** Vicente Grau, *Univ. of Oxford*  
**Co-Chair:** Victor Barocas, *Univ. of Minnesota*

16:40-16:55 FrE13.1  
**Coarse-Grained Red Blood Cell Model with Accurate Mechanical Properties, Rheology and Dynamics** ..... 4266-4269  
*Fedosov, Dmitry A.\* (Brown University); Caswell, Bruce (Brown University); Karniadakis, George Em (Brown University)*

16:55-17:10 FrE13.2  
**Image-Based Multiscale Structural Models of Fibrous Engineered Tissues** ..... 4270-4272  
*Sander, Ed (University of Minnesota); Barocas, Victor\* (University of Minnesota)*

17:10-17:25 FrE13.3  
**Developing a Hybrid Computational Model of AFM Indentation for Analysis of Mechanically Heterogeneous Samples** ..... 4273-4276  
*Azeloglu, Evren U. (Mount Sinai School of Medicine); Kaushik, Gaurav (Columbia University); Costa, Kevin D.\* (Mount Sinai School of Medicine)*

17:25-17:40 FrE13.4  
**Multiscale Finite Element Modeling of the Lamina Cribrosa Microarchitecture in the Eye** ..... 4277-4280  
*Downs, J. Crawford\* (Devers Eye Institute); Roberts, Michael (Devers Eye Institute); Hart, Richard (The Ohio State University); Burgoyne, Claude (Devers Eye Institute Discoveries in Sight Research Laboratories)*

17:40-17:55 FrE13.5  
**Multi-Scale Modeling of Excitation-Contraction Coupling in the Normal and Failing Heart** ..... 4281-4282  
*Kerckhoffs, Roy\* (University of California San Diego); Campbell, Stuart (University of California San Diego); Flaim, Sarah (Oxford University); Howard, Elliot (University of California San Diego); Aguado-Sierra, Jazmin (University of California, San Diego); Mulligan, Lawrence (Medtronic, Inc.); McCulloch, Andrew (University of California, San Diego)*

FrE14: 16:40-18:10 Marquette III  
**9.3.1 Image-Guided Therapies** (Oral Session)  
**Chair:** Dieter Haemmerich, *Medical Univ. of South Carolina*  
**Co-Chair:** John Bischof, *Univ. of Minnesota*

16:40-16:55 FrE14.1  
**Monitoring and Guidance of Minimally-Invasive Thermal Therapy Using Diagnostic Ultrasound** ..... 4283-4286  
*Ebbini, Emad\* (University of Minnesota); Bischof, John (University of Minnesota)*

16:55-17:10 FrE14.2  
**Sequential Activation of Ground Pads Reduces Skin Heating During Radiofrequency Ablation: Initial in Vivo Porcine Results** ..... 4287-4290  
*Schutt, David J. (Medical University of South Carolina); Swindle, M. Michael (Medical University of South Carolina); Bastarrika, Gorka (Medical University of South Carolina); Haemmerich, Dieter\* (Medical University of South Carolina)*

17:10-17:25 FrE14.3  
**Image-Guided Thermochemical Ablation: Theoretical and Practical Considerations** ..... 4291-4294  
*Cressman, Erik\* (University of Minnesota)*

17:25-17:40 FrE14.4  
**Differential and Directional Effects of Perfusion on Electrical and Thermal Conductivities in Liver** ..... 4295-4298  
*Podhajsky, Ronald\* (Convivial / Energy-based Devices); Yi, Ming (Virginia Tech); Mahajan, Roop (Virginia Tech)*

17:40-17:55 FrE14.5  
**Periodic Contrast-Enhanced Computed Tomography for Thermal Ablation Monitoring:  
 A Feasibility Study** ..... 4299-4302  
*Brace, Christopher\* (University of Wisconsin); Mistretta, Charles (University of Wisconsin);  
 Hinshaw, J Louis (University of Wisconsin); Lee, Fred (University of Wisconsin)*

17:55-18:10 FrE14.6  
**Numerical Models of Laser Fusion of Intestinal Tissues** ..... 4303-4306  
*Pearce, John Anthony\* (University of Texas at Austin)*

FrE15: 16:40-18:10 Marquette IX  
**10.4.2 Ambient Assisted Living, Smart Homes for the Elderly with Chronic Diseases** (Oral Session)  
**Chair:** Toshiyo Tamura, *Chiba Univ.*  
**Co-Chair:** Majd Alwan, *AAHSA*

16:40-16:55 FrE15.1  
**Passive In-Home Health and Wellness Monitoring: Overview, Value and Examples** ..... 4307-4310  
*Alwan, Majd\* (American Association of Homes and Services for the Aging(AAHSA))*

16:55-17:10 FrE15.2  
**Privacy and Social Implications of Distinct Sensing Approaches to Implementing Smart Homes for  
 Older Adults** ..... 4311-4314  
*Demiris, George\* (University of Washington)*

17:10-17:25 FrE15.3  
**How Do Health Care Providers Perceive Technologies for Monitoring Older Adults?** ..... 4315-4318  
*Thompson, Hilaire\* (University of Washington); Thielke, Stephen (University of Washington)*

17:25-17:40 FrE15.4  
**Sleep Assessment Using a Passive Ballistocardiography-Based System: Preliminary Validation** ..... 4319-4322  
*Mack, David\* (WellAWARE Systems); Patrie, James (University of Virginia); Felder, Robin (The University of  
 Virginia); Suratt, Paul (University of Virginia Medical School); Alwan, Majd (American Association of Homes and  
 Services for the Aging(AAHSA))*

17:40-17:55 FrE15.5  
**A Fully Automated Health-Care Monitoring at Home without Attachment of Any Biological Sensors  
 and Its Clinical Evaluation** ..... 4323-4326  
*Motoi, Kosuke\* (Kanazawa University); Ueno, Hiroshi (Imizu City Hospital); Kuwae, Yutaka (Fujimoto Hayasuzu  
 Hospital); Ikarashi, Akira (Ishikawa Sunrise Industries Creation); Yuji, Tadahiko (Fujimoto Hayasuzu Hospital);  
 Higashi, Yuji (Fujimoto Hayasuzu Hospital); Tanaka, Shinobu (Kanazawa University); Fujimoto, Toshiro (Fujimoto  
 Hayasuzu Hospital); Asanoi, Hidetsugu (Imizu City Hospital); Yamakoshi, Ken-ichi (Kanazawa University)*

17:55-18:10 FrE15.6  
**Recreation Activity Monitoring System Using Proximity Sensors** ..... 4327-4330  
*Tsukamoto, Sosuke\* (Tokyo Denki University); Tsumagari, Yuko (Fujimoto Hayasuzu Hospital);  
 Hoshino, Hiroshi (Tokyo Denki University); Tamura, Toshiyo (Chiba University)*

FrE16: 16:40-18:10 Grand Ballroom - Salon A  
**S 2. Federal Funding in Biomedical Engineering** (Special Symposium)  
**Chair:** Bin He, *Univ. of Minnesota*  
**Co-Chair:** Semahat Demir, *National Science Foundation*

16:40-17:00 FrE16.1  
*Cohen, Zohara (National Institute of Biomedical Imaging and Bioengineering, NIH)*

17:00-17:20 FrE16.2  
*Demir, Semahat (National Science Foundation)*

17:20-17:40 FrE16.3  
*Charles, John B. (NASA Johnson Space Center)*

17:40-18:00

FrE16.4

Xu, Guo Feng (National Institutes of Health)

FrE17: 16:40-18:10

Directors Row 4

**SS 3. Writing Scientific Articles** (Special Session)

**Chair:** Matthias Reumann, *IBM T. J. Watson Res. Center*

**Co-Chair:** Cristian A. Linte, *Robarts Res. Inst.*

**Saturday, 5 September 2009**

SaPL1: 08:30-09:30

Grand Ballroom - Salon D

**Plenary Lecture III**

**Chair:** Xiaochuan Pan, *Univ. of Chicago*

08:30-09:30

SaPL1.1

**Biological Engineering & Systems Biology – New Opportunities for Engineers in**

**Biotech/Pharma Industry ..... \***

*Lauffenburger, Douglas\* (Massachusetts Institute of Technology)*

SaKN4L: 09:40-11:10

Grand Ballroom - Salon A

**Theme Keynote IV**

**Chair:** Bruce Wheeler, *Univ. of Florida*

09:40-11:10

SaKN4L.1

**Molecular Imaging with PET, A Revolution in Biological Research and Practice of Medicine ..... \***

*Alavi, Abass\* (University of Pennsylvania School of Medicine)*

SaA01: 09:40-11:10

Conrad B

**1.2.8 Biomedical Modelling** (Oral Session)

**Chair:** Dong Ming, *Tianjin Univ.*

**Co-Chair:** Daniel A. Beard, *Medical Coll. of Wisconsin*

09:40-09:55

SaA01.1

**Forecasting Intracranial Pressure Elevation Using Pulse Waveform Morphology ..... 4331-4334**

*Hamilton, Robert\* (University of California, Los Angeles); Xu, Peng (University of California, Los Angeles); Vespa, Paul (University of California, Los Angeles); Bergsneider, Marvin (University of California, Los Angeles); Hu, Xiao (University of California, Los Angeles)*

09:55-10:10

SaA01.2

**Enhanced EMG Signal Processing for Simultaneous and Proportional Myoelectric Control ..... 4335-4338**

*Nielsen, Johnny Luther Gredal\* (Aalborg University); Holmgaard, Steffen (Aalborg University); Jiang, Ning (Aalborg University); Farina, Dario (Aalborg University); parker, philip (university of new brunswick); Englehart, Kevin (University of New Brunswick)*

10:10-10:25

SaA01.3

**A Fuzzy Logic Model for Hand Posture Control Using Human Cortical Activity Recorded by Micro-ECoG Electrodes ..... 4339-4342**

*vinjamuri, ramana\* (Univ. of Pittsburgh); Weber, Douglas (Univ. of Pittsburgh); Degenhart, Alan (Univ. of Pittsburgh); Collinger, Jennifer (Univ. of Pittsburgh); Sudre, Gustavo (Carnegie Mellon Univ.); Adelson, P. David (Children's Neuroscience Institute, Phoenix Children's Hospital); Holder, Deborah (Univ. of Pittsburgh); Boninger, Michael (Univ. of Pittsburgh); Schwartz, Andrew (Univ. of Pittsburgh); Crammond, Donald (Univ. of Pittsburgh); Tyler-Kabara, Elizabeth (Univ. of Pittsburgh); Wang, Wei (Univ. of Pittsburgh)*

10:25-10:40

SaA01.4

**Data Mining of Patients on Weaning Trials from Mechanical Ventilation Using Cluster Analysis and Neural Networks ..... 4343-4346**

*Arizmendi, Carlos (Technical University of Catalonia (UPC)); Romero, Enrique (Technical University of Catalonia (UPC)); Alquezar, René (Technical University of Catalonia (UPC)); Caminal, Pere (Technical University of Catalonia (UPC)); Diaz, Ivan (Hospital de la Santa Creu i Sant Pau); Benito, Salvador (Hospital de la Santa Creu i Sant Pau); Giraldo, Beatriz\* (Universitat Politècnica de Catalunya)*

10:40-10:55	SaA01.5
<b>Electroencephalograph (EEG) Signal Processing Method of Motor Imaginary Potential for Attention Level Classification</b> .....	<b>4347-4351</b>
<i>Ming, Dong* (Tianjin University)</i>	
10:55-11:10	SaA01.6
<b>RBF Kernel Based Support Vector Regression to Estimate the Blood Volume and Heart Rate Responses During Hemodialysis</b> .....	<b>4352-4355</b>
<i>Javed, Faizan* (University of New South Wales); Chan, Gregory S H (The University of New South Wales); Savkin, Andrey (University of New South Wales); Middleton, Paul MacConachie (University of New South Wales); Malouf, Philip (Prince of Wales Hospital, Sydney); Steel, Elizabeth (Prince of Wales Hospital Sydney); Mackie, James (Prince of Wales Hospital, Sydney); Lovell, Nigel H (University of New South Wales)</i>	

SaA02: 09:40-11:10	Conrad C
<b>1.3.1 Nonlinear Dynamic Analysis of Biomedical Signals</b> (Oral Session)	
<b>Chair:</b> David Westwick, <i>Univ. of Calgary</i>	
<b>Co-Chair:</b> Robert Edward Kearney, <i>McGill Univ.</i>	

09:40-09:55	SaA02.1
<b>Monitoring Cardiac Output and Left Atrial Pressure by Analysis of the Right Ventricular Pressure Waveform Based on Missing Output Identification</b> .....	<b>4356-4359</b>
<i>Xu, Da (Michigan State University); Olivier, Bari (Michigan State University); Mukkamala, Ramakrishna* (Michigan State University)</i>	

09:55-10:10	SaA02.2
<b>Nonlinear, Data-Driven Modeling of Cardiorespiratory Control Mechanisms</b> .....	<b>4360-4366</b>
<i>Mitsis, Georgios D.* (University of Cyprus)</i>	

10:10-10:25	SaA02.3
<b>Identification of Hammerstein Systems Using Subspace Methods with Applications to Ankle Joint Stiffness</b> .....	<b>4367-4370</b>
<i>Zhao, Yong (McGill University); Kearney, Robert Edward* (McGill University)</i>	

10:25-10:40	SaA02.4
<b>Nonlinear Modeling and Identification of Stretch Reflex Dynamics Using Support Vector Machines</b> .....	<b>4371-4374</b>
<i>Westwick, David* (University of Calgary); Al Dhaifallah, Mujahed (University of Calgary)</i>	

10:40-10:55	SaA02.5
<b>Multistate Lempel-Ziv Index Interpretation As a Measure of Amplitude and Complexity Changes</b> .....	<b>4375-4378</b>
<i>Sarlabous, Leonardo* (Universitat Politècnica de Catalunya (UPC)); Torres, Abel (Universitat Politècnica de Catalunya (UPC), Institute for Bioengineering of Catalonia (IBEC) and CIBER de Bioingeniería, Biomate); Fiz Fernandez, José Antonio (Navarra Hospital); Gea, Joaquim (IMIM- Hospital del Mar, UPF, CIBERES); Galdiz, Juan Bautista (Hospital Cruces); Jané, Raimon (Universitat Politècnica de Catalunya)</i>	

10:55-11:10	SaA02.6
<b>Detection of Chaos in Human Fatigue Mechanomyography Signals</b> .....	<b>4379-4382</b>
<i>Xie, Hong-Bo* (The Hong Kong Polytechnic University)</i>	

SaA03: 09:40-11:10	Grand Ballroom - Salon B
<b>2.1.6 MR Cardiovascular Imaging</b> (Oral Session)	
<b>Chair:</b> Jim Xiuquan Ji, <i>Texas A&amp;M Univ.</i>	
<b>Co-Chair:</b> Yi Wang, <i>Cornell Univ.</i>	

09:40-09:55	SaA03.1
<b>Real-Time Cardiac MRI Using Prior Spatial-Spectral Information</b> .....	<b>4383-4386</b>
<i>Brinegar, Cornelius* (Univ of Illinois at Urbana-Champaign); Zhang, Haosen (Pittsburgh NMR Center for Biomedical Research); Wu, Yijun L. (Carnegie Mellon University); Foley, Lesley (Carnegie Mellon University); Hitchens, T. Kevin (Carnegie Mellon University); Ye, Qing (Carnegie Mellon University); Pocci, Darren (University Of Illinois at Urbana-Champaign); Lam, Fan (University of Illinois at Urbana Champaign); Ho, Chien (Carnegie Mellon University); Liang, Zhi-Pei (University of Illinois at Urbana-Champaign)</i>	

09:55-10:10	SaA03.2
<b>A MRI Myocardial Perfusion Analysis Tool</b> .....	<b>4387-4390</b>
<i>Née, Guillaume* (Greyc CNRS 6072 - Université de Caen - Ensicaen); Jehan-Besson, Stéphanie (Laboratoire LIMOS); Brun, Luc (Greyc CNRS 6072 - Université de Caen - Ensicaen); Revenu, Marinette (Greyc CNRS 6072 - Université de Caen - Ensicaen); Hamon, Michèle (CHU Caen); Hamon, Martial (CHU Caen); Perrin, Muriel (GE)</i>	
10:10-10:25	SaA03.3
<b>An Image Processing Algorithm for the In-Vivo Quantification and Visualization of Septum Motion in Type III B - Aortic Dissections with Cine Magnetic Resonance Imaging</b> .....	<b>4391-4394</b>
<i>Karmonik, Christof* (The Methodist Hospital Neurological Inst); Bismuth, Jean (The Methodist Hospital DeBakey Heart and Vascular Center); Davies, Mark (The Methodist DeBakey Heart and Vascular Center); Younes, Houssam (The Methodist DeBakey Heart and Vascular Center); Lumsden, Alan (The Methodist DeBakey Heart and Vascular Center)</i>	
10:25-10:40	SaA03.4
<b>MR Investigation of the Coupling between Myocardial Fiber Architecture and Cardiac Contraction</b> .....	<b>4395-4398</b>
<i>Wu, Yin* (Shenzhen Institute of Advanced Technology); Wu, Ed X. (The University of Hong Kong)</i>	
10:40-10:55	SaA03.5
<b>Segmentation and Length Measurement of the Abdominal Blood Vessels in 3D MRI Images</b> .....	<b>4399-4402</b>
<i>Babin, Danilo* (Ghent University)</i>	
10:55-11:10	SaA03.6
<b>An Automated Quantification of the Transmural Myocardial Infarct Extent Using Cardiac DE-MR Images</b> .....	<b>4403-4406</b>
<i>EL-Berberi, Racha* (INSERM); Kachenoura, Nadjia (INSERM); FROUIN, Frederique (INSERM); Herment, Alain (INSERM); Mousseaux, Elie (HEGP); Bloch, Isabelle (Télécom ParisTech - CNRS UMR 5141 LTCI)</i>	
<b>SaA04: 09:40-11:10</b> <span style="float: right;">Duluth Room</span>	
<b>2.2.2 Ultrasound Imaging I (Oral Session)</b>	
<b>Chair:</b> Elisa Konofagou, <i>Columbia Univ.</i>	
<b>Co-Chair:</b> Andrew Laine, <i>Columbia Univ.</i>	
09:40-09:55	SaA04.1
<b>Key Parameters for Precise Lateral Displacement Estimation in Ultrasound Elastography</b> .....	<b>4407-4410</b>
<i>Luo, Jianwen (Columbia University); Konofagou, Elisa* (Columbia University)</i>	
09:55-10:10	SaA04.2
<b>Measurement of Tissue Mechanical Properties with Shear Wave Dispersion Ultrasound Vibrometry (SDUV)</b> .....	<b>4411-4414</b>
<i>Greenleaf, James* (Mayo Clinic); Urban, Matthew (Mayo Clinic College of Medicine); Chen, Shigao (Mayo Clinic College of Medicine)</i>	
10:10-10:25	SaA04.3
<b>Vibro-Acoustography Imaging Applications for the Prostate</b> .....	<b>4415-4419</b>
<i>Fatemi, Mostafa (Mayo Clinic); Mitri, Farid G.* (Mayo Clinic)</i>	
10:25-10:40	SaA04.4
<b>Screening of Thyroid Nodules by Ultrasound Elastography Using Diastolic Strain Variation</b> .....	<b>4420-4423</b>
<i>Luo, Si* (University of Washington); Kim, Eung-Hun (University of Washington); Dighe, Manjiri (University of Washington); Kim, Yongmin (University of Washington)</i>	
10:40-10:55	SaA04.5
<b>Ultrasonic Viscoelasticity Imaging of Nonpalpable Breast Lesions</b> .....	<b>4424-4427</b>
<i>Qiu, Yupeng* (University of Illinois at Urbana-Champaign); Insana, Michael F. (University of Illinois)</i>	
10:55-11:10	SaA04.6
<b>In Vitro Renal Cortex Elasticity and Viscosity Measurements with Shearwave Dispersion Ultrasound Vibrometry (SDUV) on Swine Kidney</b> .....	<b>4428-4431</b>
<i>Amador, Carolina* (Mayo Clinic College of Medicine); Urban, Matthew (Mayo Clinic College of Medicine); Warner, Lizette (Mayo Clinic); Greenleaf, James (Mayo Clinic)</i>	



SaA05: 09:40-11:10 Marquette V  
**2.9.2 Neuroimaging I** (Oral Session)  
**Chair:** Bradley Roth, *Oakland Univ.*  
**Co-Chair:** Michael L.G. Joy, *Univ. of Toronto*

09:40-09:55 SaA05.1  
**Magnetic Resonance Electric Property Imaging of Brain Tissues** ..... 4432-4435  
*Zhang, Xiaotong\* (University of Minnesota); Zhu, Shanan (Zhejiang University); He, Bin (University of Minnesota)*

09:55-10:10 SaA05.2  
**Functional MRI of Postnatal Visual Development in Normal Rat Superior Colliculi** ..... 4436-4439  
*Chan, Kevin C. (The University of Hong Kong); Xing, Kai (The University of Hong Kong); Cheung, Matthew M. (The University of Hong Kong); Zhou, Iris Yuwen (The University of Hong Kong); Wu, Ed X.\* (The University of Hong Kong)*

10:10-10:25 SaA05.3  
**Extended Time-Frequency Granger Causality for Evaluation of Functional Network Connectivity in Event-Related fMRI Data** ..... 4440-4443  
*Havlicek, Martin (Brno University of Technology); Jan, Jiri\* (Brno University of Technology); Calhoun, Vince (The Mind Research Network/University of New Mexico); Brazdil, Milan (Masaryk University Brno)*

10:25-10:40 SaA05.4  
**A Bayesian Spatio - Temporal Approach for the Analysis of fMRI Data with Non - Stationary Noise** ..... 4444-4448  
*Oikonomou, Vangelis (University of Ioannina); Tripoliti, Evanthia\* (University of Ioannina); Fotiadis, Dimitrios I. (University of Ioannina)*

10:40-10:55 SaA05.5  
**Effect on BOLD Sensitivity Due to Susceptibility-Induced Echo Time Shift in Spiral-In Based Functional MRI** ..... 4449-4452  
*Zhuo, Yue\* (University of Illinois at Urbana-Champaign); Sutton, Bradley P. (University of Illinois at Urbana-Champaign)*

SaA06: 09:40-11:10 Conrad A  
**3.1.3 Sensor Technology** (Oral Session)  
**Chair:** Gang Yao, *Univ. of Missouri*  
**Co-Chair:** Lei Wang, *Shenzhen Inst. of Advanced Tech.*

09:40-09:55 SaA06.1  
**Accelerometer Based Measurement for the Mapping of Neck Surface Vibrations During Vocalized Speech** ..... 4453-4456  
*Nolan, Mark\* (Dublin Institute of Technology); Madden, Brian (Dublin Institute of Technology); Burke, Edward (Dublin Institute of Technology)*

09:55-10:10 SaA06.2  
**Intervention of Cardiomyocyte Death Based on the Impedance-Sensing Technique of Monitoring Cell Adhesion** ..... 4457-4460  
*Qiu, Yiling (Boston University); Liao, Rongli (Brigham and Women's Hospital, Harvard Medical School); Xin, Zhang\* (Boston University)*

10:10-10:25 SaA06.3  
**Validation of Human Skin Models in the MHz Region.** ..... 4461-4464  
*Huclova, Sonja\* (ETH Zurich); Froehlich, Juerg (Swiss Federal Institute of Technology Zurich (ETH)); Falco, Lisa (Solianis Monitoring AG); Dewarrat, François (Solianis Monitoring AG); Talary, Mark S. (Solianis Monitoring AG); Vahldieck, Ruediger (ETH Zurich)*

10:25-10:40 SaA06.4  
**Monitoring Change of Body Fluids During Physical Exercise Using Bioimpedance Spectroscopy** ..... 4465-4468  
*Beckmann, Lisa\* (RWTH Aachen University); Hahne, Sebastian (RWTH Aachen University); Medrano, Guillermo (Aachen University); Kim, Saim (RWTH Aachen University); Walter, Marian (RWTH Aachen University); Leonhardt, Steffen (RWTH Aachen University)*

10:40-10:55 SaA06.5  
**A Sensing Tube with an Integrated Piezoelectric Flow Sensor for Liver Transplantation** ..... 4469-4472  
*Jung, Wooseok\* (University of Cincinnati)*

10:55-11:10 SaA06.6  
**An Low-Offset Analogue Front-End IC for Multi-Channel Physiological Signal Acquisition** ..... 4473-4476  
*ZHANG, Jinyong (Shenzhen Institutes of Advanced Technology); Wang, Lei\* (Shenzhen Institute of Advanced Technology); YU, Li (Shenzhen Institutes of Advanced Technology); YANG, Yabei (Shenzhen Institutes of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong); Li, Bin (South China University of Technology)*

SaA07: 09:40-11:10 Marquette VII  
**3.10.1 Minisymposium: Frontier of Nano Magnetic Materials, Devices and Systems in Biomedical Applications**  
**Chair:** Jianping Wang, *Univ. of Minnesota*  
**Co-Chair:** Michael Neuman, *Michigan Tech. Univ.*

09:40-10:10 SaA07.1  
**Plasmonic Magnetic Nanoparticles for Biomedicine** ..... 4477-4478  
*Lim, JitKang (Carnegie Mellon University); Tilton, Robert D. (Carnegie Mellon University); Majetich, Sara\* (Carnegie Mellon University)*

10:10-10:40 SaA07.2  
**Microfabricated Multispectral MRI Agents: A Brief Overview** ..... 4479-4482  
*Zabow, Gary\* (NIST)*

10:40-11:10 SaA07.3  
**High-Magnetic-Moment Nanoparticles for Biomedicine** ..... 4483-4486  
*Jing, Ying (University of Minnesota); He, Shihai (University of Minnesota); Kline, Timothy (University of Minnesota); Wang, Jian-Ping\* (University of Minnesota)*

SaA08: 09:40-11:10 Marquette VIII  
**4.3.1 Algorithm for Physiome and Physiological Modeling (Oral Session)**  
**Chair:** Peter Hunter, *Univ. of Auckland*  
**Co-Chair:** Daniel A. Beard, *Medical College of Wisconsin*

09:40-09:55 SaA08.1  
**Creatine and Phosphate Pools Are Maintained at Energetically Optimal Levels in the Heart During Hypertrophic Remodeling and Heart Failure** ..... 4487-4490  
*Beard, Daniel A.\* (Medical College of Wisconsin)*

09:55-10:10 SaA08.2  
**Functional Requirements of a Mathematical Model of the Heart** ..... 4491-4494  
*Palladino, Joseph\* (Trinity College); Noordergraaf, Abraham (University of Pennsylvania)*

10:10-10:25 SaA08.3  
**Modelling Heart Beat Initiation and Propagation Using the MML Framework** ..... 4495-4498  
*Chang, David\* (University of New South Wales); Dokos, Socrates (University of New South Wales); Lovell, Nigel H (University of New South Wales)*

10:25-10:40 SaA08.4  
**A Univariate Model of Calcium Release in the Dyadic Cleft of Cardiac Myocytes** ..... 4499-4503  
*Fan, Junjie (University of Wisconsin-Milwaukee); Yu, Zeyun\* (University of Wisconsin-Milwaukee)*

10:40-10:55 SaA08.5  
**Spontaneous Termination of Atrial Fibrillation: Study of the Effect of Atrial Geometry in a Biophysical Model** ..... 4504-4507  
*Uldry, Laurent (Swiss Federal Institute of Technology Lausanne (EPFL)); Virag, Nathalie\* (Medtronic Europe); Jacquemet, Vincent (Duke University); Vesin, Jean-Marc (EPFL); Kappenberger, Lukas (University Hospital CHUV)*

10:55-11:10 SaA08.6  
**Skin-Electrode Circuit Model for Use in Optimizing Energy Transfer in Volume Conduction Systems ..... 4508-4511**  
*Hackworth, Steven A. (University of Pittsburgh); Sun, Mingui\* (University of Pittsburgh);*  
*Sclabassi, Robert (University of Pittsburgh)*

SaA09: 09:40-11:10 Marquette II  
**5.3.1 Cardiac Electrophysiology (Oral Session)**  
**Chair:** Lu Fei, *Univ. of Minnesota*  
**Co-Chair:** Abhijit Patwardhan, *Univ. of Kentucky*

09:40-09:55 SaA09.1  
**A Morphologically Realistic Shell Model of Atrial Propagation and Ablation ..... 4512-4515**  
*Al Abed, Amr (University of New South Wales); Dokos, Socrates\* (University of New South Wales);*  
*Lovell, Nigel H (University of New South Wales)*

09:55-10:10 SaA09.2  
**A New Approach to Measure the Contribution of Restitution to Repolarization Alternans ..... 4516-4518**  
*Agarwal, Anuj\* (University of Kentucky); Patwardhan, Abhijit (University of Kentucky)*

10:10-10:25 SaA09.3  
**Variability of Action Potential Duration in Pharmacologically Induced Long QT Syndrome Type 1 ..... 4519-4522**  
*Ring, Caroline\* (Duke University); Idriss, Salim F. (Duke University Medical Center);*  
*Neu, Wanda Krassowska (Duke University)*

10:25-10:40 SaA09.4  
**A Novel Near-Infrared Voltage-Sensitive Dye Reveals the Action Potential Wavefront Orientation at Increased Depths of Cardiac Tissue ..... 4523-4526**  
*Walton, Richard David\* (University of Leeds); Mitrea, Bogdan G (SUNY Upstate Medical University);*  
*Pertsov, Arkady M. (SUNY Upstate Medical University); Bernus, Olivier (University of Leeds)*

10:40-10:55 SaA09.5  
**Enhanced Susceptibility to Alternans in a Rabbit Model of Chronic Myocardial Infarction ..... 4527-4530**  
*Lou, Qing\* (Washington University in St. Louis); Efimov, Igor (Washington University in St. Louis)*

SaA10: 09:40-11:10 Grand Ballroom - Salon C  
**6.4.3 Brain-Computer Interface (Oral Session)**  
**Chair:** Han Yuan, *University of Minnesota*  
**Co-Chair:** Cuntai Guan, *Inst. for Infocomm Res.*

09:40-09:55 SaA10.1  
**Adaptive Active Auditory Brain Computer Interface ..... 4531-4534**  
*Hong, Bo\* (Tsinghua university); Lou, Bin (Tsinghua University); Guo, Jing (Tsinghua University);*  
*Gao, Shangkai (Tsinghua University)*

09:55-10:10 SaA10.2  
**Cortical Decoding of Individual Finger and Wrist Kinematics for an Upper-Limb Neuroprosthesis ..... 4535-4538**  
*Aggarwal, Vikram\* (Johns Hopkins University); Tenore, Francesco (Johns Hopkins University);*  
*Acharya, Soumyadipta (Johns Hopkins University); Schieber, Marc (University of Rochester);*  
*Thakor, Nitish (Johns Hopkins University)*

10:10-10:25 SaA10.3  
**Cortical Imaging of Sensorimotor Rhythms for BCI Applications ..... 4539-4542**  
*Yuan, Han\* (University of Minnesota); He, Bin (University of Minnesota)*

10:25-10:40 SaA10.4  
**Comparison of Designs towards a Subject-Independent Brain-Computer Interface Based on Motor Imagery ..... 4543-4546**  
*Lotte, Fabien\* (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research);*  
*Ang, Kai Keng (Institute for Infocomm Research)*

10:40-10:55 SaA10.5  
**EEG-Based Online Two-Dimensional Cursor Control** ..... 4547-4550  
*Huang, Dandan\** (Virginia Commonwealth University); *Lin, Peter* (National Institute of Neurological Disorders, National Institutes of Health); *Fei, Ding-Yu* (Virginia Commonwealth University); *Chen, Xuedong* (Huazhong University); *Bai, Ou* (Virginia Commonwealth University)

10:55-11:10 SaA10.6  
**Learning to Use a Brain-Machine Interface: Model, Simulation and Analysis** ..... 4551-4554  
*Jimenez, Jessica* (University of California Berkeley); *Héliot, Rodolphe* (UC Berkeley);  
*Carmena, Jose M.\** (University of California, Berkeley)

SaA11: 09:40-11:10 Marquette I  
**6.3.1 Neural Prosthesis I** (Oral Session)  
**Chair:** James Weiland, *University of Southern California*  
**Co-Chair:** Bradley Greger, *Univ. of Utah*

09:40-09:55 SaA11.1  
**Sparse Generalized Laguerre-Volterra Model of Neural Population Dynamics** ..... 4555-4558  
*Song, Dong\** (University of Southern California); *Chan, Rosa H. M.* (University of Southern California);  
*Marmarelis, Vasilis* (University of Southern California); *Hampson, Robert* (Wake Forest University);  
*Deadwyler, Sam* (Wake Forest University); *Berger, Theodore* (University of Southern California)

09:55-10:10 SaA11.2  
**Nonstationary Modeling of Neural Population Dynamics** ..... 4559-4562  
*Chan, Rosa H. M.\** (University of Southern California); *Song, Dong* (University of Southern California);  
*Berger, Theodore* (University of Southern California)

10:10-10:25 SaA11.3  
**Microfluidic Neurotransmitter-Based Neural Interfaces for Retinal Prosthesis** ..... 4563-4565  
*Iezzi, Raymond\** (Mayo Clinic)

10:25-10:40 SaA11.4  
**Preliminary Results from the ArgusTM II Epiretinal Prosthesis Feasibility Study** ..... 4566-4568  
*Humayun, Mark* (University of Southern California); *Dorn, Jessy* (Second Sight Medical Products);  
*Humayun, Mark\** (USC / Doheny Eye Institute); *Caspi, Avi* (Second Sight); *Filley, Eugene* (Retina Foundation of the Southwest); *Dagnelie, Gislin* (Johns Hopkins Univ); *Salzmann, Joel* (Geneva University Hospitals);  
*Santos, Arturo* (Universidad de Guadalajara); *Duncan, Jacque* (UCSF); *da Cruz, Lyndon* (Moorfields Eye Hospital); *Mohand Said, Saddek* (Centre Hospitalier Universitaire des XV XX); *Elliott, Dean* (University of Southern California Keck School of Medicine); *Greenberg, Robert* (Second Sight Medical Products, Inc.);  
*McMahon, Matthew J.* (Second Sight Medical Products Inc)

10:40-10:55 SaA11.5  
**Biomimetic Image Processing for Retinal Prosthesis – Simulated Vision Experiments** ..... 4569-4572  
*Parikh, Neha* (University of Southern California); *McIntosh, Ben* (University of Southern California);  
*Tanguay, Armand* (University of Southern California); *Humayun, Mark* (University of Southern California);  
*Weiland, James\** (University of Southern California)

10:55-11:10 SaA11.6  
**Multi-Scale Recordings for Neuroprosthetic Control of Finger Movements** ..... 4573-4577  
*Baker, Justin\** (University of Utah); *Bishop, William* (Johns Hopkins Applied Physics Lab);  
*Kellis, Spencer* (University of Utah); *Levy, Todd* (Johns Hopkins University);  
*House, Paul* (University of Utah); *Greger, Bradley* (University of Utah)

SaA12: 09:40-11:10 Marquette VI  
**7.2.1 Minisymposium: Bionanotechnology**  
**Chair:** John Bischof, *Univ. of Minnesota*  
**Co-Chair:** Carston R. Wagner, *Univ. of Minnesota*

09:40-10:10 SaA12.1  
**Biomedical Nanotechnology for Molecular Imaging, Diagnostics, and Targeted Therapy** ..... 4578-4579  
*Nie, Shuming\** (Emory University)

10:10-10:40 SaA12.2  
**Imaging Nanoparticle Stability and Activation in Vivo** ..... 4580-4581  
*Ferrara, Katherine\* (UC Davis)*

10:40-11:10 SaA12.3  
**Satellite Nanoscope and Cellular BioASICs for Quantitative Biomedicine** ..... 4582-4585  
*Lee, Luke\* (UC Berkeley)*

SaA13: 09:40-11:10 Conrad D  
**8.4.2 Human-Robot Interaction II** (Oral Session)  
**Chair:** Silvestro Micera, *Scuola Superiore Sant'Anna*  
**Co-Chair:** José del R. Millán, *Swiss Federal Inst. of Tech. Lausanne*

09:40-09:55 SaA13.1  
**On the Control of a Robot Hand by Extracting Neural Signals from the PNS: Preliminary Results from a Human Implantation** ..... 4586-4589  
*Micera, Silvestro\* (Scuola Superiore Sant'Anna); Rigosa, Jacopo (Scuola Superiore Sant'Anna); Carpaneto, Jacopo (Scuola Superiore Sant'Anna); Citi, Luca (Institute for Advanced Studies on Biorobotic Engineering); Raspopovic, Stanisa (scuola Superiore Sant'Anna); Guglielmelli, Eugenio (Campus Bio-Medico University); Benvenuto, Antonella (Campus Biomedico University); Rossini, Luca (University Campus Biomedico of Rome); Di Pino, Giovanni (campus Biomedico University); Cavallo, Giuseppe (Campus Bio-Medico University); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna); Dario, Paolo (Scuola Superiore Sant'Anna); Rossini, Paolo Maria (Campus Biomedico University)*

09:55-10:10 SaA13.2  
**Startle Stimuli Reduce the Internal Model Control in Discrete Movements** ..... 4590-4594  
*Wright, Zachary (University of Illinois at Chicago); MacKinnon, Colum (Northwestern University); Rogers, Mark (University of Maryland School of Medicine); Patton, James (Jim)\* (Rehab Institute of Chicago & U. of Illinois at Chicago)*

10:10-10:25 SaA13.3  
**Inclusion Detection with Haptic-Palpation System for Medical Telediagnosis** ..... 4595-4598  
*Kim, Jungsik (Korea Advanced Institute of Science and Technology); An, Bummo (Korea Advanced Institute of Science and Technology); Kim, Yeongjin (Korea Advanced Institute of Science and Technology); Kim, Jung\* (Korea Advanced Institute of Science and Technology)*

10:25-10:40 SaA13.4  
**Flexion-Extension Motion Assistance Using an Upper Limb Motion-Assist Robot Based on Trajectory Estimation of Reaching Movement** ..... 4599-4602  
*Yano, Kenichi\* (Gifu University); Hashimura, Joji (Gifu University); Aoki, Takaaki (Gifu University); Nishimoto, Yutaka (Gifu University School of Medicine)*

10:40-10:55 SaA13.5  
**An Assisted Navigation Training Framework Based on Judgment Theory Using Sparse and Discrete Human-Machine Interfaces** ..... 4603-4606  
*Lopes, Ana\* (University of Coimbra); Nunes, Urbano (University of Coimbra)*

10:55-11:10 SaA13.6  
**Functional Reorganization of Upper-Body Movements for Wheelchair Control** ..... 4607-4610  
*casadio, maura (Northwestern University); Pressman, Assaf\* (Rehabilitation Institute of Chicago); Danziger, Zachary (Northwestern University); Hsiang-Yi, Tseng (Rehabilitation Institute of Chicago); fishbach, alon (Rehabilitation Institute of Chicago); Mussa-Ivaldi, Ferdinando (Rehabilitation Institute of Chicago)*

SaA14: 09:40-11:10 Marquette III  
**9.1.5 Internally Applied Therapeutic Devices I** (Oral Session)  
**Chair:** Doug Hettrick, *Medtronic, Inc.*  
**Co-Chair:** Robert P. Patterson, *Univ. of Minnesota*

09:40-09:55 SaA14.1  
**Human Feasibility Study of Hemodynamic Monitoring Via Continuous Intrathoracic Impedance Monitoring** ..... 4611-4614  
*Hettrick, Doug\* (Medtronic, Inc.)*

09:55-10:10	SaA14.2
<b>Implantable Functional Gastrointestinal Neurostimulation</b> .....	<b>4615-4618</b>
<i>Jurkov, Alexander (University of Calgary); Arriagada, Alvaro (University of Calgary); Mintchev, Martin* (University of Calgary)</i>	
10:10-10:25	SaA14.3
<b>Modeling Current Pathways for Therapeutic Electrical Applications</b> .....	<b>4619-4622</b>
<i>Patterson, Robert P.* (University of Minnesota); Yang, Fei (University of Minnesota)</i>	
10:25-10:40	SaA14.4
<b>Medium Voltage Therapy for Preventing and Treating Asystole and PEA in ICDs</b> .....	<b>4623-4625</b>
<i>Gilman, Byron* (Galvani, Ltd.); Kroll, Mark (University of Minnesota); Brewer, James (Galvani, Ltd.)</i>	
10:40-10:55	SaA14.5
<b>Chronic Baroreflex Activation by the Rheos® System: An Overview of Results from European and North American Feasibility Studies</b> .....	<b>4626-4630</b>
<i>Lovett, Eric* (CVRx); Schafer, Jill (CVRx, Inc.); Kaufman, Christopher (CVRx, Inc.)</i>	
10:55-11:10	SaA14.6
<b>Vagus Nerve Stimulation: A Proven Therapy for Treatment of Epilepsy Strives to Improve Efficacy and Expand Applications</b> .....	<b>4631-4634</b>
<i>Terry, Reese* (Cyberonics, Inc.)</i>	
<hr/>	
SaA15: 09:40-11:10	Marquette IX
<b>10.7.1 Health Information Integration (Oral Session)</b>	
<b>Chair:</b> Emil Jovanov, <i>Univ. of Alabama in Huntsville</i>	
09:40-09:55	SaA15.1
<b>Standard-Compliant Real-Time Transmission of ECGs: Harmonization of ISO/IEEE 11073-PHD and SCP-ECG</b> .....	<b>4635-4638</b>
<i>Trigo, Jesus* (University of Zaragoza); Chiarugi, Franco (Foundation for Research and Technology - Hellas (FORTH)); Alesanco, Alvaro (University of Zaragoza); Martinez-Espronedada, Miguel (Public University of Navarra); Chronaki, Catherine (Foundation for Research &amp; Technology Hellas); Escayola, Javier (University of Zaragoza); Martinez Ruiz, Ignacio (University of Zaragoza); Garcia Moros, Jose (University of Zaragoza)</i>	
09:55-10:10	SaA15.2
<b>Integration Proposal through Standard-Based Design of an End-To-End Platform for P-Health Environments</b> .....	<b>4639-4642</b>
<i>Martinez Ruiz, Ignacio (University of Zaragoza); Trigo, Jesus* (University of Zaragoza); Martinez-Espronedada, Miguel (Public University of Navarra); Escayola, Javier (University of Zaragoza); Muñoz, Pili (University of Zaragoza (UZ)); Serrano, Luis (Public University of Navarra); Garcia Moros, Jose (University of Zaragoza)</i>	
10:10-10:25	SaA15.3
<b>D-ATM, A Working Example of Health Care Interoperability: From Dirt Path to Gravel Road.</b> .....	<b>4643-4645</b>
<i>DeClaris, John-William* (Hephaistus)</i>	
10:25-10:40	SaA15.4
<b>Integrating Health Information Technology into Clinical Guidelines</b> .....	<b>4646-4649</b>
<i>MacDougall, Candice Elizabeth* (University of Ontario Institute of Technology); McGregor, Carolyn (Univ of Ontario Inst of Technology); Percival, Jennifer (Univ of Ontario Institute of Tech)</i>	
10:40-10:55	SaA15.5
<b>Telemetry-Based Vital Sign Monitoring for Ambulatory Hospital Patients</b> .....	<b>4650-4653</b>
<i>Orphanidou, Christina* (University of Oxford); Clifton, David (University of Oxford); Smith, Marc (Oxford BioSignals); Feldmar, Jacques (Oxford Biosignals); Tarassenko, Lionel (University of Oxford)</i>	
10:55-11:10	SaA15.6
<b>Biomedical Data Integration – Capturing Similarities While Preserving Disparities</b> .....	<b>4654-4657</b>
<i>Bianchi, Stefano (Softco Sismat S.p.A., Via); Burla, Anna (IBM Ressearch Lab in Haifa); Conti, Costanza (IMS-Istituto di Management Sanitario SRL); Farkash, Ariel* (IBM Research Lab in Haifa); Kent, Carmel (IBM Ressearch Lab in Haifa); Maman, Yonatan (IBM Ressearch Lab in Haifa); Shabo (Shvo), Amnon (IBM Research Lab in Haifa)</i>	

SaA17: 09:40-11:10 Directors Row 4  
**SS 5. Negotiating your First Bioengineering Job: Academia, Private Sector or Government** (Special Session)  
 Chair: Cristian A. Linte, *Robarts Res. Inst.*

SaA18: 09:40-11:10 Marquette IV  
**S 4. Clinical Data: From Medical Institutions to Industrial Research – IP Protection Approaches**  
 (Special Symposium)  
 Chair: Nicolas Chbat, *Philips Res. North America*

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|---|---------|
| 09:40-09:55<br><i>Dennis, Charles (Medtronic)</i>                         | SaA18.1 |
| 09:55-10:10<br><i>Herasevich, Vitaly (Mayo Clinic)</i>                    | SaA18.2 |
| 10:10-10:25<br><i>Kettelberger, Denise (Faegre &amp; Benson, LLP)</i>     | SaA18.3 |
| 10:25-10:40<br><i>Leonard, Robert (Faegre &amp; Benson, LLP)</i>          | SaA18.4 |
| 10:40-10:55<br><i>Mark, Roger (Massachusetts Institute of Technology)</i> | SaA18.5 |
| 10:55-11:10<br><i>Zaleski, John (Philips Research North America)</i>      | SaA18.6 |

SaBPo01: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**1.2.11 Biomedical Signal Processing** (Poster Session)

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|---|-----------|
| 11:10-12:30<br><b>A Probabilistic Framework for Learning Robust Common Spatial Patterns</b> ..... 4658-4661<br><i>Wu, Wei* (Massachusetts Institute of Technology); Chen, Zhe (Harvard Medical School/MIT); Gao, Shangkai (Tsinghua University); Brown, Emery N (MGH-Harvard Medical School-MIT)</i>  | SaBPo01.1 |
| 11:10-12:30<br><b>Multiparameter Analysis of Heart Rate Variability Signal for the Investigation of High Risk Fetuses</b> ..... 4662-4665<br><i>Ferrario, Manuela (Politecnico di Milano); Magenes, Giovanni (University of Pavia); Campanile, Marta (Università Federico II di Napoli); Carbone, Imma Floriana (Università Federico II di Napoli); Di Lieto, Andrea (Università Federico II di Napoli); Signorini, Maria G.* (Politecnico di Milano)</i> | SaBPo01.2 |
| 11:10-12:30<br><b>Adaptive Rule Based Fetal QRS Complex Detection Using Hilbert Transform</b> ..... 4666-4669<br><i>Ulusar, Umit Deniz (University of Arkansas at Little Rock); Govindan, Rathinaswamy* (UAMS); Wilson, James (University of Arkansas at Little Rock); Lowery, Curtis (University of Arkansas for Medical Sciences); Preissl, Hubert (University of Tübingen); Eswaran, Hari (Univ of Arkansas for Medical Sci)</i>                       | SaBPo01.3 |
| 11:10-12:30<br><b>Multivariate Analysis of Intracranial Pressure (ICP) Signal Using Principal Component Analysis</b> ..... 4670-4673<br><i>Al-Zubi, Nayel* (University of Liverpool); Momani, Lina (University of Liverpool); Alkharabsheh, Abdel Rahman (University of Liverpool); Al-Nuaimy, Waleed (University of Liverpool)</i>   | SaBPo01.4 |
| 11:10-12:30<br><b>Auditory MEG Responses to Removal of a Tbone in C Major Scale Measured in a Pair of Reciprocal Oddball Schemes</b> ..... 4674-4677<br><i>Nemoto, Iku* (Tokyo Denki University)</i>  | SaBPo01.5 |

- 11:10-12:30 SaBPo01.6  
**Energy-Efficient Multihypothesis Activity-Detection for Health-Monitoring Applications** ..... 4678-4681  
*Thatte, Gautam\* (University of Southern California); Li, Ming (University of Southern California); Emken, Adar (University of Southern California); Mitra, Urbashi (University of Southern California); Narayanan, Shrikanth (University of Southern California); Annavaram, Murali (University of Southern California); Spruijt-Metz, Donna (University of Southern California)*
- 11:10-12:30 SaBPo01.7  
**Detection of Cardiac Activity Using a 5.8 GHz Radio Frequency Sensor** ..... 4682-4686  
*Vasu, Vishalini\* (Queen's University Belfast); Fox, Niall (BiancaMed); Brabetz, Thorsten (Queen's University Belfast); Heneghan, Conor (BiancaMed); Wren, Michael (NovaUCD); Sezer, Sakir (Queen's University Belfast)*
- 11:10-12:30 SaBPo01.8  
**Correntropy-Based Analysis of Respiratory Patterns in Patients with Chronic Heart Failure** ..... 4687-4690  
*Garde, Ainara\* (Universitat Politècnica de Catalunya); Sornmo, Leif (Lund University); Jané, Raimon (Universitat Politècnica de Catalunya); Giraldo, Beatriz (Universitat Politècnica de Catalunya)*
- 11:10-12:30 SaBPo01.9  
**Rules Extraction in SVM and Neural Network Classifiers of Atrial Fibrillation Patients with Matched Wavelets As a Feature Generator** ..... 4691-4694  
*Kostka, Pawel Stanislaw\* (Silesian University of Technology); Tkacz, Ewaryst (Silesian Univ of Tech, Inst of Electron)*
- 11:10-12:30 SaBPo01.10  
**Neonatal Heart Rate Prediction** ..... 4695-4698  
*AbdelRahman, Yumna\* (McMaster University); Jeremic, Aleksandar (McMaster University); Tan, Kenneth (McMaster University)*
- 11:10-12:30 SaBPo01.11  
**Normalized Power Transmission between ABP and ICP in TBI** ..... 4699-4703  
*Shahsavari, Sima\* (Chalmers University of Technology); McKelvey, Tomas (Chalmers University of Technology)*
- 11:10-12:30 SaBPo01.12  
**Full Dimensional Computer Simulations to Study Pulsatile Blood Flow in Vessels, Aortic Arch and Bifurcated Veins: Investigation of Blood Viscosity and Turbulent Effects** ..... 4704-4710  
*Sultanov, Renat\* (St. Cloud State University); Guster, Dennis (St. Cloud State University)*
- 11:10-12:30 SaBPo01.13  
**Long Term Cardiovascular Risk Models'Combination - a New Approach** ..... 4711-4714  
*Paredes, Simão\* (Instituto Superior de Engenharia de Coimbra); Rocha, Teresa (Inst Superior de Eng de Coimbra); Carvalho, Paulo (University of Coimbra); Henriques, Jorge (University of Coimbra); Harris, Matthew (Philips Research); Morais, João (Hospital de Santo André, Leiria)*
- 11:10-12:30 SaBPo01.14  
**Multiresolution Entropy Measure for Neuronal Multiunit Activity** ..... 4715-4718  
*Choi, Young-Seok\* (Johns Hopkins University School of medicine); Koenig, Matthew (Johns Hopkins School of Medicine); Jia, Xiaofeng (Johns Hopkins School of Medicine); Thakor, Nitish (Johns Hopkins University)*
- 11:10-12:30 SaBPo01.15  
**Estimation of Brain State Changes Associated with Behavior, Stimulation and Epilepsy** ..... 4719-4722  
*Stamoulis, Catherine\* (Harvard Medical School); Praeg, Elke (Beth Israel Deaconess Medical Center); Bashir, Shahid (Beth Israel Deaconess Medical Center); Chang, Bernard (Harvard Medical School); Pascual-Leone, Alvaro (Harvard Medical School)*
- 11:10-12:30 SaBPo01.16  
**Sleep Apnea Detection Based on Spectral Analysis of Three ECG - Derived Respiratory Signals** ..... 4723-4726  
*Correa, Lorena (Universidad Nacional de San Juan); Laciari, Eric (Universidad Nacional de San Juan); Mut, Vicente (Universidad Nacional de San Juan); Torres, Abel\* (Universitat Politècnica de Catalunya (UPC), Institute for Bioengineering of Catalonia (IBEC) and CIBER de Bioingeniería, Biomate); Jané, Raimon (Universitat Politècnica de Catalunya)*



- 11:10-12:30 SaBPo01.17  
**Cardiac Arrhythmia Classification Using Wavelets and Hidden Markov Models -  
a Comparative Approach** ..... 4727-4730  
*Reis Gomes, Pedro Miguel Pinto\* (Lusiada University); Soares, Filomena (University of Minho);  
Correia, Higino (University of Minho); Lima, Carlos Manuel Gregorio Santos (University of Minho)*
- 11:10-12:30 SaBPo01.18  
**A New Approach to Revealing Functional Residues from Analysis of Protein Primary Structure** ..... 4731-4734  
*Vojisavljevic, Vuk\* (RMIT University); Pirogova, Elena (RMIT University); Davidovic, Dragomir (Vinca Institute of  
Nuclear Sciences); Cosic, Irena (RMIT University)*
- 11:10-12:30 SaBPo01.19  
**Independent Component Analysis Using Clustering on Motor Imaginary EEG** ..... 4735-4738  
*Qi, Hongzhi (Tianjin University); Ming, Dong\* (Tianjin University)*
- 11:10-12:30 SaBPo01.20  
**Inferring Effective Connectivity in the Brain from EEG Time Series Using Dynamic Bayesian Networks** . 4739-4742  
*Mutlu, Ali Yener\* (Michigan State University); Aviyente, Selin (Michigan State University)*
- 11:10-12:30 SaBPo01.21  
**Regression-Based Analysis of Synchronization in Multichannel EEG in Epilepsy** ..... 4743-4746  
*Graef, Andreas\* (AIT Austrian Institute of Technology GmbH); Hartmann, Manfred (AIT Austrian Institute of  
Technology GmbH); Deistler, Manfred (Vienna University of Technology);  
Kluge, Tilmann (Austrian Institute of Technology)*
- 11:10-12:30 SaBPo01.22  
**Evaluating OPTISAS, a Visual Method to Analyse Sleep Apnea Syndromes** ..... 4747-4750  
*Ugon, Adrien (Hopital Tenon); Philippe, Carole (Hopital tenon); Ganascia, Jean-Gabriel (Pierre et Marie Curie  
University-Paris6); Boire, Jean Yves (Faculty of Medicine); Levy, Pierre\* (University of Paris)*
- 11:10-12:30 SaBPo01.23  
**An Automatic Calibration Procedure for Remote Eye-Gaze Tracking Systems** ..... 4751-4754  
*Model, Dmitri\* (University of Toronto); Guestrin, Elias Daniel (University of Toronto);  
Eizenman, Moshe (University of Toronto)*
- 11:10-12:30 SaBPo01.24  
**Fusion of Electromyographic Signals with Proprioceptive Sensor Data in Myoelectric Pattern  
Recognition for Control of Active Transfemoral Leg Prostheses** ..... 4755-4758  
*Delis, Alberto (Universidade de Brasilia); Carvalho, Joao Luiz Azevedo de\* (University of Brasilia);  
Borges, Geovany Araujo (University of Brasilia); Rodrigues, Suéila de Siqueira (UnB-Gama Faculty, University  
of Brasilia); da Rocha, Adson F. (University of Brasilia)*
- 11:10-12:30 SaBPo01.25  
**Predicting Defibrillation Outcome Based on Phase of Ventricular Activity During ICD Implantation** ..... 4759-4762  
*Suzuki, Go\* (University of Calgary); Leon, Josh (Dalhousie University); Kimber, Shane (University of Alberta  
Hospital); Vigmond, Edward (University of Calgary)*

SaBPo02: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>2.10.2 Photo-Acoustic and Magneto-Acoustic Imaging (Poster Session)</b>	

- 11:10-12:30 SaBPo02.1  
**Phantom Study with Combined Photoacoustic and Magneto-Acoustic Imaging Technique** ..... 4763-4766  
*Qu, Min\* (University of Texas at Austin); Mallidi, Srivalleesha (University of Texas at Austin);  
Mehrmohammadi, Mohammad (University of Texas at Austin); Ma, Li Leo (University of Texas at Austin);  
Johnston, Keith (University of Texas at Austin); Emelianov, Stanislav (University of Texas at Austin)*
- 11:10-12:30 SaBPo02.2  
**On the Possibility to Detect Lipid in Atherosclerotic Plaques Using Intravascular  
Photoacoustic Imaging** ..... 4767-4770  
*Wang, Bo\* (University of Texas at Austin); Su, Jimmy (University of Texas at Austin); Amirian, James (University of  
Texas Medical School at Houston); Litovsky, Silvio Hector (University of Alabama Birmingham); Smalling, Richard  
(University of Texas Medical School at Houston); Emelianov, Stanislav (University of Texas at Austin)*

11:10-12:30 SaBPo02.3  
**Pulsed Magneto-Acoustic Imaging** ..... 4771-4774  
*Mehrmohammadi, Mohammad\* (University of Texas at Austin); Oh, Junghwan (Pukyong National University); aglyamov, salavat (University of Texas at Austin); Andrei, Karpouk (University of Texas at Austin); Emelianov, Stanislav (University of Texas at Austin)*

SaBPo03: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**2.9.3 Neuroimaging II (Poster Session)**

11:10-12:30 SaBPo03.1  
**Manganese-Enhanced MRI of Hypoxic-Ischemic Brain Injuries Using Mn-DPDP** ..... 4775-4778  
*Yang, Jian (Xi'an Jiaotong University); Wu, Ed X.\* (The University of Hong Kong)*

11:10-12:30 SaBPo03.2  
**Development of NTU Standard Chinese Brain Template: Morphologic and Functional Comparison with MNI Template Using Magnetic Resonance Imaging** ..... 4779-4782  
*Jao, Tun\* (National Taiwan University); Chang, Chun-Yuan (National Taiwan University); Lee, Chia-Wei (National Taiwan University); Wu, Edzer (National Taiwan University); Ho, Chien Chang (National Taiwan University); Tsou, Chi-Hsuan (National Taiwan University); Chen, Der-Yow (National Taiwan University); Wu, Changwei (National Taiwan University); Chen, Jyh-Horng (National Taiwan University)*

11:10-12:30 SaBPo03.3  
**Accurate Activation Map Detection Using Bootstrap Resampling of Single Fmri Data** ..... 4783-4786  
*Darki, Fahimeh (Tehran University of Medical Sciences); Oghabian, Mohammad Ali\* (Tehran University of Medical Sciences)*

11:10-12:30 SaBPo03.4  
**A Hybrid Approach for Compressive Neural Activity Detection with Functional MR Images** ..... 4787-4790  
*Li, Chuan\* (the University of Alabama); hao, qi (the University of Alabama); guo, weihong (Case Western Reserved University); Hu, Fei (the University of Alabama)*

11:10-12:30 SaBPo03.5  
**Parameter Estimation in Arterial Spin Labeling MRI: Comparing the Four Phase Model and the Buxton Model with Fourier Transform** ..... 4791-4794  
*Pham, Vincent (Texas A&M University); Xiaoping, Zhu (University of Manchester); Li, Ka-Loh (University of California); Ji, Jim Xiuquan\* (Texas A&M University)*

11:10-12:30 SaBPo03.6  
**On Clustering Fmri Using Potts and Mixture Regression Models** ..... 4795-4798  
*Xia, Jing\* (University of Illinois at Urbana-Champaign); Liang, Feng (University of Illinois at Urbana-Champaign); Wang, Yongmei Michelle (University of Illinois at Urbana-Champaign)*

11:10-12:30 SaBPo03.7  
**The Relationship between Conductivity Uncertainties and EEG Source Localization Accuracy** ..... 4799-4802  
*Wang, Gang\* (University of Minnesota); Yang, Lin (University of Minnesota); Worrell, Gregory A. (Mayo Clinic); He, Bin (University of Minnesota)*

SaBPo04: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**3.11.2 Wearable Technologies II (Poster Session)**

11:10-12:30 SaBPo04.1  
**I-NET: Interactive Neuro-Educational Technology to Accelerate Skill Learning** ..... 4803-4807  
*Raphael, Giby\* (Advanced Brain Monitoring Inc); Berka, Chris (Advanced Brain Monitoring)*

11:10-12:30 SaBPo04.2  
**Radar Cross Section of Human Cardiopulmonary Activity for Recumbent Subject** ..... 4808-4811  
*Kiriazzi, John\* (University of Hawaii at Manoa); Boric-Lubecke, Olga (University of Hawaii Manoa); Lubecke, Victor (University of Hawaii Manoa)*

11:10-12:30		SaBPo04.3
<b>Non-Contact Respiratory Rate Measurement Validation for Hospitalized Patients</b> .....	<b>4812-4815</b>	
<i>Park, Byung-Kwon (University of Hawaii at Manoa); Droitcour, Amy (Kai Sensors); Yamada, Shuhei (University of Hawaii, Manoa); Vergara, Alexander (University of Hawaii at Manoa); Seto, Todd (University of Hawaii); Shing, Tommy (Kai Sensors); El Hourani, Charles (Kai Sensors); Yuen, Andrea (Kai Sensors); Boric-Lubecke, Olga* (University of Hawaii Manoa); Lubecke, Victor (University of Hawaii Manoa)</i>		
11:10-12:30		SaBPo04.4
<b>Textile Electrodes in Electrical Bioimpedance Measurements – a Comparison with Conventional Ag/AgCl Electrodes</b> .....	<b>4816-4819</b>	
<i>Márquez Ruiz, Juan Carlos* (Chalmers university of technology); Seoane, Fernando (University College of Borås); Välimäki, Elina (University of Borås); Lindecrantz, Kaj (University College of Borås)</i>		
11:10-12:30		SaBPo04.5
<b>LifeShirt® Acquisition System to Monitor ECG from Ambulatory Swine and the Implementation of an Arrhythmia Detection Algorithm</b> .....	<b>4820-4823</b>	
<i>Kyle, Aaron* (Indiana University School of Medicine); Rogers, Pamela (Indiana University School of Medicine); Han, Seongwook (Indiana University School of Medicine); Chen, Peng-Sheng (Indiana University School of Medicine); March, Keith (Indiana University School of Medicine)</i>		
11:10-12:30		SaBPo04.6
<b>A Study on Band-Pass Filtering for Calculating Foot Displacements from Accelerometer and Gyroscope Sensors</b> .....	<b>4824-4827</b>	
<i>Charry, Edgar* (The University of Melbourne); Lai, Daniel (Victoria University); Begg, Rezaul (Victoria University); Palaniswami, Marimuthu (The University of Melbourne)</i>		
11:10-12:30		SaBPo04.7
<b>BioLogger: A Wireless Physiological Sensing and Logging System with Applications in Poultry Science</b> .....	<b>4828-4831</b>	
<i>Hu, Sheng* (Michigan Technological Univeristy); Tan, Jindong (Michigan Technological University)</i>		
11:10-12:30		SaBPo04.8
<b>Microwave Non-Invasive Sensing of Respiratory Tidal Volume</b> .....	<b>4832-4835</b>	
<i>Massagram, Wansuree (Naresuan University); Lubecke, Victor (University of Hawaii Manoa); Boric-Lubecke, Olga* (University of Hawaii Manoa)</i>		
11:10-12:30		SaBPo04.9
<b>Verification of a Non-Contact Vital Sign Monitoring System Using an Infant Simulator</b> .....	<b>4836-4839</b>	
<i>Yan, Yan* (University of Florida); Li, Changzhi (University of Florida); Yu, Xiaogang (University of Florida); Weiss, Michael D. (University of Florida); Lin, Jenshan (University)</i>		
11:10-12:30		SaBPo04.10
<b>A Low-Power Noncoherent BPSK Demodulator and Clock Recovery Circuit for High-Data-Rate Biomedical Applications</b> .....	<b>4840-4843</b>	
<i>Asgarian, Farzad* (K.N.Toosi University of Technology); Sodagar, Amir M. (University of Michigan)</i>		
11:10-12:30		SaBPo04.11
<b>A Wearable Respiration Monitoring System Based on Digital Respiratory Inductive Plethysmography</b> .....	<b>4844-4847</b>	
<i>Wu, Dan* (Shenzhen Institute of Advanced Technology); Wang, Lei (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong); Huang, Bangyu (Shenzhen Institute of Advanced Technology); Wang, Bo (Shenzhen Institute of Advanced Technology); Lin, Shaojie (Shenzhen Institute of Advanced Technology); Xu, Xiao-Wen (Central South University)</i>		
11:10-12:30		SaBPo04.12
<b>Performance Assessment Techniques for Doppler Radar Physiological Sensors</b> .....	<b>4848-4851</b>	
<i>Hafner, Noah* (University of Hawaii); Lubecke, Victor (University of Hawaii Manoa)</i>		
11:10-12:30		SaBPo04.13
<b>A Wearable, Low-Power, Health-Monitoring Instrumentation Based on a Programmable System-On-Chip</b> .....	<b>4852-4855</b>	
<i>Massot, Bertrand* (INSA Lyon); Gehin, Claudine (INSA Lyon); Nocua Cifuentes, Ronald (Université Joseph Fourier); McAdams, Eric (University of Ulster); Dittmar, Andre (INSA Lyon)</i>		

**3.12.2 Implantable Technologies** (Poster Session)

- 11:10-12:30 SaBPo05.1  
**Wireless Instantaneous Neurotransmitter Concentration Sensing System (WINCS) for Intraoperative Neurochemical Monitoring** ..... **4856-4859**  
*Kimble, Christopher\* (Mayo Clinic); Johnson, David (Mayo Clinic); Winter, Bruce (Mayo Clinic); Whitlock, Sidney (Mayo Foundation); Kressin, Ken (Mayo Clinic); Home, April (Mayo Clinic); Robinson, Justin (Mayo Clinic); Bledsoe, Jonathan (Mayo Clinic); Tye, Susannah (Mayo Clinic); Chang, Su-Youne (Mayo Clinic); Agnesi, Filippo (Mayo Clinic); Griessenauer, Christoph (Mayo Clinic); Covey, Daniel (Mayo Clinic); Shon, Young-Min (Mayo Clinic); Bennet, Kevin E (Mayo Clinic); Garris, Paul (Mayo Clinic); Lee, Kendall (Mayo Clinic)*
- 11:10-12:30 SaBPo05.2  
**Energetic Analysis for Self-Powered Cochlear Implants** ..... **4860-4863**  
*Accoto, Dino (Scuola Superiore Sant'Anna); Calvano, Marta\* (University Campus Bio-Medico Rome); Campolo, Domenico (Campus Bio-Medico University); Salvinelli, Fabrizio (Università CAMPUS Bio-Medico); Guglielmelli, Eugenio (Campus Bio-Medico University)*
- 11:10-12:30 SaBPo05.3  
**Design and Fabrication of a Low Cost Implantable Bladder Pressure Monitor** ..... **4864-4867**  
*Axisa, Fabrice\* (IMEC); Jourand, Philippe (Katholieke Universiteit Leuven); Lippens, Evi (Ghent University); Rymarczyk-Machal, Monika (Ghent University); De Smet, Nele (UGent); Schacht, Etienne (Ghent University); Vanfleteren, Jan (IMEC / Ghent University); Puers, Robert (Catholic University of Leuven); cornelissen, ria (Gent University)*
- 11:10-12:30 SaBPo05.4  
**Implantable Bioimpedance Monitor Using ZigBee** ..... **4868-4871**  
*Bogonez Franco, Paco\* (Technical University of Catalonia (UPC)); Bragos, Ramon (Technical University of Catalonia (UPC)); Bayes-Genis, Antoni (Hospital de la Santa Creu i Sant Pau); Rosell, Javier (Technical University of Catalonia)*
- 11:10-12:30 SaBPo05.5  
**A Wireless Batteryless In Vivo EKG and Core Body Temperature Sensing Microsystem with 60 Hz Suppression Technique for Untethered Genetically Engineered Mice Real-Time Monitoring** ..... **4872-4875**  
*Chaimanonart, Nattapon\* (Case Western Reserve University); Young, Darrin (Case Western Reserve University)*
- 11:10-12:30 SaBPo05.6  
**Energy-Quality System Design for In-Body Communication** ..... **4876-4879**  
*Zhang, Yuwei (Shenzhen Institute of Advanced Technology); Li, Ye\* (Shenzhen Institute of Advanced Technology); Qiao, Dengyu (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong)*
- 11:10-12:30 SaBPo05.7  
**In Vitro Cytotoxicity Testing and the Application of Elastic Interconnection Technology for Short-Term Implantable Electronics** ..... **4880-4883**  
*Brosteaux, Dominique\* (Ghent University); Lippens, Evi (Ghent University); cornelissen, ria (Gent University); Carta, Riccardo (Catholic University of Leuven (K.U.Leuven)); Jourand, Philippe (Katholieke Universiteit Leuven); Puers, Robert (Catholic University of Leuven); Axisa, Fabrice (IMEC); Vervust, Thomas (UGent); Bossuyt, Frederick (TFCG IMEC Ghent); Vanfleteren, Jan (IMEC / Ghent University); Schacht, Etienne (Ghent University)*

**4.7.2 Biomedical Modeling and Simulation** (Poster Session)

- 11:10-12:30 SaBPo06.1  
**Combining Boolean Method with Delay Times for Determining Behaviors of Biological Networks** ..... **4884-4887**  
*Lyu, SuPing\* (Medtronic, Inc.)*

11:10-12:30	SaBPo06.2
<b>E-Health in China, Our Practice and Exploration .....</b>	<b>4888-4893</b>
<i>Junping, Zhao* (PLA General Hospital of China); Zhenjiang, Zhang (PLA General Hospital of China); Huayuan, Guo (PLA General Hospital of China); Yi, Li (PLA General Hospital of China); Wanguo, Xue (PLA General Hospital of China); Yunqi, Chen (PLA General Hospital of China)</i>	
11:10-12:30	SaBPo06.3
<b>Study on the Binding Mode of the Integrase with DNA Via Steered Molecular Dynamics Simulation .....</b>	<b>4894-4897</b>
<i>Wang, Cun Xin* (Beijing University of Technology); Liu, Ming (Beijing University of Technology); Li, Ping (Beijing University of Technology); Cong, Xiao Jing (Beijing University of Technology); Tan, Jian Jun (Beijing University of Technology); Chen, Wei Zu (Beijing University of Technology)</i>	
11:10-12:30	SaBPo06.4
<b>Identification of Critical Molecules Via Fault Diagnosis Engineering .....</b>	<b>4898-4901</b>
<i>Abdi, Ali (New Jersey Institute of Technology); Tahoori, Mehdi (Northeastern University); Emamian, Effat* (ATNT)</i>	
11:10-12:30	SaBPo06.5
<b>A Preliminary Study on Estimation of Energy Expenditure at Different Locations of Acceleration Sensor During Submaximal Exercise .....</b>	<b>4902-4905</b>
<i>Kim, Taekyun (Yonsei University); Kim, Yonghyun (Yonsei University); Yoon, Hyungro (Yonsei University); Shin, Taemin* (Yonsei University)</i>	
11:10-12:30	SaBPo06.6
<b>Metamorphism in Potential Function While Maintaining Upright Posture During Exposure to a Three-Dimensional Movie on a Head-Mounted Display .....</b>	<b>4906-4912</b>
<i>Takada, Hiroki* (Gifu University of Medical Science); Fujikake, Kazuhiro (Nagoya University); Miyao, Masaru (Nagoya University)</i>	
11:10-12:30	SaBPo06.7
<b>Gaussian Process Modelling of Blood Glucose Response to Free-Living Physical Activity Data in People with Type 1 Diabetes .....</b>	<b>4913-4916</b>
<i>Valletta, John Joseph* (University of Southampton); Chipperfield, Andrew John (University of Southampton); Byrne, Christopher (University of Southampton)</i>	
11:10-12:30	SaBPo06.8
<b>A Three-State Non-Linear Model of Vascular Nitric Oxide Transport .....</b>	<b>4917-4920</b>
<i>Abatay, Hasan (University of Oxford); Payne, Stephen John* (University of Oxford)</i>	
11:10-12:30	SaBPo06.9
<b>A Two Phase Model of Oxygen Transport in Cerebral Tissue .....</b>	<b>4921-4924</b>
<i>SU, SHEN-WEI (University of Oxford); Payne, Stephen John* (University of Oxford)</i>	
11:10-12:30	SaBPo06.10
<b>Optimized Numerical Pharmacokinetics Model for Optical Molecular Probes Based on Diffusion Coefficients in Matrigel Measured Using Fluorescence Imaging .....</b>	<b>4925-4928</b>
<i>Ciocan, Eugenia (Lassel College.); Ciocan, Razvan* (Newport Corporation)</i>	
11:10-12:30	SaBPo06.11
<b>Volume Conductor Effects on Simulated Magnetogastrograms .....</b>	<b>4929-4932</b>
<i>Qiao, Wenlian* (The University of Auckland); Komuro, Rie (The University of Auckland); Pullan, Andrew (University of Auckland); Cheng, Leo K (The University of Auckland)</i>	
11:10-12:30	SaBPo06.12
<b>A Method of Biological Pathway Similarity Search Using High Performance Computing .....</b>	<b>4933-4936</b>
<i>Jiang, Keyuan* (Purdue University Calumet); Huang, Yingmeng (Purdue University Calumet); Robertson, Joseph (Purdue University)</i>	
11:10-12:30	SaBPo06.13
<b>Toward Automatic Behavioral Screen: A Computational Model for Analyzing Caenorhabditis elegans Locomotion .....</b>	<b>4937-4940</b>
<i>Zhou, Baitao* (Korea Aerospace University); Baek, JoongHwan (Korea Aerospace University)</i>	

11:10-12:30 SaBPo06.14  
**Classification of Hyperactivated Spermatozoa Using a Robust Minimum Bounding Square  
Ratio Algorithm** ..... 4941-4944  
*Kaula, Norbert\* (University of Denver); Andrews, Anneliese (University of Denver); Durso, Catherine (University of Denver); Dixon, Christopher (New York Medical College); Graham, James (Colorado State University)*

11:10-12:30 SaBPo06.15  
**A Pipeline for Automated Analysis of Flow Cytometry Data: Preliminary Results on Lymphoma  
Sub-Type Diagnosis** ..... 4945-4948  
*Bashashati, Ali\* (British Columbia Cancer Research Center); Lo, Kenneth (University of British Columbia); Gottardo, Raphael (Clinical Research Institute of Montreal (IRCM)); Gascoyne, Randy (British Columbia Cancer Agency); Weng, Andrew (British Columbia Cancer Research Center); Brinkman, Ryan (British Columbia Cancer Research Center)*

11:10-12:30 SaBPo06.16  
**On-Line Hierarchy of General Linear Models for Selecting and Ranking the Best Predicted  
Protein Structures** ..... 4949-4953  
*Girgis, Hani Zakaria\* (The Johns Hopkins University); Corso, Jason J. (SUNY at Buffalo)*

SaBPo07: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**6.1.3 Computational Modeling of Neuromuscular Systems** (Poster Session)

11:10-12:30 SaBPo07.1  
**Simulation and Classification of the Efferent Activity in Brachial Nerves** ..... 4954-4957  
*Zhou, Rui\* (Shenzhen Institute of Advanced Tech., Chinese Academy of Sciences); Jiang, Ning (Aalborg University); Englehart, Kevin (University of New Brunswick); parker, philip (university of new brunswick)*

11:10-12:30 SaBPo07.2  
**A Hybrid Extended Least Squares Method (HyBELS) for Vestibulo Ocular Reflex Identification** ..... 4958-4961  
*Ghoreyshi, Atiyeh\* (McGill University); Galiana, Henrietta L. (McGill University)*

11:10-12:30 SaBPo07.3  
**Optimization of Input Parameters of an EMG-Force Model in Constant and Sinusoidal  
Force Contractions** ..... 4962-4965  
*Cao, Hua\* (Univ de Technologie de Compiègne); Boudaoud, Sofiane (University of Technology of Compiègne (UTC)); MARIN, Frédéric (Université de Technologie de Compiègne); Marque, Catherine (University of technology of compiegne)*

11:10-12:30 SaBPo07.4  
**A Toolchain to Simulate and Investigate Selective Stimulation Strategies for FES** ..... 4966-4969  
*Laforet, Jeremy (University Montpellier 2); Guiraud, David\* (INRIA); Clerc, Maureen (ENPC, ENS, INRIA)*

11:10-12:30 SaBPo07.5  
**Exploring the Role of Sensor Noise in Movement Variability** ..... 4970-4973  
*Shi, Ying (Arizona State University); Buneo, Christopher\* (Arizona State University)*

SaBPo08: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**6.6.2 Neural Signal Processing II** (Poster Session)

11:10-12:30 SaBPo08.1  
**Estimating Transition Point of Anesthetic-Induced Loss of Consciousness in Mice by Detecting  
Motion in Response to Forced Movement** ..... 4974-4977  
*Choi, Jee Hyun\* (Korea Institute of Science and Technology, University of Science and Technology); Hwang, Eunjin (Pohang University of Science & Technology)*

11:10-12:30 SaBPo08.2  
**Spatio-Spectral Feature Selection Based on Robust Mutual Information Estimate for Brain  
Computer Interfaces** ..... 4978-4981  
*Zhang, Haihong\* (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Wang, Chuanchu (Institute for Infocomm Research); Ang, Kai Keng (Institute for Infocomm Research)*

11:10-12:30	SaBPo08.3
<b>Using Microstate Intensity for the Analysis of Spontaneous EEG: Tracking Changes from Alert to the Fatigue State</b> .....	<b>4982-4985</b>
<i>Thuraisingham, Ranjit Arulnayagam (University of Technology Sydney); Tran, Yvonne* (University of Technology, Sydney); Craig, Ashley (University of Technology, Sydney); Wijesuriya, Nirupama (The University of Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i>	
11:10-12:30	SaBPo08.4
<b>Surface EMG Signal Decomposition Using Empirically Sustainable BioSignal Separation Principles</b> .....	<b>4986-4989</b>
<i>Nawab, Syed Hamid* (Boston University); De Luca, Carlo J. (Boston University); Chang, Shey-Sheen (Boston University)</i>	
11:10-12:30	SaBPo08.5
<b>Information Theoretical Assessment of Neural Spiking Activity with Temperature Modulation</b> .....	<b>4990-4993</b>
<i>Madhok, Jai* (Johns Hopkins School of Medicine); Jia, Xiaofeng (Johns Hopkins School of Medicine); Choi, Young-Seok (Johns Hopkins University School of medicine); Zhang, Dandan (Tsinghua University); Thakor, Nitish (Johns Hopkins University)</i>	
11:10-12:30	SaBPo08.6
<b>Effect of Remifentanil on the Nonlinear Electroencephalographic Entropy Parameters in Propofol Anesthesia</b> .....	<b>4994-4997</b>
<i>Kortelainen, Jukka Johannes* (University of Oulu); Koskinen, Miika (Helsinki University of Technology); Mustola, Seppo Tapani (South Karelia Central Hospital); Seppänen, Tapio (University of Oulu)</i>	
11:10-12:30	SaBPo08.7
<b>Research for the Characteristics of Alzheimer's Disease Using EEG</b> .....	<b>4998-5001</b>
<i>Ueda, Taishi* (Tokyo Institute of Technology); Yagi, Tohru (Tokyo Institute of Technology)</i>	
11:10-12:30	SaBPo08.8
<b>A Modification to the Group Delay and Simulated Annealing Technique for Characterization of Peripheral Nerve Fiber Size Distributions for Non-Deterministic Sampled Data</b> .....	<b>5002-5005</b>
<i>Szlavik, Robert* (California Polytechnic State University)</i>	
11:10-12:30	SaBPo08.9
<b>A Regularized Point Process Generalized Linear Model for Assessing the Functional Connectivity in the Cat Motor Cortex</b> .....	<b>5006-5009</b>
<i>Chen, Zhe* (Harvard Medical School/MIT); Putrino, David (Massachusetts General Hospital, Harvard Medical School); Ba, Demba (MIT); Ghosh, Soumya (University of Western Australia); Barbieri, Riccardo (MGH-Harvard Medical School-MIT); Brown, Emery N (MGH-Harvard Medical School-MIT)</i>	
11:10-12:30	SaBPo08.10
<b>Decoding Three-Dimensional Hand Kinematics from Electroencephalographic Signals</b> .....	<b>5010-5013</b>
<i>Bradberry, Trent* (University of Maryland); Gentili, Rodolphe (University of Maryland); Contreras-Vidal, José (University of Maryland)</i>	
11:10-12:30	SaBPo08.11
<b>Correlation of Sleep EEG Frequency Bands and Heart Rate Variability</b> .....	<b>5014-5017</b>
<i>Abdullah, Haslaile (RMIT University); Holland, Gerard (St. Luke's Hospital); Cosic, Irena (RMIT University); Cvetkovic, Dean* (RMIT University)</i>	
11:10-12:30	SaBPo08.12
<b>Emotion-Induced Higher Wavelet Entropy in the EEG with Depression During a Cognitive Task</b> .....	<b>5018-5021</b>
<i>wei, ling (Shanghai University); Li, YingJie* (Shanghai University); Ye, jiping (Shanghai University); Yang, Xiaoli (Purdue University Calumet); Wang, Jijun (Shanghai Mental Health Center, Shanghai Jiaotong University School of Medicine)</i>	

SaBPo09: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>8.1.3 Rehabilitation Robotics (Poster Session)</b>	

11:10-12:30	SaBPo09.1
<b>Bio-Inspired Controller for a Dexterous Prosthetic Hand Based on Principal Components Analysis</b> .....	<b>5022-5025</b>
<i>Matrone, Giulia* (University of Pavia); Cipriani, Christian (Scuola Superiore Sant'anna); Secco, Emanuele Lindo (Eucentre); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna); Magenes, Giovanni (University of Pavia)</i>	

11:10-12:30	SaBPo09.2
<b>Design and Development of a Hand Robotic Rehabilitation Device for Post Stroke Patients</b> .....	<b>5026-5029</b>
<i>Rashedi, Ehsan (Sharif University of Technology); Mirbagheri, Alireza (Research Center for Science and Technology In Medicine); Taheri, Behzad (Sharif University of Technology); Vossoughi, Gholamreza (Sharif University of Technology); Farahmand, Farzam* (Sharif University of Technology)</i>	
11:10-12:30	SaBPo09.3
<b>A Bio-Robotic Leg Orthosis for Rehabilitation and Mobility Enhancement</b> .....	<b>5030-5033</b>
<i>Horst, Robert W.* (Tibion Corporation)</i>	
11:10-12:30	SaBPo09.4
<b>An Artificial Gastrocnemius for a Transitibial Prosthesis</b> .....	<b>5034-5037</b>
<i>Endo, Ken* (MIT); Herr, Hugh (MIT)</i>	
11:10-12:30	SaBPo09.5
<b>Development of Single Leg Version of HAL for Hemiplegia</b> .....	<b>5038-5043</b>
<i>Kawamoto, Hiroaki* (University of Tsukuba); Hayashi, Tomohiro (University of Tsukuba); Sakurai, Takeru (University of Tsukuba); Eguchi, Kiyoshi (University of Tsukuba); Sankai, Yoshiyuki (University of Tsukuba)</i>	
11:10-12:30	SaBPo09.6
<b>Control Strategy for a Myoelectric Hand: Measuring Acceptable Time Delay in Human Intention Discrimination</b> .....	<b>5044-5047</b>
<i>Nakamura, Tatsuhiko* (The University of Tokyo); Kita, Kahori (The University of Tokyo); Kato, Ryu (The University of Tokyo); Yokoi, Hiroshi (University of Tokyo)</i>	
11:10-12:30	SaBPo09.7
<b>Development of Prosthetic Arm with Pneumatic Prosthetic Hand and Tendon-Driven Wrist</b> .....	<b>5048-5051</b>
<i>Takeda, Hiroyuki* (Doshisha University); Tsujiuchi, Nobutaka (Doshisha University); Koizumi, Takayuki (Doshisha University); Kan, Hiroto (Doshisha University); Hirano, Masanori (SQUSE Inc.); Nakamura, Yoichiro (SQUSE Inc.)</i>	
11:10-12:30	SaBPo09.8
<b>Automatic Actuator Control by Leg Load Signal of Active AFO for Achilles Tendon Rupture</b> .....	<b>5052-5055</b>
<i>Yoshizawa, Nobuyuki* (Nippon Institute of Technology)</i>	
11:10-12:30	SaBPo09.9
<b>A Hybrid Adaptive Control Strategy for a Smart Prosthetic Hand</b> .....	<b>5056-5059</b>
<i>Chen, Cheng-Hung* (Idaho State University); Naidu, D Subbaram (Idaho State University); Perez, Alba (Idaho State University); Schoen, Marco P. (Idaho State University)</i>	
11:10-12:30	SaBPo09.10
<b>Effects of Dielectric Values of Human Body on Specific Absorption Rate (SAR) Following 800 MHz Radio Frequency Exposure to Ingestible Wireless Device</b> .....	<b>5060-5063</b>
<i>Xu, Lisheng (Northeastern University); Meng, Max Q.-H. (The Chinese University of Hong Kong); Li, Baopu* (The Chinese University of Hong Kong)</i>	
11:10-12:30	SaBPo09.11
<b>Robot-Assited Light Dose Evaluation for Endoscopically Guided Photodynamic Therapy: A Preliminary Study</b> .....	<b>5064-5067</b>
<i>Dongwen, Zhang (Shenzhen Institute of Advanced Technology, ChineseAcademyOf Sciences); Wang, Lei (Shenzhen Institute of Advanced Technology); Gu, Jia* (Shenzhen Institute of Advanced Technology, ChineseAcademyOf Sciences)</i>	
11:10-12:30	SaBPo09.12
<b>Semi-Autonomous Wheelchair System Using Stereoscopic Cameras</b> .....	<b>5068-5071</b>
<i>Nguyen, Jordan Son* (University of Tehcnology, Sydney); Nguyen, Thanh Hai (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i>	
11:10-12:30	SaBPo09.13
<b>Applications of Simple Robots to Encourage Social Receptiveness of Adolescents with Autism</b> .....	<b>5072-5075</b>
<i>Costa, Sandra* (University of Minho); Resende, Jorge (University of Minho); Soares, Filomena (University of Minho); Ferreira, Manuel Joao (University of Minho); Santos, Cristina (University of Minho); Moreira, Fatima (APPACDM)</i>	



**8.3.3 Robotic and Image-Guided Surgery II (Poster Session)**

- 11:10-12:30 SaBPo10.1  
**Robotic Patch-Stabilizer Using Wire Driven Mechanism for Minimally Invasive Fetal Surgery** ..... 5076-5079  
*Zhang, Bo\* (WASEDA University); Kobayashi, Yo (Waseda University); Chiba, Toshio (National Center for Child Health and Development); Fujie, Masakatsu G. (Waseda University)*
- 11:10-12:30 SaBPo10.2  
**Autonomous Avoidance Based on Motion Delay of Master Slave Surgical Robot** ..... 5080-5083  
*Inoue, Shintaro\* (Waseda University); Toyoda, Kazutaka (Waseda University); Kobayashi, Yo (Waseda University); Fujie, Masakatsu G. (Waseda University)*
- 11:10-12:30 SaBPo10.3  
**Model Based Stabilization of Soft Tissue Targets in Needle Insertion Procedures** ..... 5084-5087  
*Smolen, Jerzy\* (McMaster University); Patriciu, Alexandru (McMaster University)*
- 11:10-12:30 SaBPo10.4  
**The Study of Fiducial Localization Error of Image in Point-Based Registration** ..... 5088-5091  
*Liu, Wenbo (Tsinghua University); Ding, Hui (Tsinghua University); Han, Hongyan (Tsinghua University); Xue, Qinghua (C249,school of medicine Tsinghua University); Sun, Zhaohui (Tsinghua University); Wang, Guangzhi\* (Tsinghua University)*
- 11:10-12:30 SaBPo10.5  
**A High Performance Graphic and Haptic Curvilinear Capsulorrhexis Simulation System** ..... 5092-5095  
*Liang, Shun (University of Illinois at Chicago); Banerjee, P. Pat\* (Univ of Illinois at Chicago); Edward, Deepak (Summa)*
- 11:10-12:30 SaBPo10.6  
**Minimally Invasive Localization of Light Source in Tissue with an Equidistant Measurement** ..... 5096-5099  
*zheng, zhen\* (IBHE, Siat)*
- 11:10-12:30 SaBPo10.7  
**Modeling the Temperature Dependence of Thermophysical Properties: Study on the Effect of Temperature Dependence for RFA** ..... 5100-5105  
*Watanabe, Hiroki\* (Waseda University); Kobayashi, Yo (Waseda University); Fujie, Masakatsu G. (Waseda University)*
- 11:10-12:30 SaBPo10.8  
**Operability Evaluation Using an Simulation System for Gripping Motion in Robotic Tele-Surgery** ..... 5106-5109  
*Kawamura, Kazuya\* (Waseda University); Kobayashi, Yo (Waseda University); Fujie, Masakatsu G. (Waseda University)*
- 11:10-12:30 SaBPo10.9  
**Ultrasound Guided Robotic Biopsy Using Augmented Reality and Human-Robot Cooperative Control** ..... 5110-5113  
*Freschi, Cinzia\* (University of Pisa); Troia, Elena (University of Pisa); Ferrari, Vincenzo (Università di Pisa); Megali, Giuseppe (University of Pisa); Pietrabissa, Andrea (University of Pisa); Mosca, Franco (University of Pisa)*
- 11:10-12:30 SaBPo10.10  
**A Novel Non-model-based 6-DOF Electromagnetic Tracking Method Using Non-iterative Algorithm** ..... 5114-5117  
*Ge, Xin\* (Fudan University); Lai, Dakun (University of Minnesota); Wu, Xiaomei (Fudan University); Fang, Zuxiang (Fudan University)*
- 11:10-12:30 SaBPo10.11  
**MRI-Compatible Micromanipulator, Positioning Repeatability Tests and Kinematic Calibration** ..... 5118-5121  
*koseki, yoshihiko\* (AIST); Tanikawa, Tamio (Natl Inst of Adv Industrial Science); Chinzei, Kiyoyuki (National Institute of Advanced Industrial Science and Technology)*
- 11:10-12:30 SaBPo10.12  
**Soft-Tissue Modeling and Image-Guided Control of Steerable Needles** ..... 5122-5125  
*Sadati, Nasser\* (The University of British Columbia); Torabi, Meysam (Sharif University of Technology); Vaziri, Reza (Sharif University of Technology); Dehestani-Ardekani, Reza (Sharif University of Technology)*

11:10-12:30 SaBPo10.13  
**Development of a robotic endoscope that locomotes in the colon with flexible helical fins** ..... 5126-5129  
*Shikanai, Masaki\* (Waseda University); Murai, Natsuki (Waseda University); Takanishi, Atsuo (Waseda University); Itoh, Kazuko (Waseda University); Ishii, Hiroyuki (Waseda University); Hashizume, Makoto (Kyushu University); Tanoue, Kazuo (Kyusyu University Hospital); Ieiri, Satoshi (Kyusyu University Hospital); Konishi, Kozo (Kyusyu University Hospital)*

SaBPo11: 11:10-12:30 Grand Ballroom - Salon E, F, G  
**10.2.2 eHealth** (Poster Session)

11:10-12:30 SaBPo11.1  
**Technical and Compliance Considerations for Mobile-Health Self Monitoring of Glucose and Blood Pressure for Patients with Diabetes** ..... 5130-5133  
*Istepanian, Robert\* (Kingston University London); Sungoor, Ala (Kingston University London)*

11:10-12:30 SaBPo11.2  
**Wireless Physiological Monitoring System for Psychiatric Patients** ..... 5134-5137  
*Rademeyer, Andre (Stellenbosch University); Blanckenberg, Mike (Stellenbosch University); Scheffer, Cornie\* (Stellenbosch University)*

11:10-12:30 SaBPo11.3  
**Lessons Learned from Building the Imed Intelligent Medical Search Engine** ..... 5138-5142  
*Luo, Gang\* (IBM)*

11:10-12:30 SaBPo11.4  
**Robust and Efficient Ultrasound Video Coding in Noisy Channels Using H.264** ..... 5143-5146  
*Panayides, Andreas (University of Cyprus); Pattichis, Marios\* (University of New Mexico,); Pattichis, Constantinos (University of Cyprus); Loizou, Christos (Intercollege); Pantziaris, Marios (The Cyprus Institute of Neurology and Genetics); Pitsillides, Andreas (University of Cyprus)*

11:10-12:30 SaBPo11.5  
**Design of a Context-Aware Model to Enhance Medication Adherence** ..... 5147-5150  
*Lim, Myungeun\* (ETRI); Choi, Jaehun (Electronics and Telecom. Resrch Inst); Bang, SunLee (Electronics & Telecom Research Inst); kim, dae hee (ETRI); Park, Soo-Jun (Electr & Telecomm Research Inst)*

11:10-12:30 SaBPo11.6  
**deFOG – a Real Time System for Detection and Unfreezing of Gait of Parkinson’s Patients** ..... 5151-5154  
*Jovanov, Emil\* (University of Alabama in Huntsville); Wang, Emily (Rush University Medical Center); Verhagen, Leo (Rush University); Fredrickson, Matthew (University of Alabama in Huntsville); Fratangelo, Robert C. (The University of Alabama in Huntsville)*

11:10-12:30 SaBPo11.7  
**Footpaths: Fusion of Mobile Outdoor Personal Advisor for Walking Route and Health Fitness** ..... 5155-5158  
*Waluyo, Agustinus Borgy\* (Institute for Infocomm Research); Pek, Isaac (Institute for Infocomm Research); Yeoh, Wee Soon (Institute for Infocomm Research); Chen, Xiang (Institute for Infocomm Research)*

11:10-12:30 SaBPo11.8  
**Long-Distance Monitoring of Physiological and Environmental Parameters for Emergency Operators** ..... 5159-5162  
*Magenes, Giovanni\* (University of Pavia); Curone, Davide (Università degli Studi di Pavia); Lanati, Matteo (EUCENTRE); Secco, Emanuele Lindo (Eucentre)*

11:10-12:30 SaBPo11.9  
**Assessing the Feasibility of Classifying Toe-Walking Severity in Children with Cerebral Palsy Using a Sensorized Shoe** ..... 5163-5166  
*Chiara, Mancinelli (Harvard Medical School); Patel, Shyamal (Harvard Medical School); Lynn, Deming (Harvard Medical School); Schmid, Maurizio (University Roma TRE); Patrilli, Ben (Harvard Medical School); Jeffrey, Chu (Simbex); Jonathan, Beckwith (Simbex); Greenwald, Richard (Simbex); Healey, Jennifer (Intel); Bonato, Paolo\* (Harvard Medical School)*

- 11:10-12:30 SaBPo11.10  
**Rich Internet Application System for Patient-Centric Healthcare Data Management Using Handheld Devices** ..... **5167-5170**  
*Constantinescu, Liviu\* (University of Sydney); Pradana, Ramanandha (University of Sydney); Kim, Jinman (University of Sydney); Gong, Peng (The University of Sydney); Fulham, Michael (Royal Prince Alfred Hospital); Feng, Dagan (The University of Sydney)*
- 11:10-12:30 SaBPo11.11  
**A Reliable Wireless Monitoring of Periodic Vital Signals using a Novel Joint Source-Channel Coding** .... **5171-5174**  
*Watanabe, Katsuhiko\* (Meiji University); Takizawa, Kenichi (NICT); Ikegami, Tetsushi (Meiji University)*
- 11:10-12:30 SaBPo11.12  
**Automated Discrimination Method for Measuring the Thickness of Muscular and Subcutaneous Fat Layers Based on Tissue Elasticity** ..... **5175-5178**  
*Inoue, Masahiro\* (Saga University); Fukuda, Osamu (National Institute of AIST); Tsubai, Masayoshi (National Inst of (AIST)); Muraki, Satoshi (Kyushu University); Okumura, Hiroshi (Saga University); Arai, Kohei (Saga University)*
- 11:10-12:30 SaBPo11.13  
**A Wireless Breathing-Training Support System for Kinesitherapy** ..... **5179-5182**  
*Tawa, Hiroki\* (Hiroshima Institute of Technology); Yonezawa, Yoshiharu (Hiroshima Institute of Technology); Maki, Hiromichi (Hiroshima institute of Technology); Ogawa, Hidekuni (Hiroshima Institute of Technology); Ninomiya, Ishio (Hiroshima International University); Sata, Koji (Shakaihoken Shimonoseki Kousei Hospital); Hamada, Shingo (Shakaihoken Shimonoseki Kousei Hospital); Caldwell, Morton (Caldwell Biomedical Electronics)*
- 11:10-12:30 SaBPo11.14  
**Smart Phones Are Useful for Food Intake and Physical Activity Questionnaires** ..... **5183-5186**  
*Wohlers, Erica\* (Devicix, LLC); Sirard, John (University of Minnesota); Barden, Charles (Devicix LLC); Moon, Jon (Devicix, LLC)*
- 11:10-12:30 SaBPo11.15  
**Off-The-Shelf Mobile Handset Environments for Deploying Accelerometer Based Gait and Activity Analysis Algorithms** ..... **5187-5190**  
*Hynes, Martin\* (NUIG); Wang, Han (NUIG); Kilmartin, Liam (NUIG)*
- 11:10-12:30 SaBPo11.16  
**A Remote Monitor of Bed Patient Cardiac Vibration, Respiration and Movement** ..... **5191-5194**  
*Mukai, Koji\* (Hiroshima Institute of Technology); Yonezawa, Yoshiharu (Hiroshima Institute of Technology); Ogawa, Hidekuni (Hiroshima Institute of Technology); Maki, Hiromichi (Hiroshima institute of Technology); Caldwell, Morton (Caldwell Biomedical Electronics)*
- 11:10-12:30 SaBPo11.17  
**Time-Series Data Analysis of Blood-Sugar Level of a Diabetic in Relationship to Lifestyle Events** ..... **5195-5198**  
*Takeuchi, Hiroshi\* (Takasaki University of Health and Welfare); Kodama, Naoki (Takasaki University of Health and Welfare); Tsurumi, Katsunori (Takasaki University of Health and Welfare)*
- 11:10-12:30 SaBPo11.18  
**Mobile Health Monitoring Systems** ..... **5199-5202**  
*Bhatia, Dinesh\* (The University of Texas at Dallas); Walker, William (University of Texas at Dallas); Aroul, Antoine Lourdes Praveen (University of Texas at Dallas)*
- 11:10-12:30 SaBPo11.19  
**Automatic Fall Detection Using Wearable Biomedical Signal Measurement Terminal** ..... **5203-5206**  
*Lee, Tae Soo\* (Chungbuk National University); Nguyen, Thuy Trang (Chungbuk National University); Cho, Myeong-Chan (Chungbuk National University)*
- 11:10-12:30 SaBPo11.20  
**Implementation of a Real-Time Multi-Channel Gateway Server in Ubiquitous Integrated Biotelemetry System for Emergency Care (UIBSEC)** ..... **5207-5210**  
*Cheon, Gyeongwoo (Interdisciplinary Program, Bioengineering Major, Graduate); Shin, Il Hyung (Seoul National University); Jung, Min Yang (Seoul National University); Kim, Hee Chan\* (Seoul National University)*

11:10-12:30	SaBPo11.21
<b>Experience of a Real-Time Tele-EEG Service</b> .....	<b>5211-5214</b>
<i>Lasierra Beamonte, Nelia* (University of Zaragoza); Alesanco, Alvaro (University of Zaragoza); Campos López, Carmen (San Pedro Hospital (Logroño)); Caudevilla, Eva (Calahorra Hospital Foundation); Fernández Navajas, Julián (Aragon Institute for Engineering Research (I3A), University of Zaragoza.); Garcia Moros, Jose (University of Zaragoza)</i>	
11:10-12:30	SaBPo11.22
<b>Design of a Web Services Based System for Remote Hearing Diagnosis</b> .....	<b>5215-5218</b>
<i>Yao, Jianchu* (East Carolina University); WAN, YONGBO (SHAANXI UNIVERSITY OF SCIENCE AND TECHNOLOGY); Givens, Gregg (East Carolina University)</i>	
11:10-12:30	SaBPo11.23
<b>A Framework for Wireless Monitoring of Mental Health Conditions</b> .....	<b>5219-5222</b>
<i>Varshney, Upkar* (Georgia State University)</i>	
11:10-12:30	SaBPo11.24
<b>Custom Active RFID Solution for Children Tracking and Identifying in a Resuscitation Ward.</b> .....	<b>5223-5226</b>
<i>Iadanza, Ernesto* (Università degli Studi di Firenze); Dori, Fabrizio (Università di Firenze)</i>	

SaBPo12: 11:10-12:30	Grand Ballroom - Salon E, F, G
<b>8.8.3 Biomechanical Modeling and Simulation II</b> (Poster Session)	

11:10-12:30	SaBPo12.1
<b>Four-Dimensional Quantitative Analysis of the Gait of Mutant Mice Using Coarse-Grained Motion Capture</b> .....	<b>5227-5230</b>
<i>Oota, Satoshi* (RIKEN Bioresource Center); Mekada, Kazuyuki (RIKEN Bioresource Center); Fujita, Yoshihiko (NAC Image Technology, Inc.); Humphries, Julian (The University of Texas at Austin); Fukami-Kobayashi, Kaoru (RIKEN Bioresource Center); Obata, Yuichi (RIKEN Bioresource Center); Rowe, Timothy (The University of Texas at Austin); Yoshiki, Atsushi (RIKEN Bioresource Center)</i>	
11:10-12:30	SaBPo12.2
<b>Biomechanical Analysis of Subjective Pinching Effort Based on Tendon-Skeletal Model</b> .....	<b>5231-5234</b>
<i>Kurita, Yuichi* (Nara Inst of Science &amp; Technology); Onoue, Takehiro (Nara Institute of Science and Technology); Ikeda, Atsutoshi (Nara Institute of Science and Technology); Ogasawara, Tsukasa (Nara Institute of Science and Technology)</i>	
11:10-12:30	SaBPo12.3
<b>Biomechanical Study of the Subsequent Injury Induced by MCL Rapture</b> .....	<b>5235-5238</b>
<i>Yao, Jie (Beihang University); Fan, Yubo* (Beihang University); Zhang, Ming (The Hong Kong Polytechnic University)</i>	
11:10-12:30	SaBPo12.4
<b>Development of a Patient-Specific Femoral Component for Unicompartmental Knee Replacement</b> .....	<b>5239-5242</b>
<i>Van Den Heever, Dawie (Stellenbosch University); Scheffer, Cornie* (Stellenbosch University); Erasmus, PJ (Stellenbosch Medi-clinic); Dillon, Edwin (Stellenbosch Medi-clinic)</i>	
11:10-12:30	SaBPo12.5
<b>Characterization of Postural Stability in a Simulated Environment of an Earthquake Using In-Shoe Plantar Pressure Measurement</b> .....	<b>5243-5246</b>
<i>Abu-Faraj, Ziad* (American University of Science &amp; Technology); Abou-Assi, Fadi (American University of Science and Technology); Jaber, Rawad (American University of Science and Technology); Khalifeh, Hassan (American University of Science and Technology)</i>	
11:10-12:30	SaBPo12.6
<b>Monitoring the Segment Parameters During Long Term Physical Training from Motion Capture Data</b> ....	<b>5247-5250</b>
<i>Venture, Gentiane* (Tokyo University of Agriculture and Technology); Ayusawa, Ko (University of Tokyo); Kulic, Dana (University of Waterloo); Nakamura, Yoshihiko (University of Tokyo)</i>	
11:10-12:30	SaBPo12.7
<b>Sensitivity of the Anthropometrical and Geometrical Parameters of the Bones and Muscles on a Musculoskeletal Model of the Lower Limbs</b> .....	<b>5251-5254</b>
<i>DAO, Tien-Tuan* (Univ de Technologie de Compiègne); MARIN, Frédéric (Université de Technologie de Compiègne); HO BA THO, Marie-Christine (Université de Technologie de Compiègne)</i>	

11:10-12:30	SaBPo12.8
<b>Tension and Motion Measurement for Extended Trochanteric Osteotomy with Different Fixation Methods</b> .....	<b>5255-5258</b>
<i>Zhu, Zhonglin (Tsinghua University); Ding, Hui (Tsinghua University); Dang, Xiao (Tsinghua University); Shao, Hongyi (the 4th Medical College of Peiking University); Zhou, Yixin (Beijing Ji Shui Tan hospital the 4th Medical College of Peking University); Wang, Guangzhi* (Tsinghua University)</i>	
11:10-12:30	SaBPo12.9
<b>The in Vivo Mechanical Properties of Muscular Bulk Tissue</b> .....	<b>5259-5262</b>
<i>Aritan, Serdar* (Hacettepe University); Oyadiji, Olutunde (University of Manchester); Bartlett, Roger (University of Otago)</i>	
11:10-12:30	SaBPo12.10
<b>A Biomechanical Model of the Female Reproductive System and the Fetus for the Realization of a Childbirth Virtual Simulator</b> .....	<b>5263-5266</b>
<i>Buttin, Romain* (Université Lyon 1); Shariat, Behzad (université lyon 1); Redarce, Tanneguy (Institut National des Sciences Appliquées (INSA de Lyon)); Zara, Florence (LIRIS - Université Claude Bernard Lyon 1)</i>	
11:10-12:30	SaBPo12.11
<b>Biomechanical Model to Assess Injury Reduction During Impact</b> .....	<b>5267-5270</b>
<i>Meyer, Andrew (Marquette University); Fritz, Jessica* (Marquette University); Harris, Gerald (Marquette University)</i>	
11:10-12:30	SaBPo12.12
<b>Finite Element Analysis of Forearm Crutches During Gait in Children with Myelomeningocele</b> .....	<b>5271-5273</b>
<i>Slavens, Brooke* (Marquette University); Guan, Yabo (Medical College of Wisconsin); Harris, Gerald (Marquette University)</i>	
11:10-12:30	SaBPo12.13
<b>Modeling of Friction Force Based on Relative Velocity between Liver Tissue and Needle for Needle Insertion Simulation</b> .....	<b>5274-5278</b>
<i>Kobayashi, Yo* (Waseda University); Sato, Takahiro (Waseda University); Fujie, Masakatsu G. (Waseda University)</i>	
SaBPo13: 11:10-12:30 Grand Ballroom - Salon E, F, G	
<b>6.13.2 Diagnostic &amp; Evaluation Techniques for Neurological Disorders II (Poster Session)</b>	
11:10-12:30	SaBPo13.1
<b>New Methodology for Identifying Hierarchical Relationships among Performance Measures: Concepts and Demonstration in Parkinson's Disease</b> .....	<b>5279-5282</b>
<i>Kondraske, George* (University of Texas at Arlington); Stewart, R. Malcolm (Texas Health Presbyterian Dallas)</i>	
11:10-12:30	SaBPo13.2
<b>Wireless Accelerometer Reflex Quantification System Characterizing Response and Latency</b> .....	<b>5283-5286</b>
<i>LeMoyne, Robert* (UCLA); Coroian, Cristian (UCLA); Mastroianni, Timothy (Cognition Engineering)</i>	
11:10-12:30	SaBPo13.3
<b>Changes of Calf Muscle-Tendon Properties Due to Stretching and Active Movement of Children with Cerebral Palsy – a Pilot Study</b> .....	<b>5287-5290</b>
<i>Zhao, Heng (Rehabilitation Institute of Chicago, Northwestern University); Liu, Jie (Northwestern University, Huazhong Agricultural University); Ren, Yupeng (Rehabilitation Institute of Chicago); Zhang, Liqun* (Northwestern University)</i>	
11:10-12:30	SaBPo13.4
<b>Field Deployable EEG Monitor for Nerve Agent Casualties</b> .....	<b>5291-5293</b>
<i>McDonnall, Daniel (Ripple, LLC); Hiatt, Scott (Ripple LLC); Yatsenko, Dimitri (University of Utah); Guillory, Kenneth Shane* (Ripple LLC)</i>	
11:10-12:30	SaBPo13.5
<b>Preliminary Trial of Symmetry-Based Resistance in Individuals with Post-Stroke Hemiparesis</b> .....	<b>5294-5299</b>
<i>Simon, Ann (Rehabilitation Institute of Chicago); Ferris, Daniel* (University of Michigan); Kelly, Brian (University of Michigan)</i>	

11:10-12:30 SaBPo13.6  
**A New Method for Reflex Threshold Estimation in Spastic Muscles** ..... 5300-5303  
*Chardon, Matthieu\* (Rehabilitation Institute of Chicago); Suresh, Nina (Rehabilitation Institute of Chicago); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)*

SaKN5L: 13:30-15:00 Grand Ballroom - Salon A  
**Theme Keynote V**  
**Chair:** John W. Clark, *Rice Univ.*

13:30-14:15 SaKN5L.1  
**Towards A Completely Biological Living Heart Valve Replacement** ..... \*  
*Tranquillo, Robert\* (University of Minnesota)*

14:15-15:00 SaKN5L.2  
**The VPH/Physiome Project: A Role for EMBS?** ..... \*  
*Hunter, Peter\* (University of Auckland)*

SaC01: 13:30-15:00 Conrad B  
**1.2.9 Biomedical Modelling and Simulation III (Oral Session)**  
**Chair:** Giovanni Magenes, *Univ. of Pavia*  
**Co-Chair:** Mingui Sun, *Univ. of Pittsburgh*

13:30-13:45 SaC01.1  
**Implicit Wiener Series Analysis of Epileptic Seizure Recordings** ..... 5304-5307  
*Barbero, Álvaro\* (Universidad Autónoma de Madrid); Franz, Matthias O. (HTWG Konstanz); van Drongelen, Wim (The University of Chicago); Dorronsoro, José R. (Universidad Autónoma de Madrid); Schölkopf, Bernhard (MPI for Biological Cybernetics); Grosse-Wentrup, Moritz (Max Planck Institute for Biological Cybernetics)*

13:45-14:00 SaC01.2  
**Identification of Small World Topologies in Neural Functional Connections Quantified by Phase Synchrony Measures** ..... 5308-5311  
*Bolanos, Marcos\* (Michigan State University); Bernat, Edward (University of Minnesota); Aviyente, Selin (Michigan State University)*

14:00-14:15 SaC01.3  
**Quantizing and Characterizing the Variance of Hand Postures in a Novel Transformation Task** ..... 5312-5315  
*vinjamuri, ramana\* (University of Pittsburgh); Crammond, Donald (University of Pittsburgh); Mao, Zhi-Hong (University of Pittsburgh)*

14:15-14:30 SaC01.4  
**EEG Dynamics During Music Appreciation** ..... 5316-5319  
*Lin, Yuan-Pin\* (National Taiwan University); Jung, Tzyy-Ping (University of California San Diego); Chen, Jyh-Horng (National Taiwan University)*

14:30-14:45 SaC01.5  
**The Mechanism of Synchronization of Chemical Coupled Neurons** ..... 5320-5323  
*Chen, Yingyuan (Tianjin University); Wang, Jiang\* (Tianjin University); Che, Yanqiu (Tianjin University); wei, xile (Tianjin University); Dong, Feng (tianjin University)*

14:45-15:00 SaC01.6  
**Automated Detection of Asynchrony in Patient-Ventilator Interaction** ..... 5324-5327  
*Mulqueeny, Qestra Camille\* (University of New South Wales); Redmond, Stephen James (University of New South Wales); Lovell, Nigel H (University of New South Wales)*

SaC02: 13:30-15:00	Conrad C
<b>1.3.2 Biomedical Modelling and Simulation II (Oral Session)</b>	
<b>Chair:</b> Ramakrishna Mukkamala, <i>Michigan State Univ.</i>	
<b>Co-Chair:</b> Riccardo Barbieri, <i>MGH-Harvard Medical School-MIT</i>	

13:30-13:45 SaC02.1  
**Dynamic Control of Maximal Ventricular Elastance in Conscious Dogs before and after Pacing-Induced Heart Failure** ..... **5328-5331**  
*Chen, Xiaoxiao\* (Michigan State University); Mukkamala, Ramakrishna (Michigan State University); Sala-Mercado, Javier (Wayne State University School of Medicine); Hammond, Robert (Wayne State University School of Medicine); Ichinose, Masashi (Wayne State University School of Medicine); Soltani, Soroor (Michigan State University); O'Leary, Donal (Wayne State University School of Medicine)*

13:45-14:00 SaC02.2  
**Identification of Vascular Responses to Exercise and Orthostatic Stress in Bed Rest-Induced Cardiovascular Deconditioning** ..... **5332-5335**  
*Aletti, Federico\* (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano); Tam, Enrico (Università degli studi di Bologna); Cautero, Michela (Università degli Studi di Verona); Cerutti, Sergio (Politecnico di Milano); Capelli, Carlo (Università di Verona); Baselli, Giuseppe (Politecnico di Milano)*

14:00-14:15 SaC02.3  
**Linear and Nonlinear Quantification of Respiratory Sinus Arrhythmia During Propofol General Anesthesia** ..... **5336-5339**  
*Chen, Zhe\* (Harvard Medical School/MIT); Purdon, Patrick L (Massachusetts General Hospital); Pierce, Eric (MGH / Harvard Medical School); Harrell, Priscilla Grace (MGH-Harvard Medical School); Walsh, John (Massachusetts General Hospital); Salazar, Andres F. (Massachusetts General Hospital); Tavares, Casie (Massachusetts General Hospital); Brown, Emery N (MGH-Harvard Medical School-MIT); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)*

14:15-14:30 SaC02.4  
**Low-Complexity Autoregressive Modeling of the Fast and Slow QT Adaptation to Heart Rate Changes** ..... **5340-5343**  
*Cabasson, Aline\* (University of Nice Sophia Antipolis); Meste, Olivier (UNSA-CNRS)*

14:30-14:45 SaC02.5  
**Novel Methods for Estimating the Ballistocardiogram Signal Using a Simultaneously Acquired Electrocardiogram** ..... **5344-5347**  
*Inan, Omer\* (Stanford University); Etemadi, Mozziyar (Stanford University); Wiard, Richard M. (Stanford University); Kovacs, Gregory T.A. (Stanford University); Giovangrandi, Laurent (Stanford University)*

14:45-15:00 SaC02.6  
**Subclinical Atherosclerosis Modeling: Integration of Coronary Artery Calcium Score to Framingham Equation** ..... **5348-5351**  
*Pessana, Franco (FICEN, Favaloro University); Armentano, Ricardo\* (Favaloro University); Chironi, Gilles (Hôpital Européen Georges Pompidou); Megnien, Jean Louis (Hôpital Européen Georges Pompidou); Mousseaux, Elie (HEGP); Simon, Alain (Hôpital Européen Georges Pompidou)*

SaC03: 13:30-15:00	Grand Ballroom - Salon B
<b>2.3.3 Biomedical Optical Imaging I (Oral Session)</b>	
<b>Chair:</b> Atam Dhawan, <i>New Jersey Inst. of Tech.</i>	
<b>Co-Chair:</b> Jing Bai, <i>Tsinghua Univ.</i>	

13:30-13:45 SaC03.1  
**Multispectral Optical Imaging of Skin-Lesions for Detection of Malignant Melanomas** ..... **5352-5355**  
*Dhawan, Atam\* (New Jersey Institute of Technology); D'Alessandro, Brian (New Jersey Institute of Technology); Patwardhan, Sachin (Washington University/Medicine)*

13:45-14:00		SaC03.2
<b>Model-Based Approach for Tracking Embryogenesis in Caenorhabditis Elegans Fluorescence Microscopy Data</b> .....		<b>5356-5359</b>
<i>Dzyubachyk, Oleh* (Erasmus MC - University Medical Center Rotterdam); Jelier, Rob (Centre for Genomic Regulation); Lenher, Ben (Centre for Genomic Regulation); Niessen, Wiro (Erasmus MC, University Medical Center Rotterdam); Meijering, Erik (Erasmus MC - University Medical Center Rotterdam)</i>		
14:00-14:15		SaC03.3
<b>Improved Infrared Thermography Based Image Construction for Biomedical Applications Using Markov Chain Monte Carlo Method</b> .....		<b>5360-5363</b>
<i>Venkatappa, Umadevi* (Indian Institute of Technology Madras); Suresh, Santhosh (IIT Madras); Serugudi Venkataraman, Raghavan (Indian Institute of Technology Madras)</i>		
14:15-14:30		SaC03.4
<b>Macroscopic Fluorescent Lifetime Imaging in Turbid Media Using Angular Filter Arrays</b> .....		<b>5364-5368</b>
<i>Najiminaini, Mohamadreza (Simon Fraser University); Vasefi, Fartash* (SIMON FRASER UNIVERSITY); Kaminska, Bozena (SIMON FRASER UNIVERSITY); Chapman, Glenn H. (SIMON FRASER UNIVERSITY); Carson, Jeffrey J.L. (University of Western Ontario)</i>		
14:30-14:45		SaC03.5
<b>Design and Characterization of a Miniaturized Epi-Illuminated Microscope</b> .....		<b>5369-5372</b>
<i>Murari, Kartikeya* (Johns Hopkins University); Greenwald, Elliot (Johns Hopkins University); Etienne-Cummings, Ralph (Johns Hopkins University); Cauwenberghs, Gert (University of California San Diego); Thakor, Nitish (Johns Hopkins University)</i>		
14:45-15:00		SaC03.6
<b>Investigation on DOT Guided FMT: Whether the FMT Image Quality is Robust to the Prior DOT Information?</b> .....		<b>5373-5376</b>
<i>Wang, Daifa (Tsinghua University); Bai, Jing* (Tsinghua University)</i>		
SaC05: 13:30-15:00		Marquette V
<b>2.9.1 Functional Biomedical Imaging</b> (Oral Session)		
<b>Chair:</b> Hae-Jeong Park, <i>Yonsei Univ.</i>		
<b>Co-Chair:</b> Stephen LaConte, <i>Baylor Coll. of Medicine</i>		
13:30-13:45		SaC05.1
<b>Neurofeedback of Two Motor Functions Using Supervised Learning-Based Real-Time Functional Magnetic Resonance Imaging</b> .....		<b>5377-5380</b>
<i>Papageorgiou, Dorina (Baylor College of Medicine); Curtis, William (Case Western Reserve University); McHenry, Monica (University of Houston); LaConte, Stephen* (Baylor College of Medicine)</i>		
13:45-14:00		SaC05.2
<b>Support vector machine classification of complex fMRI data</b> .....		<b>5381-5384</b>
<i>Peltier, Scott James* (University of Michigan); Lisinski, Maximilian (Baylor College of Medicine); Noll, Douglas C. (University of Michigan); LaConte, Stephen (Baylor College of Medicine)</i>		
14:00-14:15		SaC05.3
<b>EEG-Based Real-Time Dynamic Neuroimaging</b> .....		<b>5385-5388</b>
<i>Im, Chang-Hwan* (Yonsei University); Hwang, Han-Jeong (Yonsei University)</i>		
14:15-14:30		SaC05.4
<b>Real-Time Functional MRI for Patient Monitoring During a Language Task</b> .....		<b>5389-5392</b>
<i>Park, Hae-Jeong* (Yonsei University); Park, Bumhee (Yonsei University); Kim, Dae-Jin (Yonsei University)</i>		
14:30-14:45		SaC05.5
<b>Toward Functional Neurobehavioral Assessment of Mood and Anxiety</b> .....		<b>5393-5396</b>
<i>Lindsey, LaRaun (Baylor College of Medicine); King-Casas, Brooks (Baylor College of Medicine); Brovko, Julie (Baylor College of Medicine); Chiu, Pearl* (Baylor College of Medicine)</i>		



14:45-15:00 SaC05.6  
**Fmri Activation Pattern Recognition: A Novel Application of PCA in Language Network of Pediatric Localization Related Epilepsy** ..... 5397-5400  
*You, Xiaozhen (Florida International University); Guillen, Magno (Florida International University); Bernal, Byron (Miami Children's Hospital); Gaillard, William (Children's National Medical Center); Adjouadi, Malek\* (Florida International University)*

SaC06: 13:30-15:00 Conrad A  
**3.5.2 Wireless Sensors** (Oral Session)  
**Chair:** Sameer Sonkusale, *Tufts Univ.*  
**Co-Chair:** Bruce Towe, *Arizona Sate Univ.*

13:30-13:45 SaC06.1  
**Near-Field Wireless Magnetic Link for an Ingestible Cattle Health Monitoring Pill** ..... 5401-5404  
*Hoskins, Seth (Kansas State University); Sobering, Timothy (Kansas State University); Andresen, Daniel (Kansas State University); Warren, Steve\* (Kansas State University)*

13:45-14:00 SaC06.2  
**Ambulatory Device for Urinary Incontinence Detection in Females** ..... 5405-5408  
*Dan, Wang\* (University of Minnesota); Timm, Gerald W. (University of Minnesota); Erdman, Arthur (University of Minnesota); Tewfik, Ahmed (University of Minnesota)*

14:00-14:15 SaC06.3  
**An Integrated Circuit for Wireless Ambulatory Arrhythmia Monitoring Systems** ..... 5409-5412  
*Kim, Hyejung\* (KAIST); Yazicioglu, Refet Firat (IMEC); Torfs, Tom (IMEC); Merken, Patrick (IMEC); Van Hoof, Chris (IMEC); Yoo, Hoi-Jun (KAIST)*

14:15-14:30 SaC06.4  
**A Small, Light-Weight, Low-Power, Multichannel Wireless Neural Recording Microsystem** ..... 5413-5416  
*Borna, Amir\* (Graduate Student Research Assistant); Marzullo, Timothy (University of Michigan); Gage, Gregory J. (Univerisity of Michigan); Najafi, Khalil (University of Michigan)*

14:30-14:45 SaC06.5  
**An Accuracy Aware Low Power Wireless EEG Unit with Information Content Based Adaptive Data Compression** ..... 5417-5420  
*Tolbert, Jeremy\* (Georgia Institute of Technology); Kabali, Pratik (Georgia Institute of Technology); Brar, simeranjit (Georgia Institute of Technology); Mukhopadhyay, Saibal (Georgia Institute of Technology)*

14:45-15:00 SaC06.6  
**Wireless Ultrasound-Powered Biotelemetry for Implants** ..... 5421-5424  
*Towe, Bruce\* (Arizona Sate University); Larson, Patrick (Arizona State University); Gulick, Daniel (Arizona State University)*

SaC07: 13:30-15:00 Marquette VII  
**3.10.2 Magnetic Sensors** (Oral Session)  
**Chair:** Jian-Ping Wang, *Univ. of Minnesota*  
**Co-Chair:** Keat Ghee Ong, *Michigan Tech. Univ.*

13:30-13:45 SaC07.1  
**Evolution of a Magnetic-Based Biomolecular Detection System** ..... 5425-5427  
*Tamanaha, Cy\* (Naval Research Laboratory); Mulvaney, Shawn P. (Naval Research Laboratory); Rife, Jack (Naval Research Laboratory)*

13:45-14:00 SaC07.2  
**Microfluidic Package Design for Magnetoresistive Biosensors** ..... 5428-5431  
*Tondra, Mark\* (Diagnostic Biosensors, LLC); Bardell, Ron (Microplumbers Microsciences LLC); Datta, Proyag (Louisiana State University)*

14:00-14:15 SaC07.3  
**Biomarkers Identification and Detection Based on GMR Sensor and Sub 13 Nm  
Magnetic Nanoparticles** ..... 5432-5435  
*Li, Yuanpeng (University of Minnesota); Jing, Ying (University of Minnesota); Yao, Xiaofeng (University of Minnesota); Srinivasan, Balasubramanian (University of Minnesota); Xing, Chengguo (University of Minnesota); Wang, Jian-Ping\* (University of Minnesota)*

14:15-14:30 SaC07.4  
**Wireless, Magnetic-Based Sensors for Biomedical Applications** ..... 5436-5439  
*Ong, Keat Ghee\* (Michigan Technological University)*

14:30-14:45 SaC07.5  
**Respiration Triggered Magnetic Drug Targeting in the Lungs** ..... 5440-5443  
*Dahmani, Chihebeddine\* (Technical University of Munich); Goetz, Stefan (TU Muenchen); Weyh, Thomas (TU Muenchen); Renner, Riitta (TU Muenchen); Rosenecker, Michaela (Ludwig-Maximilians-University); Rudolph, Carsten (Ludwig-Maximilians-University)*

14:45-15:00 SaC07.6  
**Intracellular Patterning of Internalized Magnetic Fluorescent Nanoparticles** ..... 5444-5447  
*Tseng, Peter\* (University of California, Los Angeles); Judy, Jack (UCLA); Di Carlo, Dino (UCLA)*

SaC08: 13:30-15:00 Marquette VIII  
**4.5.1 Current Progress in Modeling Regulatory, Metabolic, and Proteomic Networks** (Oral Session)  
**Chair:** Edmund Crampin, *University of Auckland*  
**Co-Chair:** Jason Papin, *University of Virginia*

13:30-13:45 SaC08.1  
**The Inferelator 2.0: A Scalable Framework for Reconstruction of Dynamic Regulatory  
Network Models.** ..... 5448-5451  
*Madar, Aviv (New York University); Greenfield, Alex (NYU); Ostrer, Harry (New York University Langone Medical Center); Vanden-Eijnden, Eric (New York University); Bonneau, Richard\* (New York University)*

13:45-14:00 SaC08.2  
**A Multipathway Phosphoproteomic Signaling Network Model of Idiosyncratic Drug and Inflammatory  
Cytokine-Induced Toxicity in Human Hepatocytes** ..... 5452-5455  
*Cosgrove, Benjamin\* (Stanford University); Alexopoulos, Leonidas (Harvard Medical School); Saez-Rodriguez, Julio (Harvard Medical School); Griffith, Linda G. (MIT); Lauffenburger, Douglas (Massachusetts Institute of Technology)*

14:00-14:15 SaC08.3  
**Relative Expression Analysis for Identifying Perturbed Pathways** ..... 5456-5459  
*Eddy, James (University of Illinois); Geman, Donald (Clark Hall 302A); Price, Nathan\* (University of Illinois)*

14:15-14:30 SaC08.4  
**Descriptive and Predictive Applications of Constraint-Based Metabolic Models** ..... 5460-5463  
*Reed, Jennifer\* (University of Wisconsin- Madison)*

14:30-14:45 SaC08.5  
**A Scalable Systems Analysis Approach for Regulated Metabolic Networks** ..... 5464-5465  
*Jensen, Paul (University of Virginia); Papin, Jason\* (University of Virginia)*

14:45-15:00 SaC08.6  
**Discovering Genetic Polymorphism Associated with Gene Expression Levels across the  
Whole Genome** ..... 5466-5469  
*Antoniades, Athos\* (University of Cyprus); Pattichis, Constantinos (University of Cyprus); Kalvari, Ioanna (University of Cyprus); Jones, Neil (Glaxosmithkline); Matthews, Paul (Glaxo Smith Kline); Domenici, Enrico (GSK Medicines Research Centre); Muglia, Pierandrea (GlaxoSmithKline)*

SaC09: 13:30-15:00

Marquette II

**5.4.2 Cardiovascular Pulmonary Regulation (Neurohumoral, HRV) (Oral Session)**

**Chair:** Nicolas Chbat, *Philips Res. North America*

**Co-Chair:** Chi-Sang Poon, *Massachusetts Inst. of Tech.*

13:30-13:45

SaC09.1

**Modeling Cerebral Blood Flow and Regulation ..... 5470-5473**

*Aoi, Mikio\* (North Carolina State University); Gremaud, Pierre (North Carolina State University); Tran, Hien (Department of Mathematics, North Carolina State University); Novak, Vera (Beth Israel Deaconess Medical Center/Harvard Medical School); Olufsen, Mette (North Carolina State University)*

13:45-14:00

SaC09.2

**A Comprehensive Cardiopulmonary Simulation Model for the Analysis of Hypercapnic Respiratory Failure ..... 5474-5477**

*Chbat, Nicolas\* (Philips Research North America); Giannessi, Massimo (University of Bologna); Albanese, Antonio (University of Bologna); Ursino, Mauro (University of Bologna)*

14:00-14:15

SaC09.3

**Electrode Structures for Acquisition and Neural Stimulation Controlling the Cardiovascular System ..... 5478-5481**

*Steltenkamp, Siegfried\* (Fraunhofer Institut - IBMT); Becher, Kai (Fraunhofer IBMT); Doerge, Thomas (Fraunhofer Institute for Biomedical Engineering); Ruff, Roman (Fraunhofer Institut für Biomedizinische Technik); Hoffmann, Klaus-Peter (Fraunhofer Institut)*

14:15-14:30

SaC09.4

**One-Dimensional Modelling of Pulse Wave Propagation in Human Airway Bifurcations in Space-Time Variables ..... 5482-5485**

*Clavica, Francesco\* (Brunel University); Alastruey, Jordi (Imperial College London); Sherwin, Spencer (Imperial college London); Khir, Ashraf (Brunel University)*

14:30-14:45

SaC09.5

**Induced Respiratory System Modeling by High Frequency Chest Compression Using Lumped System Identification Method ..... 5486-5489**

*Lee, Jongwon\* (UNIVERSITY OF MINNESOTA); Lee, Yong Wan (University of Minnesota); O'Clock, George (University of Minnesota); Zhu, Xiaoming (University of Minnesota); Parhi, Keshab (University of Minnesota); Warwick, Warren J. (University of Minnesota)*

14:45-15:00

SaC09.6

**Pulse Rate Analysis in Case of Central Sleep Apnea: A New Algorithm for Cardiac Rate Estimation ..... 5490-5493**

*NGUYEN, Quang Vinh\* (École Nationale Supérieure des Sciences Appliquées et de); LE PAGE, Ronan (École Nationale Supérieure des Sciences Appliquées et de Technologie (ENSSAT)); GOUJON, Jean-Marc (École Nationale Supérieure des Sciences Appliquées et de Technologie (ENSSAT)); GUYADER, Patrick (École Nationale Supérieure des Sciences Appliquées et de Technologie (ENSSAT)); BILLON, Michel (École Nationale Supérieure des Sciences Appliquées et de Technologie (ENSSAT))*

SaC10: 13:30-15:00

Grand Ballroom - Salon C

**6.4.1 Brain-Machine Interface I (Oral Session)**

**Chair:** Daniel Moran, *Washington University in St. Louis*

**Co-Chair:** Jose M. Carmena, *Univ. of California, Berkeley*

13:30-13:45

SaC10.1

**An Implantable Bi-Directional Brain-Machine Interface System for Chronic Neuroprosthesis Research ..... 5494-5497**

*Stanslaski, Scott (Medtronic); cong, peng (Medtronic); Carlson, David (Medtronic); santa, wesley (Medtronic); Jensen, Randy (Medtronic); Molnar, Greg (Medtronic); Marks, William (Univ Ca Sf Sch Of Med); Shafquat, Afsah (Medtronic); Denison, Timothy\* (Medtronic)*

13:45-14:00

SaC10.2

**Effective Brain-Computer Interfacing Using BCI2000 ..... 5498-5501**

*Schalk, Gerwin\* (Wadsworth Center, New York State Department of Health)*

14:00-14:15	SaC10.3
<b>Ipsilateral Directional Encoding of Joystick Movements in Human Cortex .....</b>	<b>5502-5505</b>
<i>Sharma, Mohit (Washington University); Gaona, Charles (Washington University); roland, jarod (Washington University); Anderson, Nicholas (Washington University); freudenberg, Zachary (Washington University); Leuthardt, Eric* (Washington University in St. Louis)</i>	
14:15-14:30	SaC10.4
<b>Flexible Thin Film Electrode Arrays for Minimally-Invasive Neurological Monitoring .....</b>	<b>5506-5509</b>
<i>Kim, Jiwan (University of Wisconsin-Madison); Richner, Tom (University of Wisconsin-Madison); Thongpang, Sanitta (University of Wisconsin- Madison); Sillay, Karl (University of Wisconsin-Madison); Niemann, David (University of Wisconsin-Madison); Ahmed, Azam (University of Wisconsin-Madison); Krugner-Higby, Lisa (University of Wisconsin-Madison); Williams, Justin* (University of Wisconsin)</i>	
14:30-14:45	SaC10.5
<b>Evaluation of Micro-Electrocorticographic Electrodes for Electrostimulation .....</b>	<b>5510-5513</b>
<i>Wilks, Seth (Purdue University); Koivuniemi, Andrew (Purdue University); Thongpang, Sanitta (University of Wisconsin- Madison); Williams, Justin (University of Wisconsin); Otto, Kevin* (Purdue University)</i>	
14:45-15:00	SaC10.6
<b>Neural Adaptation of Epidural Electrocorticographic (EECoG) Signals During Closed-Loop Brain Computer Interface (BCI) Tasks .....</b>	<b>5514-5517</b>
<i>Rouse, Adam (Washington University); Moran, Daniel* (Washington University in St. Louis)</i>	

SaC11: 13:30-15:00	Marquette I
<b>6.2.1 Neural Microsystems I (Oral Session)</b>	
<b>Chair:</b> Patrick Wolf, <i>Duke University</i>	
<b>Co-Chair:</b> Maysam Ghovanloo, <i>Georgia Inst. of Tech.</i>	

13:30-13:45	SaC11.1
<b>Recent Advances in Charge Balancing for Functional Electrical Stimulation .....</b>	<b>5518-5521</b>
<i>Sooksood, Kriangkrai* (University of Ulm); Stieglitz, Thomas (University of Freiburg); Ortmanns, Maurits (University of Ulm)</i>	
13:45-14:00	SaC11.2
<b>An Optical Microsystem for Wireless Neural Recording .....</b>	<b>5522-5524</b>
<i>ziaie, babak* (Purdue University); Wei, Pinghung (Purdue University)</i>	
14:00-14:15	SaC11.3
<b>A System-Level View of Optimizing High-Channel-Count Wireless Biosignal Telemetry .....</b>	<b>5525-5530</b>
<i>Chandler, Rodney James* (UCLA); Gibson, Sarah (UCLA); Kakare, Vaihbav (UCLA); Farshchi, Shahin (University of California, Los Angeles); Markovic, Dejan (UCLA); Judy, Jack (UCLA)</i>	
14:15-14:30	SaC11.4
<b>Wireless, High-Bandwidth Recordings from Non-Human Primate Motor Cortex Using a Scalable 16-Ch Implantable Microsystem .....</b>	<b>5531-5534</b>
<i>Borton, David* (Brown University); Song, Yoon-Kyu (Brown University); Patterson, William (Brown University); Bull, Christopher (Brown University); Park, Sunmee (Brown University); Laiwalla, Farah (Brown University); Donoghue, John (Brown University); Nurmikko, Arto (Brown University)</i>	
14:30-14:45	SaC11.5
<b>Design of Advanced Neuroscience Platform .....</b>	<b>5535-5538</b>
<i>Liu, Wentai (University of California, Santa Cruz); Chae, Moo Sung (University of California, Santa Cruz); Yang, Zhi* (University of California, Santa Cruz); Kim, Hyunchul (University of California Santa Cruz)</i>	

**1.4.5 Biomedical Signal Classification IV** (Oral Session)**Chair:** Khosrow Behbehani, *Univ. of Texas at Arlington***Co-Chair:** Maria G. Signorini, *Pol. di Milano*

13:30-13:45

SaC12.1

**A Continuous Evaluation of the Awake Sleep State Using Fuzzy Reasoning** ..... 5539-5542*Fernandez-Pastoriza, Jose Maria (University of A Coruña); Álvarez-Estévez, Diego\* (University of A Coruña); Moret-Bonillo, Vicente (A Coruña University)*

13:45-14:00

SaC12.2

**A New Measure to Quantify Sleepiness Using Higher Order Statistical Analysis of EEG** ..... 5543-5546*Abeyratne, Udantha R\* (University of Queensland); Swarnkar, Vinayak (University of Queensland); Hukins, Craig (Prince Alexandra Hospital)*

14:00-14:15

SaC12.3

**A Classification Algorithm Based on Spectral Features from Nocturnal Oximetry and Support Vector Machines to Assist in the Diagnosis of Obstructive Sleep Apnea** ..... 5547-5550*Marcos, J. Victor\* (University of Valladolid, CIF: Q4718001C); Hornero, Roberto (University Of Valladolid); Álvarez, Daniel (University of Valladolid); del Campo, Félix (Hospital del Río Hortega); Zamarrón, Carlos (Hospital Clínico Universitario)*

14:15-14:30

SaC12.4

**Normal Probability Testing of Snore Signals for Diagnosis of Obstructive Sleep Apnea** ..... 5551-5554*Ghaemmaghami, Houman (The University of Queensland); Abeyratne, Udantha R\* (University of Queensland); Hukins, Craig (Prince Alexandra Hospital)*

14:30-14:45

SaC12.5

**Automatic Detection of Sleep Macrostructure Based on Bed Sensors** ..... 5555-5558*Mendez, Martin Oswaldo (politecnico di Milano); Matteucci, Matteo (Politecnico di Milano); Cerutti, Sergio\* (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano); Kortelainen, Juha Matti (VTT)*

14:45-15:00

SaC12.6

**Detection of Obstructive Sleep Apnea in ECG Recordings Using Time-Frequency Distributions and Dynamic Features** ..... 5559-5562*Quiceno-Manrique, Andrés Felipe (Universidad Nacional de Colombia, Sede Manizales); Alonso-Hernández, Jesús Bernardino (Universidad de Las Palmas de Gran Canaria); Travieso-González, Carlos (Universidad de Las Palmas de Gran Canaria); Ferrer-Ballester, Miguel Ángel (Universidad de Las Palmas de Gran Canaria); Castellanos-Dominguez, Germán\* (Universidad Nacional de Colombia)***8.3.2 Robotic and Image-Guided Surgery I** (Oral Session)**Chair:** Cameron Riviere, *Carnegie Mellon Univ.*

13:30-13:45

SaC13.1

**Patient Motion Tracking in the Presence of Measurement Errors** ..... 5563-5566*Haidegger, Tamas\* (Budapest University of Technology and Economics/Dept. of Control Engineering and Information Technology (BME - IIT)); Benyo, Zoltan (Budapest Univ of Tech & Economics); Kazanzides, Peter (Johns Hopkins University)*

13:45-14:00

SaC13.2

**Catheter Localization in the Left Atrium Using an Outdated Anatomic Reference for Guidance** ..... 5567-5570*Koolwal, Aditya\* (Stanford University); Barbagli, Federico (Stanford University); Carlson, Christopher (Hansen Medical, Inc.); Liang, David (Stanford University)*

14:00-14:15

SaC13.3

**Comparison of Visual Tracking Algorithms on in Vivo Sequences for Robot-Assisted Flexible Endoscopic Surgery** ..... 5571-5576*Masson, Norbert (University of Strasbourg); Nageotte, Florent\* (University of Strasbourg); Zanne, Philippe (University of Strasbourg); Marescaux, Jacques (IRCAD); de Mathelin, Michel (University of Strasbourg)*

14:15-14:30 SaC13.4  
**Design of a Telemanipulated System for Transluminal Surgery** ..... 5577-5582  
*Bardou, Berengere\* (University of Strasbourg); Nageotte, Florent (University of Strasbourg); Zanne, Philippe (University of Strasbourg); de Mathelin, Michel (University of Strasbourg)*

14:30-14:45 SaC13.5  
**Hybrid Attitude Estimation for Laparoscopic Surgical Tools: A Preliminary Study** ..... 5583-5586  
*REN, Hongliang\* (The Johns Hopkins University); Kazanzides, Peter (Johns Hopkins University)*

14:45-15:00 SaC13.6  
**Active Guidance for Laser Retinal Surgery with a Handheld Instrument** ..... 5587-5590  
*RoblesValdivieso, Cristina (Carnegie Mellon University); Becker, Brian\* (Carnegie Mellon University); Biswas, Joydeep (Carnegie Mellon University); Lobes, Louis A. (University of Pittsburgh Medical Center); Riviere, Cameron (Carnegie Mellon University)*

SaC14: 13:30-15:00 Marquette III  
**9.5.1 Medical Device Design and Human Factors** (Oral Session)  
**Chair:** Mary Beth Privitera, *University of Cincinnati*  
**Co-Chair:** Robert Hitchcock, *University of Utah*

13:30-13:45 SaC14.1  
**Medical Device Development** ..... 5591-5594  
*Panescu, Dorin\* (NewCardio, Inc.)*

13:45-14:00 SaC14.2  
**Interconnections of Basic Science Research and Product Development in Medical Device Design** ..... 5595-5598  
*Privitera, Mary Beth\* (University of Cincinnati)*

14:00-14:15 SaC14.3  
**Opportunity is Hidden in Plain Sight** ..... 5599-5601  
*Johnson, Royce\* (Kinetic Concepts, Inc.)*

14:15-14:30 SaC14.4  
**Towards Sustainable Design for Single-Use Medical Devices** ..... 5602-5605  
*Hanson, Jacob Joseph (University of Utah); Hitchcock, Robert\* (University of Utah)*

14:30-14:45 SaC14.5  
**Applied Ergonomics: Determining User Needs in Medical Device Design** ..... 5606-5608  
*Privitera, Mary Beth\* (University of Cincinnati)*

14:45-15:00 SaC14.6  
**Medical Device Design Process** ..... 5609-5612  
*Gilman, Byron\* (Galvani, Ltd.); Brewer, James (Galvani, Ltd.); Kroll, Mark (University of Minnesota)*

SaC15: 13:30-15:00 Marquette IX  
**10.5.3 Data Mining, Knowledge Discovery, Personalized Decision Support** (Oral Session)  
**Chair:** Dimitrios I. Fotiadis, *Univ. of Ioannina*  
**Co-Chair:** Ronald Summers, *Loughborough Univ.*

13:30-13:45 SaC15.1  
**Semantic Subgroup Discovery: Using Ontologies in Microarray Data Analysis** ..... 5613-5616  
*Lavrac, Nada\* (Jozef Stefan Institute); Kralj Novak, Petra (Jozef Stefan Institute); Mozetic, Igor (Jozef Stefan Institute); Podpecan, Vid (Jozef Stefan Institute); Motaln, Helena (National Institute of Biology); Petek, Marko (National Institute of Biology); Gruden, Kristina (National Institute of Biology)*

13:45-14:00 SaC15.2  
**Neighborhood Graph and Learning Discriminative Distance Functions for Clinical Decision Support** .... 5617-5620  
*Tsymbol, Alexey\* (Siemens AG); Huber, Martin (Siemens AG); Zhou, Shaohua Kevin (Siemens Corporate Research)*

14:00-14:15 SaC15.3  
**Innovation for Personalization: A Healthcare Case Study** ..... 5621-5624  
*Summers, Ronald\** (Loughborough University); *Hu, Sijung* (Loughborough University);  
*Echiadis, Angelos* (Loughborough University); *Azorin Peris, Vicente* (Loughborough University);  
*Chouliaras, Vassilios* (Loughborough University)

14:15-14:30 SaC15.4  
**A Semantically Aware Platform for the Authoring and Secure Enactment of  
Bioinformatics Workflows** ..... 5625-5628  
*Tsiknakis, Manolis\** (ICS-FORTH); *Sfakianakis, Stelios* (Foundation for Research and Technology Hellas);  
*Zacharioudakis, George* (Foundation for Research and Technology Hellas); *Koumakis, Lefteris* (Foundation for  
Research and TEchnology Hellas); *Kanterakis, Alexandros* (Foundation for Research and Technology Hellas);  
*Potamias, George* (Foundation for Research and Technology - Hellas); *Kafetzopoulos, Dimitris* (FORTH)

14:30-14:45 SaC15.5  
**Methods and Tools for Mining Multivariate Temporal Data in Clinical and Biomedical Applications** ..... 5629-5632  
*Bellazzi, Riccardo\** (University of Pavia); *Sacchi, Lucia* (University of Pavia);  
*Stefano, Concaro* (University of Pavia)

14:45-15:00 SaC15.6  
**Data Mining for Blood Glucose Prediction and Knowledge Discovery in Diabetic Patients:  
The METABO Diabetes Modeling and Management System** ..... 5633-5636  
*Georga, Eleni\** (University of Ioannina); *Protopappas, Vasilios* (University of Patras); *Guillen, Alejandra* (CRDM  
in Medtronic Spain); *Fico, Giuseppe* (Technical University of Madrid); *Ardigo, Diego* (University of Parma);  
*Arredondo, María Teresa* (Technical University of Madrid); *Exarchos, Themis P.* (Unit of Medical Tech &  
Intelligent Info); *Polyzos, Demosthenes* (University of Patras); *Fotiadis, Dimitrios I.* (University of Ioannina)

SaC17: 13:30-15:00 Directors Row 4  
**SS 6. Women in Biomedical Engineering and Health Informatics: Careers, Diversity and Trends**  
(Special Session)  
**Chair:** Carolyn McGregor, *Univ. of Ontario Inst. of Tech*  
**Co-Chair:** Monique Frize, *Carleton Univ.*

SaC18: 13:30-15:00 Marquette IV  
**2.7.1 Biomedical Image Analysis** (Oral Session)  
**Chair:** Ioannis Kakadiaris, *Univ. of Houston*  
**Co-Chair:** Shishir Shah, *Univ. of Houston*

13:30-13:45 SaC18.1  
**MRI-Guided Robotics at the U of Houston: Evolving Methodologies for Interventions and Surgeries** ..... 5637-5640  
*Tsekos, Nikolaos\** (University of Houston)

13:45-14:00 SaC18.2  
**Multidimensional AM-FM Models and Methods for Biomedical Image Computing** ..... 5641-5644  
*Pattichis, Marios\** (University of New Mexico,)

14:00-14:15 SaC18.3  
**Multispectral Microscopy and Cell Segmentation for Analysis of Thyroid Fine Needle Aspiration  
Cytology Smears** ..... 5645-5648  
*Shah, Shishir\** (University of Houston)

14:15-14:30 SaC18.4  
**Image-Guided Preparation of the Calot's Triangle in Laparoscopic Cholecystectomy** ..... 5649-5652  
*Akbari, Hamed\** (Tokyo Institute of Technology); *Kosugi, Yukio* (Tokyo Institute of Technology);  
*Khorgami, Zhamak* (Tehran University of Medical Sciences)

14:30-14:45 SaC18.5  
**An Experimental Evaluation of Diffusion Tensor Image Segmentation Using Graph-Cuts** ..... 5653-5656  
*Han, Deok\** (University of Wisconsin-Madison)

**1.5.3 Principal Component Analysis** (Poster Session)

- 15:00-16:40 SaDPo01.1  
**3D Point Correspondence by Minimum Description Length with 2DPCA** ..... 5657-5660  
*Chen, Jiun-Hung\* (University of Washington); Shapiro, Linda G. (University of Washington)*
- 15:00-16:40 SaDPo01.2  
**Characterisation of Arteriovenous Fistula's Sound Recordings Using Principal Component Analysis ....** 5661-5664  
*Munguia M., Marco\* (National University of Engineering); Vásquez, Pablo (Lunds University); Mandersson, Bengt (Lund University)*
- 15:00-16:40 SaDPo01.3  
**TFR-Based Feature Extraction Using PCA Approaches for Iscrimination of Heart Murmurs** ..... 5665-5668  
*Avendaño-Valencia, Luis David (Universidad Nacional de Colombia); Martínez-Tabares, Fernando (Universidad Nacional de Colombia, Sede Manizales); Acosta-Medina, Carlos Daniel (Universidad Nacional de Colombia); Godino-Llorente, Juan Ignacio (Universidad Politécnica de Madrid); Castellanos-Dominguez, Germán\* (Universidad Nacional de Colombia)*
- 15:00-16:40 SaDPo01.4  
**Fast PCA Via UTV Decomposition and Application on EEG Analysis** ..... 5669-5672  
*Wongsawat, Yodchanan\* (Mahidol University)*
- 15:00-16:40 SaDPo01.5  
**Assessment of the Effects of Subthalamic Stimulation in Parkinson Disease Patients by Artificial Neural Network** ..... 5673-5676  
*Muniz, Adriane Mara de Souza (Federal University of Rio de Janeiro); Liu, Wen (University of Kansas Medical Center); Liu, Hongzeng (University of Missouri-Kansas City); Lyons, Kelly E. (University of Kansas Medical Center); Pahwa, Rajesh (University of Kansas Medical Center); Nobre, Flavio Fonseca (Federal University of Rio de Janeiro); Nadal, Jurandir\* (Federal University of Rio de Janeiro)*
- 15:00-16:40 SaDPo01.6  
**Performance Evaluation of a Three-axial Accelerometry-based Respiration Monitoring for Ambient Assisted Living** ..... 5677-5680  
*Jin, Anmin (Eindhoven University of Technology); Yin, Bin (Philips Research); Morren, Geert (Philips); Duric, Haris\* (Philips Research); Aarts, Ronald M. (Philips)*

**1.6.2 Biomedical Adaptive Filtering II** (Poster Session)

- 15:00-16:40 SaDPo02.1  
**Real-Time Estimation of the ECG-Derived Respiration (EDR) Signal Using a New Algorithm for Baseline Wander Noise Removal** ..... 5681-5684  
*Poigai Arunachalam, Shivaram\* (South Dakota State University); Brown, Lewis (South Dakota State University)*
- 15:00-16:40 SaDPo02.2  
**Detection of Respiratory Rhythm from Photoplethysmographic Signal by Adaptive Morphological Filter** ..... 5685-5688  
*Li, Jin\* (Xi'an Jiaotong University); Jin, Jie (Xi'an Jiaotong University); Sun, Weixin (Xi'an Jiaotong University)*
- 15:00-16:40 SaDPo02.3  
**Automated Beat Onset and Peak Detection Algorithm for Field-Collected Photoplethysmograms** ..... 5689-5692  
*Chen, Liangyou\* (US Army Med Research & Matl Cmd); Reisner, Andrew (Massachusetts General Hospital); Reifman, Jaques (U.S. Army Medical Research)*
- 15:00-16:40 SaDPo02.4  
**Adjustment of Adaptive Sum Comb Filter for PPG Signals** ..... 5693-5696  
*Pilt, Kristjan\* (Technical University of Tallinn); Meigas, Kalju (Tallinn University of Technology); Ferenets, Rain (Tallinn University of Technology); Kaik, Jüri (Tallinn University of Technology)*



15:00-16:40	SaDPo02.5
<b>Detecting Regional Lung Properties Using Audio Transfer Functions of the Respiratory System</b> .....	<b>5697-5700</b>
<i>Mulligan, Kyle* (Carleton University); Adler, Andy (Carleton University); Goubran, Rafik A. (Carleton University)</i>	
15:00-16:40	SaDPo02.6
<b>Using A-Weighting for Psychoacoustic Active Noise Control</b> .....	<b>5701-5704</b>
<i>Bao, Hua* (University of Texas at Dallas); Panahi, Issa (University of Texas at Dallas)</i>	
15:00-16:40	SaDPo02.7
<b>Bayesian Auxiliary Particle Filters for Estimating Neural Tuning Parameters</b> .....	<b>5705-5708</b>
<i>Mountney, John* (Temple University); Sobel, Marcus (Temple University); Obeid, Iyad (Temple University)</i>	
15:00-16:40	SaDPo02.8
<b>Kalman Smoother Based Time-Varying Spectrum Estimation of EEG During Single Agent Propofol Anesthesia</b> .....	<b>5709-5712</b>
<i>Georgiadis, Stefanos (University of Kuopio); Tarvainen, Mika* (University of Kuopio); Kaskinoro, Kimmo (Turku University Hospital); Maksimow, Anu (Turku University Hospital); Kärki, Tarmo (Turku University Hospital); Jääskeläinen, Satu (Turku University Hospital); Scheinin, Harry (Turku University Hospital); Karjalainen, A (University of Kuopio)</i>	
15:00-16:40	SaDPo02.9
<b>Pulse Pressure Variation Estimation Using a Sequential Monte Carlo Method</b> .....	<b>5713-5716</b>
<i>Kim, Sunghan* (Portland State University); Aboy, Mateo (Oregon Institute of Technology); McNames, James (Portland State University)</i>	
15:00-16:40	SaDPo02.10
<b>Adaptive Signal Processing Algorithm for Remote Detection of Heart Rate (HR) Using Ultra-Wideband Waveforms Based on Principal Component Analysis</b> .....	<b>5717-5720</b>
<i>Sharifahmadian, Ershad* (Tehran University); Ahmadian, Alireza (Tehran University of Medical Sciences)</i>	

SaDPo03: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>2.6.2 Biomedical Image Reconstruction and Visualization (Poster Session)</b>	

15:00-16:40	SaDPo03.1
<b>Iterative Image Reconstruction Model Including Susceptibility Gradients Combined with Z-Shimming Gradients in Fmri</b> .....	<b>5721-5724</b>
<i>Zhuo, Yue* (University of Illinois at Urbana-Champaign); Sutton, Bradley P. (University of Illinois at Urbana-Champaign)</i>	
15:00-16:40	SaDPo03.2
<b>A Fast Wavefront Reconstruction Method for Breast Microwave Imaging.</b> .....	<b>5725-5728</b>
<i>Flores-Tapia, Daniel* (CancerCare Manitoba); Thomas, Gabriel (University of Manitoba); Pistorius, Stephen (CancerCare Manitoba / University of Manitoba)</i>	
15:00-16:40	SaDPo03.3
<b>Evaluation of a 4D Cone-Beam CT Reconstruction Approach Using a Simulation Framework</b> .....	<b>5729-5732</b>
<i>Hartl, Alexander (Technische Universität München); Yaniv, Ziv* (Georgetown University)</i>	
15:00-16:40	SaDPo03.4
<b>Simultaneous reconstruction and registration algorithm for limited view transmission tomography using a multiple cluster approximation to the joint histogram with an anatomical prior</b> .....	<b>5733-5736</b>
<i>Van de Sompel, Dominique* (University of Oxford); Brady, Michael (University of Oxford)</i>	
15:00-16:40	SaDPo03.5
<b>Generalized Gibbs Priors Based Positron Emission Tomography Reconstruction</b> .....	<b>5737-5740</b>
<i>Ma, Jianhua* (Southern Medical University); Chen, Wufan (Southern Medical University); Huang, Jing (Southern Medical University)</i>	

15:00-16:40 SaDPo03.6  
**Three-Dimensional High-Resolution Optical Coherence Tomography (OCT) Imaging of Human Kidney** ..... 5741-5743  
*Li, Qian\* (University of Maryland); Chen, Yu (University of Maryland); Onozato, Maristela (Georgetown University); Paek, Andrew (University of Maryland, College Park); Duttaroy, Anik (University of Maryland); Jiang, James (Thorlabs); Shirmohammadi, Bobak (University of Maryland: College Park)*

15:00-16:40 SaDPo03.7  
**Stereo 3D Mouse (S3D-Mouse): Measuring Ground Truth for Medical Data in a Virtual 3D Space** ..... 5744-5747  
*Azari, Hossein (University of Alberta); Cheng, Irene (University of Alberta); Basu, Anup\* (University of Alberta)*

15:00-16:40 SaDPo03.8  
**Stereo Endoscopy As a 3-D Measurement Tool** ..... 5748-5751  
*Field, Matthew\* (University of Kentucky); Clarke, Duncan (Fremont Associates, LLC); Strup, Stephen (University of Kentucky); Seales, William Brent (University of Kentucky)*

SaDPo04: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**2.7.7 Image Registration, Segmentation and Fusion (Poster Session)**

15:00-16:40 SaDPo04.1  
**MRI Segmentation Using Dialectical Optimization** ..... 5752-5755  
*dos Santos, Wellington\* (Universidade de Pernambuco); de Assis, Francisco Marcos (Universidade Federal de Campina Grande); Souza, Ricardo (Universidade Federal de Pernambuco)*

15:00-16:40 SaDPo04.2  
**Glottal Space Segmentation from Motion Estimation and Gabor Filtering** ..... 5756-5759  
*Méndez, Amaia\* (University of deusto); Ismaili Alaoui, E.M. (Faculty of Sciences University Mohamed V Rabat Agdal Morocco & with National Institute of Post and Telecommunications Rabat-Moro); García, Begoña (University of deusto); Ibn-Elhaj, Elhassane (National Institute of Post and Telecommunications); Ruiz, Ibon (University of deusto)*

15:00-16:40 SaDPo04.3  
**Mass Auto-Detection in Mammogram Based on Wavelet Transform Modulus Maximum** ..... 5760-5763  
*Ke, Li\* (Shenyang University of Technology); He, Wei (Shenyang University of Technology); Kang, Yan (Northeastern University)*

15:00-16:40 SaDPo04.4  
**A Method for Morphological Characterization of Dural Ectasia in Marfan Syndrome** ..... 5764-5767  
*Iacono, Maria Ida\* (Politecnico di Milano); Passera, Katia (Politecnico di Milano); Magrassi, Lorenzo (Fondazione IRCCS Policlinico S. Matteo); Dore, Roberto (Fondazione IRCCS Policlinico S. Matteo); Lago, Paolo (Fondazione IRCCS Policlinico S. Matteo); Arbustini, Eloisa (Fondazione IRCCS Policlinico San Matteo); Mainardi, Luca (Politecnico di Milano)*

15:00-16:40 SaDPo04.5  
**Quantifying the astrocytoma cell response to candidate pharmaceutical from F-ACTIN image analysis** ..... 5768-5771  
*Cui, Chi\* (University of Maryland, College Park); JaJa, Joseph (University of Maryland, College Park); Turbyville, Thomas (SAIC-Frederick); Beutler, John (National Cancer Institute); Lockett, Stephen (SAIC-Frederick)*

15:00-16:40 SaDPo04.6  
**Serial Reconstruction and Montaging from Large-Field Electron Microscope Tomograms** ..... 5772-5776  
*Phan, Sebastien\* (UCSD); Terada, Masako (UCSD); Lawrence, Albert F. (UCSD)*

15:00-16:40 SaDPo04.7  
**Intelligent Fusion of Cup-To-Disc Ratio Determination Methods for Glaucoma Detection in ARGALI** ..... 5777-5780  
*Wong, Damon\* (Institute for Infocomm Research); Liu, Jiang (Inst for Infocomm Resrch, A STAR); Lim, Joo Hwee (Institute for Infocomm Research); Tan, Ngan Meng (A\*STAR, Institute for Infocomm Research); Zhang, Zhuo (A\*STAR); Lu, Shijian (Inst for Infocomm Research, A STAR); Li, Huiqi (Institute for Infocomm Research); Teo, Meng Hwee (Nanyang Technological University); Chan, Kap Luk (Nanyang Technological University); Wong, Tien Yin (National University of Singapore)*

- 15:00-16:40 SaDPo04.8  
**Shape-Aided Kidney Extraction in MR Urography** ..... **5781-5784**  
*Yang, Tang\** (University of Southern California, childrens hospital los angeles); *Hollie, Jackson* (University of Southern California and Keck School of Medicine, childrens hospital los angeles); *susan, lee* (University of Southern California and Keck School of Medicine, childrens hospital los angeles); *Nelson, Marvin* (University of Southern California and Keck School of Medicine, childrens hospital los angeles); *moats, rex* (University of Southern California and Keck School of Medicine, childrens hospital los angeles)
- 15:00-16:40 SaDPo04.9  
**Quantitative Comparison of Segmentation Methods for In-Body Images** ..... **5785-5788**  
*Riaz, Farhan\** (Universidade do Porto); *Coimbra, Miguel* (Instituto de Telecomunicações / Universidade do Porto); *Ribeiro, Mario Dinis* (Universidade do Porto)
- 15:00-16:40 SaDPo04.10  
**Variability in Human and Automatic Segmentation of Melanocytic Lesions** ..... **5789-5792**  
*Silletti, Alberto\** (University of Padova); *Peserico, Enoch* (University of Padova); *Mantovan, Alessandra* (University of Padova); *Zattra, Edoardo* (University of Padova); *Peserico, Andrea* (University of Padova); *Belloni Fortina, Anna* (University of Padova)
- 15:00-16:40 SaDPo04.11  
**Non-Rigid Image Registration Using Local Histogram-Based Features** ..... **5793-5796**  
*luo, yishan\** (the hong kong university of science and technology);  
*Chung, Albert C. S.* (The Hong Kong Univ of Sci & Tech)
- 15:00-16:40 SaDPo04.12  
**Multi-Structure Whole Brain Registration and Population Average** ..... **5797-5800**  
*Khan, Ali R.\** (Simon Fraser University); *Beg, Mirza Faisal* (Simon Fraser University)
- 15:00-16:40 SaDPo04.13  
**Multi-Image Registration for Evaluating the 99mTc-TRODAT-1 of Parkinson's Rat Model** ..... **5801-5804**  
*Lee, Jiann-Der\** (Chang Gung University)
- 15:00-16:40 SaDPo04.14  
**Automated PET/CT Brain Registration for Accurate Attenuation Correction** ..... **5805-5808**  
*Khurshid, Khawar\** (Michigan State University); *McGough, Robert* (Michigan State University);  
*Berger, Kevin* (Michigan State University)
- 15:00-16:40 SaDPo04.15  
**Estimation of Anatomical Locations Using Standard Frame of Reference in Chest CT Scans** ..... **5809-5812**  
*Lee, Jaesung* (Cornell University); *Biancardi, Alberto* (Cornell University); *Reeves, Anthony\** (Cornell University);  
*Yankelevitz, David* (Weill Cornell Medical College); *Henschke, Claudia* (Weill Cornell Medical College)
- 15:00-16:40 SaDPo04.16  
**Medical Image Fusion Scheme Using Complex Contourlet Transform Based on PCA** ..... **5813-5816**  
*Al-Azzawi, Nemir* (Universiti sains Malaysia); *Mat Sakim, Harsa Amylia\** (University Sains Malaysia);  
*Wan Abdullah, Wan Ahmad Kamil* (Universiti Sains Malaysia); *Ibrahim, Haidi* (Universiti Sains Malaysia)
- 15:00-16:40 SaDPo04.17  
**An Anatomical Mouse Model for Multimodal Molecular Imaging** ..... **5817-5820**  
*Zhang, Xing* (Institute of Automation, Chinese Academy of Sciences); *Tian, Jie\** (Chinese Academy of Sciences); *Feng, Jinchao* (Beijing University of Technology); *Zhu, Shouping* (Institute of Automation, Chinese Academy of Sciences); *Yan, Guorui* (Chinese Academy of Science)
- 15:00-16:40 SaDPo04.18  
**A New Multi-Modal Similarity Measure for Fast Gradient-Based 2D-3D Image Registration** ..... **5821-5824**  
*Pickering, Mark\** (The University of New South Wales); *Abdullah Al, Muhit* (The University of New South Wales); *Scarvell, Jennie* (The Canberra Hospital); *Smith, Paul* (The Canberra Hospital)
- 15:00-16:40 SaDPo04.19  
**Parallel Registration of Multi-Modal Medical Image Triples Having Unknown Inter-Image Geometry** ..... **5825-5828**  
*Papp, Laszlo\** (Research Unit of Medical Image Processing); *Zsoter, Norbert* (Mediso Medical Imaging Systems);  
*Szabo, Gergely* (Mediso Medical Imaging Systems); *Bejan, Csaba* (Mediso Medical Imaging Systems);  
*Szimjanovszki, Emil* (Mediso Medical Imaging Systems); *Henze, Eberhard* (UK-SH Campus Kiel, Germany)

15:00-16:40 SaDPo04.20  
**Evaluation of a Robotic Arm for Echocardiography to X-Ray Image Registration During Cardiac Catheterization Procedures** ..... **5829-5832**  
*Ma, YingLiang\* (King's College London); Penney, Graeme P. (King's College London); Bos, Dennis (Philips Applied Technologies); Frissen, Peter (Philips Applied Technologies); Fockert, George (Philips Applied Technologies); King, Andy (King's College London); Gang, Gao (University College London); Yao, Cheng (King's College London); Totman, John (King's College London); Ginks, Matthew (King's College London); Rinaldi, Aldo (King's College London); Razavi, Reza (King's College London); Rhode, Kawal (King's College London)*

15:00-16:40 SaDPo04.21  
**Imaging of Forearm-Muscle Activities by CP-MCT and TR-DOT** ..... **5833-5837**  
*Miyakawa, Michio (Niigata University); Nagai, Daisuke\* (Graduate School of Science & Technology, Niigata University)*

15:00-16:40 SaDPo04.22  
**PCA vs. Tensor-Based Dimension Reduction Methods: An Empirical Comparison on Active Shape Models of Organs** ..... **5838-5841**  
*Chen, Jiun-Hung\* (University of Washington); Shapiro, Linda G. (University of Washington)*

SaDPo05: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>11.2.2 Instruction and Learning</b> (Poster Session)	

15:00-16:40 SaDPo05.1  
**Interactive Computer Program for Learning Genetic Principles of Segregation and Independent Assortment through Meiosis** ..... **5842-5845**  
*Yang, Xiaoli\* (Purdue University Calumet); Ge, Rong (Purdue University Calumet); Yang, yufei (Purdue University Calumet); shen, hao (Purdue University Calumet); Li, YingJie (Shanghai University); Tseng, Charles (Purdue University Calumet)*

15:00-16:40 SaDPo05.2  
**Biomedical Learning Experiences for Middle School Girls Sponsored by the Kansas State University Student Chapter of the IEEE EMBS** ..... **5846-5849**  
*Gruber, Lucinda (Kansas State University); Griffith, Connor (Kansas State University); Young, Ethan (Kansas State University); Sullivan, Adriann (Kansas State University); Schuler, Jeff (Kansas State University); Arnold Christian, Susan (Kansas State University); Warren, Steve\* (Kansas State University)*

15:00-16:40 SaDPo05.3  
**Hands-On Curriculum Teaches Biomedical Engineering Concepts to Home Schooled Students** ..... **5850-5853**  
*Sagstetter, Ann\* (University of Wisconsin-Madison); Nimunkar, Amit (University of Wisconsin-Madison); Tompkins, Willis J. (University of Wisconsin - Madison)*

15:00-16:40 SaDPo05.4  
**Evaluation of Medical Gestures Based on a Global Performance Index** ..... **5854-5857**  
*Moreau, Richard\* (INSA-Lyon); Ochoa, Victor (University of Alberta); Pham, Minh Tu (Institut National des Sciences Appliquées (INSA de Lyon)); Boulanger, Pierre (University of Alberta); Dupuis, Olivier (Hospices Civils de Lyon)*

15:00-16:40 SaDPo05.5  
**A Collaborative Biomedical Engineering Undergraduate Work: An Automatic System for Blood Glucose Regulation** ..... **5858-5861**  
*Minas, Graca\* (University of Minho); Soares, Filomena (University of Minho)*

15:00-16:40 SaDPo05.6  
**Recent Developments in Biomedical Engineering Education and Research in Brazil** ..... **5862-5865**  
*Gehlot, Narpal Singh\* (Faculdade de Ciências e Tecnologia - Facitech)*

SaDPo06: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>3.8.2 Advances in Sensing Technology</b> (Poster Session)	

15:00-16:40 SaDPo06.1  
**Towards Circuit Integration on Fully Flexible Parylene Substrates** ..... **5866-5869**  
*Wang, Ke\* (Philips Research); van Deurzen, Marice (Philips Research); Kooyman, Nico (Philips Research); Decré, Michel (Philips Research)*

15:00-16:40 SaDPo06.2  
**Three Dimensional Electrochemical System for Neurobiological Studies** ..... 5870-5874  
*Vazquez, Patricia\** (Technical University of Denmark); *Dimaki, Maria* (Technical University of Denmark);  
*Svendson, Winnie* (Technical University of Denmark)

15:00-16:40 SaDPo06.3  
**Hafnium Transistor Process Design for Neural Interfacing** ..... 5875-5878  
*Parent, David\** (San Jose State University); *Basham, Eric* (University of California, Santa Cruz)

15:00-16:40 SaDPo06.4  
**Biological Microdevice with Fluidic Acoustic Streaming for Measuring Uric Acid in Human Saliva** ..... 5879-5882  
*Cardoso, Vanessa\** (University of Minho); *Catarino, Susana* (University of Minho);  
*Martins, Pedro* (University of Minho); *Reboute, Luis* (University of Minho);  
*Lanceros-Méndez, Senentxu* (University of Minho); *Minas, Graca* (University of Minho)

15:00-16:40 SaDPo06.5  
**High Frequency Optoacoustic Microscopy** ..... 5883-5886  
*Bost, Wolfgang* (Fraunhofer Institute for Biomedical Engineering); *Stracke, Frank* (Fraunhofer Institute for  
Biomedical Engineering); *Weiß, Eike* (Kibero GmbH); *Narasimhan, Sankar* (Ryerson University);  
*Kolios, Michael\** (Ryerson University); *Lemor, R* (Fraunhofer Institute)

15:00-16:40 SaDPo06.6  
**A Multimodal Sensing Device for Fluorescence Imaging and Electrical Potential Measurement of  
Neural Activities in a Mouse Deep Brain** ..... 5887-5890  
*Ohta, Jun\** (Nara Institute of Science and Technology); *Tagawa, Ayato* (Nara Institute of Science and  
Technology); *Minami, Hiroki* (Nara Institute of Science and Technology); *Noda, Toshihiko* (Nara Institute of  
Science and Technology); *Sasagawa, Kiyotaka*] (Nara Institute of Science and Technology); *Tokuda, Takashi*  
(Nara Inst of Science & Technology); *Hatanaka, Yumiko* (Nara Institute of Science and Technology);  
*Ishikawa, Yasuyuki* (Nara Institute of Science and Technology); *Tamura, Hideki* (Nara Institute of Science and  
Technology); *Shiosaka, Sadao* (Nara Institute of Science and Technology)

15:00-16:40 SaDPo06.7  
**Optical Measurement of Blood Hematocrit on Medical Tubing with Dual Wavelength and  
Detector Model** ..... 5891-5896  
*Oshima, Shiori\** (University of Tsukuba); *Sankai, Yoshiyuki* (University of Tsukuba)

SaDPo07: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**4.6.2 Biomedical Data Management and Tools for Bioinformatics** (Poster Session)

15:00-16:40 SaDPo07.1  
**Cardiac Electrophysiology Numerical Models Using Symmetric Multiprocessing (SMP)** ..... 5897-5900  
*Petsios, Stefanos - Konstantinos* (University); *Fotiadis, Dimitrios I.\** (University of Ioannina)

15:00-16:40 SaDPo07.2  
**State Estimation of Walking Phase and Functional Electrical Stimulation by Wearable Device** ..... 5901-5904  
*Obinata, Goro* (Nagoya University); *Ogisu, Takuma* (Nagoya University); *Hase, Kazunori* (Nagoya University);  
*Kim, Youngwoo\** (Nagoya University); *Genda, Eiichi* (Rosai Rehabilitation Engineering Center)

15:00-16:40 SaDPo07.3  
**Automatic Segmentation of Clinical Texts** ..... 5905-5908  
*Apostolova, Emilia\** (DePaul University); *Channin, David Samuel* (Northwestern University);  
*Demner-Fushman, Dina* (National Library of Medicine); *Furst, Jacob D.* (DePaul University);  
*Lytinen, Steven* (DePaul University); *Raicu, Daniela S.* (DePaul University)

15:00-16:40 SaDPo07.4  
**A List-Based Method for Fast Generation of Molecular Surfaces** ..... 5909-5912  
*Yu, Zeyun\** (University of Wisconsin-Milwaukee)

15:00-16:40 SaDPo07.5  
**Development of a Kernel Function for Clinical Data** ..... 5913-5917  
*Daemen, Anneleen\** (Katholieke Universiteit Leuven); *De Moor, Bart* (Katholieke Universiteit Leuven)

15:00-16:40 SaDPo07.6  
**Combining Sea Urchin Embryo Cell Lineages by Error-Tolerant Graph Matching** ..... **5918-5921**  
*Rubio-Guivernau, Jose Luis\* (Universidad Politécnic de Madrid); Luengo-Oroz, Miguel Angel (Universidad Politécnic de Madrid); Duloquin, Louise (CNRS); Savy, Thierry (Ecole Polytechnique); Peyrieras, Nadine (CNRS); Bourgine, Paul (Ecole Polytechnique); Santos, Andres (Universidad Politecnica Madrid)*

SaDPo08: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**6.8.2 Learning and Adaption in Neuromuscular Systems (Poster Session)**

15:00-16:40 SaDPo08.1  
**Multiple Interactions between Hemispheres of the Brain Modulating Coupling of Bilateral Movements** ..... **5922-5925**  
*Sakurada, Takeshi\* (Tokyo Institute of Technology); Gomi, Hiroaki (Nippon Telegraph and Telephone); Ito, Koji (Tokyo Institute of Technology)*

15:00-16:40 SaDPo08.2  
**Influence of Motor Imagery on Learning under Complex External Dynamics** ..... **5926-5929**  
*Anwar, Muhammad Nabeel\* (Tokyo Institute of Technology); Tomi, Naoki (Tokyo Institute of Technology); Ito, Koji (Tokyo Institute of Technology)*

15:00-16:40 SaDPo08.3  
**Brain Biomarkers of Motor Adaptation Using Phase Synchronization** ..... **5930-5933**  
*Gentili, Rodolphe (University of Maryland); Bradberry, Trent\* (University of Maryland); Hatfield, Bradley (University of Maryland); Contreras-Vidal, José (University of Maryland)*

15:00-16:40 SaDPo08.4  
**Reach to Grasp Kinematics and EMG Analysis of C6 Quadriplegic Subjects** ..... **5934-5937**  
*Jacquier-Bret, Julien\* (Université du Sud - Toulon - Var); Rezzoug, Nasser (Université du Sud Toulon-Var); Vallier, Jean-Marc (Université du Sud Toulon Var); Tournebise, Hubert (Hopital Renée Sabran); Gorce, Philippe (Université du Sud Toulon Var)*

15:00-16:40 SaDPo08.5  
**Effects of Environmental Instabilities on Endpoint Stiffness During the Maintenance of Human Arm Posture** ..... **5938-5941**  
*Krutky, Matthew (Northwestern University); Trumbower, Randy (Northwestern University); Perreault, Eric\* (Northwestern University)*

SaDPo09: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**6.9.1 Neural Trauma and Regeneration (Poster Session)**

15:00-16:40 SaDPo09.1  
**Developmental Effects of Low Frequency Magnetic Fields on P19-Derived Neuronal Cells** ..... **5942-5945**  
*Saito, Atsushi\* (University of Tokyo); Takayama, Yuzo (University of Tokyo); Moriguchi, Hiroyuki (University of Tokyo); Kotani, Kiyoshi (University of Tokyo); Jimbo, Yasuhiko (University of Tokyo)*

15:00-16:40 SaDPo09.2  
**Neural Signals in Cortex and Thalamus During Brain Injury from Cardiac Arrest in Rats** ..... **5946-5949**  
*Zhang, Dandan (Tsinghua University); Choi, Young-Seok\* (Johns Hopkins University School of medicine); Madhok, Jai (Johns Hopkins School of Medicine); Jia, Xiaofeng (Johns Hopkins School of Medicine); Koenig, Matthew (Johns Hopkins School of Medicine); Thakor, Nitish (Johns Hopkins University)*

15:00-16:40 SaDPo09.3  
**Microfluidic in Vivo Screen Identifies Compounds Enhancing Neural Regeneration** ..... **5950-5952**  
*Rohde, Christopher\* (Massachusetts Institute of Technology); Gilleland, Cody (Massachusetts Institute of Technology); Samara, Chrysanthi (MIT); Yanik, Mehmet Fatih (MIT)*

15:00-16:40 SaDPo09.4  
**Neural Signal Sensing, Transmission and Functional Regeneration on Different Toads' Bodies** ..... **5953-5956**  
*SHEN, Xiaoyan (Southeast University); Wang, Zhigong\* (Southeast University); Lü, Xiaoying (Southeast University); Jiang, Zhenglin (Nantong University); Li, Wenyuan (Southeast University); ZHAO, Xintai (Southeast University); HUANG, Zonghao (Southeast University)*

**6.10.3 Robotics in Rehabilitation II** (Poster Session)

- 15:00-16:40 SaDPo10.1  
**Design of an Exoskeleton for Index Finger Rehabilitation** ..... **5957-5960**  
*Wang, Ju\* (Beihang University); Li, Jiting (Beihang University); Zhang, Yuru (Beihang University); Wang, Shuang (Beihang University)*
- 15:00-16:40 SaDPo10.2  
**Training Stroke Patients with Continuous Tracking Movements: Evaluating the Improvement of Voluntary Control** ..... **5961-5964**  
*casadio, maura (Northwestern University); Giannoni, Psiche (ART Education and Rehabilitation Department srl); Morasso, Pietro\* (University of Genova); Sanguineti, Vittorio (University of Genoa); Squeri, Valentina (University of Genova); Vergaro, Elena (University of Genoa)*
- 15:00-16:40 SaDPo10.3  
**Development and Feasibility Study of a Sensory-Enhanced Robot-Aided Motor Training in Stroke Rehabilitation** ..... **5965-5968**  
*Liu, Wen\* (University of Kansas Medical Center)*
- 15:00-16:40 SaDPo10.4  
**Development of a Skin for Intuitive Interaction with an Assistive Robot** ..... **5969-5972**  
*Markham, Heather\* (University of Pittsburgh); Brewer, Bambi (Univ of Pittsburgh)*
- 15:00-16:40 SaDPo10.5  
**Development of an Interactive Upper Extremity Gestural Robotic Feedback System: From Bench to Reality** ..... **5973-5976**  
*Coleman Wood, Krista\* (Mayo Clinic Rochester); Lathan, Corinna (AnthroTronix, Inc.); Kaufman, Kenton (Mayo Clinic)*
- 15:00-16:40 SaDPo10.6  
**Kinematic Walking Analysis on a New Vehicle "Tread-Walk" with Active Velocity Control of Treadmill Belt** ..... **5977-5980**  
*Ando, Takeshi\* (Waseda University); Nihei, Misato (University of Tokyo); Ohki, Eiichi (Waseda University); Nakashima, YASUTAKA (Waseda University); Kobayashi, Yo (Waseda University); Fujie, Masakatsu G. (Waseda University)*
- 15:00-16:40 SaDPo10.7  
**A Clinical Study of Motor Imagery Brain-Computer Interface-Based Upper Limb Robotic Rehabilitation for Stroke** ..... **5981-5984**  
*Ang, Kai Keng\* (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Chua, Karen Sui Geok (Tan Tock Seng Hospital Rehabilitation Centre); Ang, Beng Ti (National Neuroscience Institute); Kuah, Christopher Wee Keong (Tan Tock Seng Hospital Rehabilitation Centre); Wang, Chuanchu (Institute for Infocomm Research); Phua, Koksoon (Institute for Infocomm Research); Chin, Zheng Yang (Institute for Infocomm Research, Agency for Science Technology and Research); Zhang, Haihong (Institute for Infocomm Research)*

**7.2.2 Cellular and Tissue Engineering, and Biomaterials** (Poster Session)

- 15:00-16:40 SaDPo11.1  
**Engineering Analysis and Development of the Spheroid Reservoir Bioartificial Liver** ..... **5985-5988**  
*McIntosh, Malcolm\* (Mayo Clinic); Corner, Stephen (Mayo Clinic); Amiot, Bruce (Brami Biomedical, Inc.); Nyberg, Scott (Mayo Clinic)*
- 15:00-16:40 SaDPo11.2  
**Modeling Bimodal Vessel Effects on Radio and Microwave Frequency Ablation Zones** ..... **5989-5992**  
*Brannan, Joseph\* (Covidien, Energy-based Devices); Ladtkow, Casey (Covidien, Energy-based Devices)*
- 15:00-16:40 SaDPo11.3  
**Ensemble Stimulation of Embryoid Bodies Using Microfabricated ITO Substrates** ..... **5993-5996**  
*Takayama, Yuzo\* (University of Tokyo); Moriguchi, Hiroyuki (University of Tokyo); Saito, Atsushi (University of Tokyo); Kotani, Kiyoshi (University of Tokyo); Jimbo, Yasuhiko (University of Tokyo)*

- 15:00-16:40 SaDPo11.4  
**Theoretical Study for the Treatment of Pancreatic Cancer Using Electric Pulses** ..... 5997-6000  
*Arena, Christopher\* (Virginia Tech); Rylander, Marissa Nichole (Virginia Tech - Wake Forest University); Davalos, Rafael (Virginia Tech)*
- 15:00-16:40 SaDPo11.5  
**Design and Implementation of a Two-Dimensional Inkjet Bioprinter** ..... 6001-6005  
*Pepper, Matthew\* (Clemson University); Parzel, Cheryl (Clemson University); Burg, Timothy (Clemson University); Boland, Thomas (Clemson University); Burg, Karen (Clemson University); Groff, Richard E (Clemson University)*
- 15:00-16:40 SaDPo11.6  
**Effect of the Coating Morphology on the Drug Release from Engineered Drug-Polymer Nanocomposites** ..... 6006-6009  
*Dong, Jinping\* (University of Minnesota); Frethem, Chris (University of Minnesota); Haugstad, Greg (University of Minnesota); Hoerr, Robert (Nanocopoeia, Inc.); Foley, John (Nanocopoeia, Inc); Matuszewski, Michael (Nanocopoeia, Inc); Puskas, Judit (The University of Akron)*
- 15:00-16:40 SaDPo11.7  
**In Vivo Characterization of Skin Using a Weiner Nonlinear Stochastic System Identification Method** ..... 6010-6013  
*Chen, Yi\* (MIT); Hunter, Ian (Massachusetts Institute of Technology)*
- 15:00-16:40 SaDPo11.8  
**Modeling Conduction in Host-Graft Interactions between Stem Cell Grafts and Cardiomyocytes** ..... 6014-6017  
*Chen, Michael Q.\* (Stanford University); Yu, Jin (Stanford University); Whittington, R. Hollis (Micro Systems Engineering); Wu, Joseph (Stanford University); Kovacs, Gregory T.A. (Stanford University); Giovangrandi, Laurent (Stanford University)*
- 15:00-16:40 SaDPo11.9  
**In Vitro Adhesion Measurements between Skin and Micropatterned Poly(dimethylsiloxane) Surfaces** .... 6018-6021  
*De Souza, Emerson Jose\* (INM Leibniz Institute for New Materials); Kamperman, Marleen (INM Leibniz Institute for New Materials); Castellanos, Graciela (INM Leibniz-Institute for New Materials); Kroner, Elmar (INM Leibniz-Institute for New Materials); Armbrüster, Vivienne (Klinik und Poliklinik für HNO, Universität des Saarlandes); Romann, Marie-Sophie (Klinik und Poliklinik für HNO, Universität des Saarlandes); Schick, Bernhard (Klinik und Poliklinik für HNO, Universität des Saarlandes); Arzt, Eduard (INM Leibniz Institute for New Materials)*
- 15:00-16:40 SaDPo11.10  
**Differentiation of Pluripotent Stem Cells on Multiwalled Carbon Nanotubes** ..... 6022-6025  
*Holy, Jon (University of Minnesota School of Medicine-Duluth); Perkins, Edward (Mercer University School of Medicine, Savannah Campus); Yu, Xun\* (University of Minnesota Duluth)*
- 15:00-16:40 SaDPo11.11  
**Embedding Evolutionary Game Theory into an Optimal Control Framework for Drug Dosage Design** ..... 6026-6029  
*Bewick, Sharon (The University of Tennessee, Knoxville); Yang, Ruoting (The University of Tennessee); Zhang, Mingjun\* (The University of Tennessee)*
- 15:00-16:40 SaDPo11.12  
**Cell Proliferation Following Non-Thermal Plasma Is Related to Reactive Oxygen Species Induced Fibroblast Growth Factor-2 Release.** ..... 6030-6033  
*Kalghatgi, Sameer (Drexel University); Friedman, Gennady (Drexel University); Fridman, Alexander (Drexel University); Morss Clyne, Alisa\* (Drexel University)*
- 15:00-16:40 SaDPo11.13  
**Fabrication of Microfluidic System for the Assessment of Cell Migration on 3D Micropatterned Substrates** ..... 6034-6037  
*Lee, Eun-Joong (College of Health Science, Korea University.); Hwang, ChangMo (Korea University); Baek, Dong-Hyun (Korea University); Lee, Sang hun\* (College of Medicine Korea University)*
- 15:00-16:40 SaDPo11.14  
**Temporal and Spatial Analysis of Astrocyte Calcium Waves** ..... 6038-6041  
*Fanelli, Andrea (Politecnico di Milano); Esposti, Federico (Politecnico di Milano); Ripamonti, Maddalena (Università Vita e Salute San Raffaele); Signorini, Maria G.\* (Politecnico di Milano)*



15:00-16:40	SaDPo11.15
<b>Measuring the Mechanical Properties of Cells Using Acoustic Microscopy</b> .....	<b>6042-6045</b>
<i>Stroh, Eric* (Ryerson University); Kolios, Michael (Ryerson University)</i>	
15:00-16:40	SaDPo11.16
<b>A Carbon Nanotube Gas Sensor Fabricated by Dielectrophoresis and Its Application for NH3 Detection</b> .....	<b>6046-6049</b>
<i>Wang, Renhui (Zhejiang University); Li, Hongtao (Zhejiang University); Pan, Min* (Zhejiang University)</i>	

SaDPo12: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>8.4.3 Human-Robot Interaction III (Poster Session)</b>	

15:00-16:40	SaDPo12.1
<b>The Chewing Robot: A New Biologically-Inspired Way to Evaluate Dental Restorative Materials</b> .....	<b>6050-6053</b>
<i>Raabe, Daniel* (University of Bristol); Alemzadeh, Kazem (University of Bristol); Harrison, Andrew Joseph Lawrence (University of Bristol); Ireland, Anthony John (Bristol Dental Hospital)</i>	

15:00-16:40	SaDPo12.2
<b>Design and Implementation of Series Elastic Actuators for a Haptic Laparoscopic Device</b> .....	<b>6054-6057</b>
<i>Basafa, Ehsan (Johns Hopkins University); Sheikholeslami, Majid (McGill University); Mirbagheri, Alireza (Research Center for Science and Technology In Medicine); Vossoughi, Gholamreza (Sharif University of Technology); Farahmand, Farzam* (Sharif University of Technology)</i>	

15:00-16:40	SaDPo12.3
<b>A Study of the Effect of the Femoral Head Diameter on Prosthetic Hip Dislocation Using a Hip-Joint Motion Simulator</b> .....	<b>6058-6061</b>
<i>Kiguchi, Kazuo* (Saga University); Horie, Toru (Saga University); Yamashita, Akira (Saga University); Ueno, Masaru (Japan Medical Materials Corporation); Kobayashi, Tsuneyuki (Japan Medical Materials Corporation); Mawatari, Masaaki (Saga University); Hotokebuchi, Takao (Saga University)</i>	

15:00-16:40	SaDPo12.4
<b>Capacitor Regenerative Braking System of Electric Wheelchair for Senior Citizen Based on Variable Frequency Chopper Control</b> .....	<b>6062-6067</b>
<i>Takahashi, Yoshiaki* (Chiba Institute of Technology); Seki, Hirokazu (Chiba Institute of Technology)</i>	

15:00-16:40	SaDPo12.5
<b>Magnetic Navigation of an Untethered Micro Device Using Four Stationary Coils</b> .....	<b>6068-6071</b>
<i>Ha, Yong Hyun (Kyung Hee University); Choi, Kyung Moo (Kyung Hee University); Han, Byung Hee (Kyung Hee University); Cho, Min Hyoung (Kyung Hee University); Lee, Soo Yeol* (Kyung Hee University)</i>	

15:00-16:40	SaDPo12.6
<b>MRI Compatibility Evaluation of a Piezoelectric Actuator System for a Neural Interventional Robot</b> .....	<b>6072-6075</b>
<i>WANG, YI (Worcester Polytechnic Institute); Cole, Gregory* (Worcester Polytechnic Institute); Su, Hao (Worcester Polytechnic Institute); Pilitsis, Julie (Umass Memorial Medical Center); Fischer, Gregory (Worcester Polytechnic Institute)</i>	

15:00-16:40	SaDPo12.7
<b>Improvement of Locomotive Performance of Capsular Microrobot Moving in GI Tract Using Position Based Feedback Control</b> .....	<b>6076-6079</b>
<i>Park, Kitae (University of Science &amp; Technology, Korea); Yang, Sungwook (Korean Inst of Science &amp; Technology); Kim, Jinseok (Korea Institute of Science and Tech); Kim, Tae Song (Korea Institute of Science &amp; Tech); Yoon, Eui-Sung* (Korea Institute of Science &amp; Tech)</i>	

SaDPo13: 15:00-16:40	Grand Ballroom - Salon E, F, G
<b>10.4.3 Technologies for Home Care (Poster Session)</b>	

15:00-16:40	SaDPo13.1
<b>Development of the Irregular Pulse Detection Method in Daily Life Using Wearable Photoplethysmographic Sensor</b> .....	<b>6080-6083</b>
<i>Suzuki, Takuji* (Toshiba Corporation); Kameyama, Ken-ichi (Toshiba); Tamura, Toshiyo (Chiba University)</i>	

- 15:00-16:40 SaDPo13.2  
**A Novel Method for the Contactless and Continuous Measurement of Arterial Blood Pressure on a Sleeping Bed** ..... 6084-6086  
*GU, Wenbo\* (The Chinese University of Hong Kong); Poon, Carmen CY (The Chinese University of Hong Kong); Leung, Hin Kwong (The Chinese University of Hong Kong); Sy, Ming (The Chinese University of Hong Kong); Wong, Mico Yee Man (The Chinese University of Hong Kong); Zhang, Yuan-Ting (The Chinese University of Hong Kong)*
- 15:00-16:40 SaDPo13.3  
**Sleeping Patterns Observation for Bedsores and Bed-Side Falls Prevention** ..... 6087-6090  
*Aung Aung, Phyo Wai (Institute for Infocomm Research); Koh, Yuan-Wei (National University of Singapore); Foo, Siang Fook Victor\* (Institute for Infocomm Research); Maniyeri, Jayachandran (Institute for Infocomm Research); Biswas, Jit (Institute for Infocomm Research); cabibhian, John-John (National University of Singapore)*
- 15:00-16:40 SaDPo13.4  
**Design and Implementation of Home Automated Telemanagement System for Patients with Multiple Sclerosis** ..... 6091-6094  
*Finkelstein, Joseph\* (Johns Hopkins University); Wood, Jeffrey (Johns Hopkins University)*
- 15:00-16:40 SaDPo13.5  
**The Development and Evaluation of the Citizen Telehealth Care Service System: Case Study in Taipei** ..... 6095-6098  
*Yu, Chun\* (National Taiwan University); Yang, Jhih-Jyun (National Taiwan University); Ju-Chen, Chen (National Taiwan University); Liu, Chien-Sheng (National Taiwan University); Chen, Chien-Cheng (National Taiwan University); Lin, Mu-Lien (National Taiwan University); Liu, Pei-Ling (National Taiwan University); Yao, Grace (National Taiwan University); Lin, Chii-Wann (National Taiwan University)*
- 15:00-16:40 SaDPo13.6  
**Supervised Classification of Activities of Daily Living in Health Smart Homes Using SVM** ..... 6099-6102  
*Fleury, Anthony\* (Université Joseph Fourier); Noury, Norbert (Université Claude Bernard Lyon 1); Vacher, Michel (CNRS)*
- 15:00-16:40 SaDPo13.7  
**Development of 3D Space-Sharing Interface Using Augmented Reality Technology for Domestic Tele-Echography** ..... 6103-6106  
*Yoshinaga, Takashi\* (Tokyo University of Agriculture & Technology); Horiguchi, Tomohiro (Tokyo University of Agriculture & Technology); Miyazaki, Wataru (Tokyo University of Agriculture & Technology); Masuda, Kohji (Tokyo Univ. A&T)*
- 15:00-16:40 SaDPo13.8  
**Single-Accelerometer-Based Daily Physical Activity Classification** ..... 6107-6110  
*Long, Xi\* (Eindhoven University of Technology); Yin, Bin (Philips Research); Aarts, Ronald M. (Philips)*
- 15:00-16:40 SaDPo13.9  
**Falls Event Detection Using Triaxial Accelerometry and Barometric Pressure Measurement** ..... 6111-6114  
*Bianchi, Federico (Politecnico di Milano); Redmond, Stephen James (University of New South Wales); Narayanan, Michael Ravi (University of New South Wales); Cerutti, Sergio (Politecnico di Milano); Celler, Branko George (University of New South Wales); Lovell, Nigel H\* (University of New South Wales)*
- 15:00-16:40 SaDPo13.10  
**A Real-Time System for In-Home Activity Monitoring of Elders** ..... 6115-6118  
*Zhou, Zhongna\* (University of Missouri, Columbia, MO, 65211, USA); Dai, Wenqing (University of Missouri); Eggert, Jay (University of Missouri - Columbia); Giger, Jarod (University of Missouri); Keller, James M (University of Missouri); Rantz, Marilyn (University of Missouri); He, Zhihai (University of Missouri)*
- 15:00-16:40 SaDPo13.11  
**iFall: An Android Application for Fall Monitoring and Response** ..... 6119-6122  
*Sposaro, Frank\* (Florida State University); Tyson, Gary (Florida State University)*

15:00-16:40	SaDPo13.12
<b>Action Tremor Analysis from Ordinary Video Sequence</b> .....	<b>6123-6126</b>
<i>Uhrikova, Zdenka* (Czech Technical University in Prague); Šprdlík, Otakar (Faculty of Electrical Engineering, Czech Technical University in Prague); Hlaváč, Václav (Faculty of Electrical Engineering, Czech Technical University in Prague); Ružička, Evžen (1st Faculty of Medicine, Charles University in Prague)</i>	
15:00-16:40	SaDPo13.13
<b>Gait Analysis and Validation Using Voxel Data</b> .....	<b>6127-6130</b>
<i>Wang, Fang* (University of Missouri); Stone, Erik (University of Missouri); Dai, Wenqing (University of Missouri); Keller, James M (University of Missouri); Skubic, Marjorie (University of Missouri)</i>	
15:00-16:40	SaDPo13.14
<b>Analysis and Comparison of Sleeping Posture Classification Methods Using Pressure Sensitive Bed System</b> .....	<b>6131-6134</b>
<i>Hsia, Chi-Chun (Industrial Technology Research Institute); Liou, Koujuch (Industrial Technology Research Institute); Aung Aung, Phyo Wai (Institute for Infocomm Research); Foo, Siang Fook Victor* (Institute for Infocomm Research); Huang, Weimin (Institute for Infocomm Research, Agency for Science Technology and Research); Biswas, Jit (Institute for Infocomm Research)</i>	
15:00-16:40	SaDPo13.15
<b>Effect of Sensor Position on Unobtrusive Rollover Detection for Long-Term Sleep Monitoring in Smart Homes</b> .....	<b>6135-6138</b>
<i>Townsend, Daphne* (Carleton University); Goubran, Rafik A. (Carleton University); Frize, Monique (Carleton University); Knoefel, Frank-Dietrich (SCO Health Service)</i>	
15:00-16:40	SaDPo13.16
<b>Investigation of Gait Features for Stability and Risk Identification in Elders</b> .....	<b>6139-6142</b>
<i>Liang, Jun* (University of Missouri); Abbott, Carmen (University of Missouri); Skubic, Marjorie (University of Missouri); Keller, James M (University of Missouri)</i>	
15:00-16:40	SaDPo13.17
<b>Using Elements of Game Engine Architecture to Simulate Sensor Networks for ElderCare</b> .....	<b>6143-6146</b>
<i>Godsey, Chad* (University of Missouri); Skubic, Marjorie (University of Missouri)</i>	
15:00-16:40	SaDPo13.18
<b>Testing an In-Home Gait Assessment Tool for Older Adults</b> .....	<b>6147-6150</b>
<i>Wang, Fang* (University of Missouri); Banerjee, Tanvi (University of Missouri); Dai, Wenqing (University of Missouri); Stone, Erik (University of Missouri); Giger, Jarod (University of Missouri); Krampe, Jean (University of Missouri); Rantz, Marilyn (University of Missouri); Skubic, Marjorie (University of Missouri)</i>	
15:00-16:40	SaDPo13.19
<b>Arrays of Pressure Sensors Based on Organic Field Effect : A New Perspective for Non Invasive Monitoring</b> .....	<b>6151-6154</b>
<i>Cosseddu, Piero (University of Cagliari); Bonfiglio, Annalisa (University of Cagliari); Neelgund, Rohan (University of Missouri, Columbia); Tyrer, Harry* (University of Missouri - Columbia)</i>	
15:00-16:40	SaDPo13.20
<b>Analysis of Commode Grab Bar Usage for the Monitoring of Older Adults in the Smart Home Environment</b> .....	<b>6155-6158</b>
<i>Arcelus, Amaya* (Carleton University); Holtzman, Megan (Carleton University); Goubran, Rafik A. (Carleton University); Sveistrup, Heidi (University of Ottawa); Guitard, Paulette (University of Ottawa); Knoefel, Frank-Dietrich (SCO Health Service)</i>	
15:00-16:40	SaDPo13.21
<b>Using Sensor Technology to Augment Traditional Healthcare</b> .....	<b>6159-6162</b>
<i>Rantz, Marilyn* (University of Missouri); Skubic, Marjorie (University of Missouri); Miller, Steven (University of Missouri)</i>	
15:00-16:40	SaDPo13.22
<b>Dosing Monitoring System Using Imed and Ubiquitous Sensors</b> .....	<b>6163-6166</b>
<i>Suzuki, Takuo* (University of Tsukuba); Nakauchi, Yasushi (University of Tsukuba)</i>	

15:00-16:40 SaDPo13.23  
**Signal Scavenging for Passive Monitoring in Eldercare Technology** ..... 6167-6170  
*Tyrer, Harry\** (University of Missouri - Columbia); *Neelgund, Rohan* (University of Missouri, Columbia);  
*Mohammed, Ashrafuddin* (University of Missouri); *Shriniwar, Uday* (University)

15:00-16:40 SaDPo13.24  
**Home E-Health System Integration in the Smart Home through a Common Media Server** ..... 6171-6174  
*Pau, Iván\** (Universidad Politécnica de Madrid); *Seoane, Fernando* (University College of Borås);  
*Lindecrantz, Kaj* (University College of Borås); *Valero, Miguel Ángel* (Universidad Politécnica de Madrid);  
*Carracedo, Justo* (Universidad Politécnica de Madrid)

15:00-16:40 SaDPo13.25  
**Dynamic Activity Classification Based on Automatic Adaptation of Postural Orientation** ..... 6175-6178  
*Song, Sa-kwang\** (Electronics & Telecommunications Research Institute); *Jang, Jaewon* (Electronics &  
*Telecom Research Inst*); *Park, Soo-Jun* (Electr & Telecomm Research Inst)

15:00-16:40 SaDPo13.26  
**Evaluation of Functional Deficits and Falls Risk in the Elderly – Methods for Preventing Falls** ..... 6179-6182  
*Narayanan, Michael Ravi\** (University of New South Wales); *Scalzi, Maria Elena* (Politecnico di Milano);  
*Redmond, Stephen James* (University of New South Wales); *Lord, Stephen* (University of New South Wales);  
*Celler, Branko George* (University of New South Wales); *Lovell, Nigel H* (University of New South Wales)

15:00-16:40 SaDPo13.27  
**Context-Aware Life-Logging for Persons with Mild Dementia** ..... 6183-6186  
*Kikhia, Basel\** (Luleå University of Technology); *Hallberg, Josef* (Luleå University of Technology);  
*Synnes, Kåre* (University); *ul Hussain Sani, Zaheer* (Luleå University of Technology)

15:00-16:40 SaDPo13.28  
**Fuzzy Inference Based Non-Daily Behavior Pattern Detection for Elderly People Monitoring System** ..... 6187-6192  
*Seki, Hirokazu\** (Chiba Institute of Technology)

15:00-16:40 SaDPo13.29  
**Development of Pointing Device Using DC-Coupled Electrooculogram** ..... 6193-6196  
*Uchitomi, Hiroataka\** (Niigata University); *Hori, Junichi* (Niigata University)

15:00-16:40 SaDPo13.30  
**Unsupervised Monitoring of Sitting Behavior** ..... 6197-6200  
*Tessendorf, Bernd\** (ETH Zurich); *Arnrich, Bert* (Swiss Federal Institute of Technology Zurich);  
*Schumm, Johannes* (ETH Zurich); *Setz, Cornelia* (ETH Zurich); *Troster, Gerhard* (ETH Zurich)

SaDPo14: 15:00-16:40 Grand Ballroom - Salon E, F, G  
**10.5.2 Computer-aided Decision Making II** (Poster Session)

15:00-16:40 SaDPo14.1  
**A Numerical Model to study Auscultation Sounds under Pneumothorax conditions** ..... 6201-6204  
*Ramakrishnan, Sridhar\** (Michigan State University); *Udpa, Satish* (Michigan State University);  
*Udpa, Lalita* (Michigan State University)

15:00-16:40 SaDPo14.2  
**Practical Considerations for Optic Nerve Location in Telemedicine** ..... 6205-6209  
*Karnowski, Thomas\** (Oak Ridge National Laboratory); *Aykac, Deniz* (Oak Ridge National Laboratory);  
*Chaum, Edward* (Univ of Tennessee Hamilton Eye Inst); *Giancardo, Luca* (University of Burgundy - Oak Ridge  
National Lab); *Li, Yaqin* (University of Tennessee Health Science Center); *Tobin, Kenneth* (Oak Ridge National  
Laboratory); *Abramoff, Michael David* (University of Iowa)

15:00-16:40 SaDPo14.3  
**Reference-Free Automatic Quality Assessment of Tracheoesophageal Speech** ..... 6210-6213  
*Huang, Andy* (Queen's University); *Falk, Tiago* (Queen's University); *Chan, Wai-Yip\** (Queen's University);  
*Parsa, Vijay* (University of Western Ontario); *Doyle, Philip* (University of Western Ontario)

15:00-16:40	SaDPo14.4
<b>A Frequency Based Encoding Technique for Transformation of Categorical Variables in Mixed IVF Dataset .....</b>	<b>6214-6217</b>
<i>Uyar, Asli* (Bogazici University); Bener, Ayse (Bogazici University); Ciray, H. Nadir (Bahceci Women Health Care Centre); Bahceci, Mustafa (Bahceci Women Health Care Centre)</i>	
15:00-16:40	SaDPo14.5
<b>Porting a Cancer Treatment Prediction to a Mobile Device .....</b>	<b>6218-6221</b>
<i>Gegg-Harrison, Timothy Scott (Winona State University); Zhang, Mingrui* (Winona State University); Meng, Nan (Winona State University); Sun, Zhifu (Mayo Clinic); Yang, Ping (Mayo Clinic)</i>	
15:00-16:40	SaDPo14.6
<b>Automated Risk Assessment Tool for Pregnancy Care .....</b>	<b>6222-6225</b>
<i>Gorthi, Aparna (Philips Electronics India Ltd.); Firtion, Celine (Philips Electronics India Ltd); Vepa, Jithendra* (Philips Electronics India Ltd.)</i>	
15:00-16:40	SaDPo14.7
<b>Diagnosis Support Using Fuzzy Cognitive Maps Combined with Genetic Algorithms .....</b>	<b>6226-6229</b>
<i>Georgopoulos, Voula* (Technological Educal Inst of Patras); Stylios, Chrysostomos (TEI of Epirus)</i>	
15:00-16:40	SaDPo14.8
<b>Clinical Validated Computer-Aided Decision System to the Clubfeet Deformities .....</b>	<b>6230-6233</b>
<i>DAO, Tien-Tuan* (Univ de Technologie de Compiègne); MARIN, Frédéric (Université de Technologie de Compiègne); HO BA THO, Marie-Christine (Université de Technologie de Compiègne)</i>	
15:00-16:40	SaDPo14.9
<b>Target Controlled Infusion Algorithms for Anesthesia: Theory vs Practical Implementation .....</b>	<b>6234-6237</b>
<i>Bressan, Nadja* (Hospital Geral de Santo Antonio); Moreira, António paulo (University of Porto - Faculty of Engineering); Amorim, Pedro (Hospital Geral de Santo António); Nunes, Catarina S (King's College London)</i>	
15:00-16:40	SaDPo14.10
<b>Association Rule Analysis for the Assessment of the Risk of Coronary Heart Events .....</b>	<b>6238-6241</b>
<i>Karaolis, Minas (University of Cyprus); Moutiris, Joseph (Paphos Hospital); Papaconstandinou, Loucia (University of Cyprus); Pattichis, Constantinos* (University of Cyprus)</i>	
15:00-16:40	SaDPo14.11
<b>Identifying Relative Cut-Off Scores with Neural Networks for Interpretation of the Minnesota Living with Heart Failure Questionnaire .....</b>	<b>6242-6246</b>
<i>Behloul, Hassan* (McGill); Feldman, Deborah E. (Université de Montreal); Ducharme, Anique (Projet Accès Clinic); Frenette, Marc (Cardiology, Saint Eustache Hospital); Giannetti, Nadia (McGill University); Grondin, François (Hôpital Hôtel Dieu de Lévis); Michel, Caroline (Jewish General Hospital); Sheppard, Richard (Jewish General Hospital); Pilote, Louise (Royal Victoria Hospital (MUHC))</i>	
15:00-16:40	SaDPo14.12
<b>Divided Attention in Computer Game Play: Analysis Utilizing Unobtrusive Health Monitoring .....</b>	<b>6247-6250</b>
<i>McKanna, James* (Oregon Health &amp; Science University); Jimison, Holly (Oregon Health &amp; Science University); Pavel, Michael (Oregon Health and Science University)</i>	
15:00-16:40	SaDPo14.13
<b>Revisiting the Video Stethoscope: An Application of Digital Signal Processing Software (Goldwave®) to Monitoring Ventilation in Intubated Patients .....</b>	<b>6251-6254</b>
<i>Doyle, Daniel John* (Cleveland Clinic); Nair, Bala (Cleveland Clinic)</i>	
15:00-16:40	SaDPo14.14
<b>A Feasibility Study on Image-Based Control of Surgical Robot Using a 60-GHz Wireless Communication .....</b>	<b>6255-6258</b>
<i>Takizawa, Kenichi* (NICT)</i>	

SaE01: 16:40-18:10	Conrad B
<b>1.2.10 Biomedical Signals and Systems I</b> (Oral Session)	
<b>Chair:</b> Ozcan Ozdamar, <i>Univ. of Miami</i>	
<b>Co-Chair:</b> Gian Domenico Pinna, <i>S. Maugeri Foundation, IRCCS</i>	

16:40-16:55	SaE01.1
<b>Myometrium Electromechanical Modeling for Internal Uterine Pressure Estimation by Electrohysterography</b> ..... 6259-6262	
<i>Rabotti, Chiara*</i> (Eindhoven University of Technology); <i>Mischi, Massimo</i> (Eindhoven University of Technology); <i>van Laar, O. E. H. Judith</i> (Veldhoven Maxima Medical Center); <i>Oei, S. Guid</i> (Maxima Medisch Centrum, Veldhoven); <i>Bergmans, Johannes Wilhelmus Maria</i> (Eindhoven University of Technology)	
16:55-17:10	SaE01.2
<b>High Resolution System for Improved Transient-Evoked Otoacoustic Emission Acquisition</b> ..... 6263-6266	
<i>Bennett, Christopher*</i> (University of Miami); <i>Ozdamar, Ozcan</i> (University of Miami)	
17:10-17:25	SaE01.3
<b>Rate Estimation for the Monitoring of Rehabilitation Exercises</b> ..... 6267-6270	
<i>WENG, Kaili*</i> (UTS); <i>Nguyen, Tuan Nghia</i> (University of Technology, Sydney); <i>Nguyen, Hung T.</i> (University of Technology, Sydney); <i>Su, Steven Weidong</i> (University of Technology, Sydney)	
17:25-17:40	SaE01.4
<b>Evaluating Indices of Age-Related Muscle Performance by Using Surface Electromyography</b> ..... 6271-6275	
<i>Takada, Hiroki*</i> (Gifu University of Medical Science); <i>Shiozawa, Tomoki</i> (Aoyama Gakuin University); <i>Takada, Masumi</i> (Aichi Medical University School of Medicine); <i>Iwase, Satoshi</i> (Aichi Medical University School of Medicine); <i>Miyao, Masaru</i> (Nagoya University)	
17:40-17:55	SaE01.5
<b>Relationship between Ventilatory Oscillations and Fractal Dimension of the EEG During Daytime Periodic Breathing in Heart Failure Patients</b> ..... 6276-6279	
<i>Maestri, Roberto</i> (S. Maugeri Foundation, IRCCS); <i>La Rovere, Maria Teresa</i> (S. Maugeri Foundation, IRCCS); <i>Robbi, Elena</i> (S. Maugeri Foundation, IRCCS); <i>Pinna, Gian Domenico*</i> (S. Maugeri Foundation, IRCCS)	
17:55-18:10	SaE01.6
<b>Surrogate Data Approaches to Assess the Significance of Directed Coherence: Application to EEG Activity Propagation</b> ..... 6280-6283	
<i>Faes, Luca*</i> (University of Trento); <i>Porta, Alberto</i> (Universita' degli Studi di Milano); <i>Nollo, Giandomenico</i> (University of Trento)	

SaE02: 16:40-18:10	Conrad C
<b>1.3.3 Nonlinear Dynamics and Analysis</b> (Oral Session)	
<b>Chair:</b> Elena Tolkacheva, <i>Univ. of Minnesota</i>	
<b>Co-Chair:</b> Yihong Qiu, <i>Shanghai Jiao Tong Univ.</i>	

16:40-16:55	SaE02.1
<b>Characterising Infant Inter-Breath Interval Patterns During Active and Quiet Sleep Using Recurrence Plot Analysis</b> ..... 6284-6287	
<i>Terrill, Philip Ian*</i> (University of Queensland); <i>Wilson, Stephen</i> (University of Queensland); <i>Suresh, Sadasivam</i> (Mater Children's Hospital); <i>Cooper, David</i> (Mater Misericordiae Children's Hospital)	
16:55-17:10	SaE02.2
<b>Changes in Decibel Scale Wavelength Properties of EEG with Alertness Levels While Performing Sustained Attention Tasks</b> ..... 6288-6291	
<i>Poosapadi Arjunan, Sridhar*</i> (RMIT University); <i>Kant Kumar, Dinesh</i> (RMIT university); <i>Jung, Tzyy-Ping</i> (University of California San Diego)	
17:10-17:25	SaE02.3
<b>Detecting Complexity Abnormalities in Dyslexia Measuring Approximate Entropy of Electroencephalographic Signals</b> ..... 6292-6295	
<i>Andreadis, Ioannis*</i> (Biomedical Simulations and Imaging Laboratory); <i>Giannakakis, Giorgos</i> (Biomed Simulations & Imaging Lab); <i>Papageorgiou, Charalabos</i> (Eginition Hospital, Medical School, University of Athens); <i>Nikita, Konstantina</i> (National Technical University of Athens)	

17:25-17:40 SaE02.4  
**Spatial Analysis of Uterine EMG Signals: Evidence of Increased in Synchronization with Term** ..... 6296-6299  
*HASSAN, Mahmoud\* (UTC-France); TERRIEN, Jeremy (Reykjavik University); Karlsson, Brynjar (Reykjavik University); Marque, Catherine (University of technology of compiegne)*

17:40-17:55 SaE02.5  
**Stochastic Resonance in Brain Activity Elicited by Auditory Stimuli** ..... 6300-6303  
*Tanaka, Keita\* (Tokyo Denki University); Nemoto, Iku (Tokyo Denki University); Kawakatsu, Masaki (Tokyo Denki University); UCHIKAWA, Yoshinori (Tokyo Denki University)*

SaE03: 16:40-18:10 Grand Ballroom - Salon B  
**2.3.2 Optical Imaging, Microscopy, and Infrared Imaging II** (Oral Session)  
**Chair:** Hao Zhang, *Univ. of Wisconsin-Milwaukee*  
**Co-Chair:** Taner Akkin, *Univ. of Minnesota*

16:40-16:55 SaE03.1  
**Real-Time Confocal Raman Imaging of a Drug Delivery System on Cardiac Leads** ..... 6304-6306  
*Dong, Jinping\* (University of Minnesota); Polkinghorne, Jeannette (Boston Scientific); Heil, Ronald (Boston Scientific); Kemp, Ruth (University of Minnesota)*

16:55-17:10 SaE03.2  
**Probing Phase Segregation in Porphyrin-Polymer Blends with Multidimensional IR Spectroscopy** ..... 6307-6310  
*Massari, Aaron\* (University of Minnesota, Twin Cities); Eigner, Audrey (University of Minnesota, Twin Cities)*

17:10-17:25 SaE03.3  
**Multiphoton Autofluorescence Microscopy and Second Harmonic Generation Microscopy of Oral Epithelial Neoplasms** ..... 6311-6313  
*Vargas, Gracie\* (University of Texas Medical Branch); Shilagard, Tuya (University of Texas Medical Branch); Ho, Ki-Hong (University of Texas Medical Branch); McCammon, Susan (University of Texas Medical Branch)*

17:25-17:40 SaE03.4  
**Multi-Color Raman Nanotags for Tumor Cell Biomarker Detection** ..... 6314-6317  
*Nyagilo, James (University of Texas at Arlington); Xiao, Ming (The university of Texas Southwestern Medical Center at Dallas); Sun, Xiankai (University of Texas Southwestern Medical Center at Dallas); Dave, Digant\* (The University of Texas at Arlington)*

17:40-17:55 SaE03.5  
**Low Coherence Interferometer for Sensing Retardance Change During Neural Activity** ..... 6318-6320  
*Al-Kaisi, Muhammad\* (University of Minnesota, Twin Cities); Akkin, Taner (University of Minnesota)*

17:55-18:10 SaE03.6  
**Optical Mapping of Electrical Heterogeneities in the Heart During Global Ischemia** ..... 6321-6324  
*Matiukas, Arvydas (SUNY Upstate Medical University); Pertsov, Arkady M. (SUNY Upstate Medical University); KOTHARI, PARTH (University of Minnesota - Twin Cities); Tolkacheva, Elena\* (University of Minnesota)*

SaE04: 16:40-18:10 Duluth Room  
**2.10.1 Molecular Imaging** (Oral Session)  
**Chair:** Andreas Hielscher, *Columbia Univ.*  
**Co-Chair:** Patrick La Riviere, *The Univ. of Chicago*

16:40-17:10 SaE04.1  
**Detecting Alterations in Cell Ultrastructure with Optical Imaging** ..... 6325-6326  
*Backman, Vadim\* (Northwestern University); Taflove, Allen (Northwestern University)*

17:10-17:25 SaE04.2  
**Bioluminescence Tomography with CT/MRI Co-Registration** ..... 6327-6330  
*Klose, Alexander\* (Columbia University)*

17:25-17:40 SaE04.3  
**Complete Angle Small Animal Fluorescence Imaging with Early-Arriving Photons** ..... 6331-6334  
*Niedre, Mark\* (Northeastern University); Ntziachristos, Vasilis (Harvard University HMS/MGH)*

17:40-17:55 SaE04.4  
**Diffuse Optical Tomography & Spectroscopy in Breast Cancer Characterization & Therapy Monitoring at UPENN** ..... 6335-6337  
*Choe, Regine\* (University of Pennsylvania)*

17:55-18:10 SaE04.5  
**On Sensitivity of Molecular Specific Photoacoustic Imaging Using Plasmonic Gold Nanoparticles** ..... 6338-6340  
*Mallidi, Srivalleesha\* (University of Texas at Austin); Joshi, Pratixa P. (University of Texas at Austin); Sokolov, Konstantin (The UT M.D. Anderson Cancer Center); Emelianov, Stanislav (University of Texas at Austin)*

SaE05: 16:40-18:10 Marquette V  
**2.7.6 Biomedical Image Segmentation** (Oral Session)  
**Chair:** Jie Tian, *Chinese Acad. of Sciences*  
**Co-Chair:** Steven M. Wright, *Texas A&M Univ.*

16:40-16:55 SaE05.1  
**GPU Accelerated Fuzzy Connected Image Segmentation by Using CUDA** ..... 6341-6344  
*Zhuge, Ying\* (National Cancer Institute, NIH); Cao, Yong (Virginia Polytechnic Institute and State University); Miller, Robert (National Cancer Institute, NIH)*

16:55-17:10 SaE05.2  
**An Articulated Statistical Shape Model for Accurate Hip Joint Segmentation** ..... 6345-6351  
*Kainmueller, Dagmar\* (Zuse Institute Berlin); Lamecker, Hans (INRIA Sophia Antipolis); Zachow, Stefan (Zuse Institute Berlin (ZIB))*

17:10-17:25 SaE05.3  
**Speckle-Initialized Dynamic Segmentation of the Prostate** ..... 6352-6355  
*Besseling, René\* (Eindhoven University of Technology); Zinger, Svitlana (Eindhoven University of Technology); Wijkstra, Hessel (Academic Medical Center, University of Amsterdam); Hendrikx, Ad (Catharina hospital Eindhoven); Mischi, Massimo (Eindhoven University of Technology)*

17:25-17:40 SaE05.4  
**Spine Curve Modeling for Quantitative Analysis of Spinal Curvature** ..... 6356-6359  
*Hay, Ori\* (Tel Aviv University); Rivlin, Ehud (Technion-Israel Institute of Technology); HersHKovitz, Israel (Faculty of Medicine, Tel Aviv University)*

17:40-17:55 SaE05.5  
**An Automated Method to Detect Interstitial Adipose Tissue in Thigh Muscles for Patients with Osteoarthritis** ..... 6360-6363  
*Prescott, Jeffrey William\* (Ohio State University); Priddy, Michael (Ohio State University); Best, Thomas (Ohio State University Medical Center); Pennell, Michael (The Ohio State University Medical Center); Swanson, Mark (OSU); Haq, Furqan (Ohio State University Medical Center); Jackson, Rebecca D (The Ohio State University); Gurcan, Metin (The Ohio State University)*

17:55-18:10 SaE05.6  
**An Automated Method to Segment the Femur for Osteoarthritis Research** ..... 6364-6367  
*Prescott, Jeffrey William\* (Ohio State University); Pennell, Michael (The Ohio State University Medical Center); Best, Thomas (Ohio State University Medical Center); Swanson, Mark (OSU); Haq, Furqan (Ohio State University Medical Center); Jackson, Rebecca D (The Ohio State University); Gurcan, Metin (The Ohio State University)*

SaE06: 16:40-18:10 Conrad A  
**3.6.1 Nano- and Micro-sensors** (Oral Session)  
**Chair:** Samuel Sia, *Columbia Univ.*  
**Co-Chair:** Ilko Ilev, *US FDA*

16:40-16:55 SaE06.1  
**High-Speed Spinning-Disk Interferometry on the BioCD for Human Diagnostic Applications** ..... 6368-6371  
*Nolte, David\* (Purdue University)*

16:55-17:10 SaE06.2  
**QD Barcodes for Biosensing and Detection** ..... 6372-6373  
*Gao, Xiaohu\* (University of Washington)*



17:10-17:25	SaE06.3
<b>Microfluidics Cell Culture with Sensing and SqueezeFluidics .....</b>	<b>6374-6375</b>
<i>Takayama, Shuichi* (University of Michigan)</i>	
17:25-17:40	SaE06.4
<b>Lensless Imaging for Point-Of-Care Testing .....</b>	<b>6376-6379</b>
<i>SangJun, Moon (BWH); Keles, Hasan (Brigham and Woman's Hospital); Yun-Gon, Kim (Brigham and Woman's Hospital); Daniel, Kuritzkes (Brigham and Woman's Hospital); Demirci, Utkan* (Harvard-MIT/HST)</i>	
17:40-17:55	SaE06.5
<b>Label-Free Microfluidic Characterization of Temperature-Dependent Biomolecular Binding .....</b>	<b>6380-6382</b>
<i>Nguyen, ThaiHuu* (Columbia University); Lin, Qiao (Columbia University)</i>	

SaE07: 16:40-18:10	Marquette VII
<b>3.12.1 Implantable Systems</b> (Oral Session)	
<b>Chair:</b> Mehmet R. Dokmeci, <i>Northeastern Univ.</i>	
<b>Co-Chair:</b> Sang hun Lee, <i>Coll. of Medicine Korea Univ.</i>	

16:40-16:55	SaE07.1
<b>A Preferential Design Approach for Energy-Efficient and Robust Implantable Neural Signal Processing Hardware .....</b>	<b>6383-6386</b>
<i>Narasimhan, Seetharam* (Case Western Reserve University); Chiel, Hillel (Case Western Reserve University); Bhunia, Swarup (Case Western Reserve University)</i>	

16:55-17:10	SaE07.2
<b>Modeling and Optimization of Printed Spiral Coils in Air and Muscle Tissue Environments .....</b>	<b>6387-6390</b>
<i>Jow, Uei-Ming (Georgia Institute of Technology); Ghovanloo, Maysam* (Georgia Institute of Technology)</i>	

17:10-17:25	SaE07.3
<b>An Embedded PDMS Nanocomposite Strain Sensor toward Biomedical Applications .....</b>	<b>6391-6394</b>
<i>Liu, Chao-Xuan* (Louisiana State University); Choi, Jin-Woo (Louisiana State Univeristy)</i>	

17:25-17:40	SaE07.4
<b>Micro Package of Short Term Wireless Implantable Microfabricated Systems .....</b>	<b>6395-6399</b>
<i>Bu, Leping (Huazhong University of Science &amp; Technology); cong, peng (Case Western Reserve Univ.); Kuo, Hung-I (Case Western Reserve University); Ye, Xuesong (Zhejiang University); Ko, Wen* (Case Western Reserve University)</i>	

17:40-17:55	SaE07.5
<b>Design and Fabrication of Neural Implant with Thick MicroChannels Based on Flexible Polymeric Materials .....</b>	<b>6400-6403</b>
<i>Benmerah, Samia* (University of Birmingham); Lacour, Stéphanie (University of Cambridge); Tarte, Edward (University of Birmingham)</i>	

17:55-18:10	SaE07.6
<b>Locomotive Micro-Implant with Active Electromagnetic Propulsion .....</b>	<b>6404-6407</b>
<i>Pivonka, Daniel* (Stanford); Poon, Ada S Y (Stanford University); Meng, Teresa (Stanford University)</i>	

SaE08: 16:40-18:10	Marquette VIII
<b>4.4.1 Advances in Theory and Clinical Applications of Biological Network Studies</b> (Oral Session)	
<b>Chair:</b> Ioannis Androulakis, <i>Rutgers University</i>	
<b>Co-Chair:</b> Qing Nie, <i>University of California at Irvine</i>	

16:40-16:55	SaE08.1
<b>Multiscale Models for Synthetic Biology .....</b>	<b>6408-6411</b>
<i>Kaznessis, Yiannis* (University of Minnesota)</i>	

16:55-17:10	SaE08.2
<b>Nonlinear Bionetwork Structure Inference Using the Random Sampling-High Dimensional Model Representation (RS-HDMR) Algorithm .....</b>	<b>6412-6415</b>
<i>Miller, Miles (MIT); Feng, Xiaojiang (Princeton University); Li, Genyuan (Princeton University); Rabitz, Herschel* (Princeton University)</i>	

17:10-17:25	SaE08.3
<b>Disease Gene-Fishing in Molecular Interaction Networks: A Case Study in Colorectal Cancer</b> .....	<b>6416-6419</b>
<i>Huang, Hui (Indiana University); Li, Jiao (Tsinghua University); Chen, Jake* (Indiana University)</i>	
17:25-17:40	SaE08.4
<b>A Unified Multiscale Field/Network/Agent Based Modeling Framework for Human and Ecological Health Risk Analysis</b> .....	<b>6420-6423</b>
<i>Georgopoulos, Panos* (University of Medicine and Dentistry of NJ); Isukapalli, Sastry (University of Medicine and Dentistry of NJ)</i>	
17:40-17:55	SaE08.5
<b>Drug-Like and Non Drug-Like Pattern Classification Based on Simple Topology Descriptor Using Hybrid Neural Network</b> .....	<b>6424-6427</b>
<i>Wan Mamat, Wan Mohd Fahmi (Universiti Sains Malaysia); Mat Isa, Nor Ashidi* (University Sains Malaysia); Wahab, Habibah A. (Universiti Sains Malaysia); Wan Mamat, Wan Mohd Fairuz (Universiti Teknologi Mara)</i>	
17:55-18:10	SaE08.6
<b>A Paradigm for Epileptic Seizure Prediction Using a Coupled Oscillator Model of the Brain</b> .....	<b>6428-6431</b>
<i>O'Sullivan-Greene, Elma* (The Univeristy of Melbourne); Mareels, Iven (Melbourne University, Australia); Freestone, Dean Robert (The University of Melbourne); Kuhlmann, Levin (University of Melbourne); Burkitt, Anthony Neville (The University of Melbourne)</i>	
SaE09: 16:40-18:10 <span style="float: right;">Marquette II</span> <b>5.8.1 Cardiovascular Signal Processing and Telemedicine (Oral Session)</b> <b>Chair:</b> Stanley Finkelstein, <i>Univ. of Minnesota</i> <b>Co-Chair:</b> Jie Lian, <i>Micro Systems Engineering, Inc.</i>	
16:40-16:55	SaE09.1
<b>Independence and Shared Decision Making: The Role of Smart Home Technology in Empowering Older Adults</b> .....	<b>6432-6436</b>
<i>Demiris, George* (University of Washington)</i>	
16:55-17:10	SaE09.2
<b>A Robotic Home Telehealth Platform System for Treatment Adherence, Social Assistance and Companionship - an Overview</b> .....	<b>6437-6440</b>
<i>Oddsson, Lars* (Sister Kenny Rehabilitation Institute, Allina Hospitals &amp; Clinics); Radomski, Mary (Sister Kenny Rehabilitation Institute); White, Matthew (Sister Kenny Research Center); Nilsson, Daniel (Sister Kenny Rehabilitation Institute, AllinaHospitals&amp;Clinics)</i>	
17:10-17:25	SaE09.3
<b>Telehomecare: Benefits &amp; Barriers to Adoption of Health IT in an Elderly Low-Income, Minority Community-Based Environment</b> .....	<b>6441-6443</b>
<i>Tran, Binh Q.* (The Catholic University of America); Buckley, Kathleen M. (The Catholic University of America); Bertera, Elizabeth M. (Howard University)</i>	
17:25-17:40	SaE09.4
<b>Implementation of MP3 Player for Music Therapy on Hypertension</b> .....	<b>6444-6447</b>
<i>Yu, Jianye (Shenzhen Institute of Advanced Technology); Huang, Dunfeng (Shenzhen Institute of Advanced Technology); Li, Ye* (Shenzhen Institute of Advanced Technology); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i>	
17:40-17:55	SaE09.5
<b>Mobile Tools for Home-Based Cardiac Rehabilitation Based on Heart Rate and Movement Activity Analysis</b> .....	<b>6448-6452</b>
<i>Mattila, Jussi Jaakko Olavi (VTT); Ding, Hang* (CSIRO); Mattila, Elina (VTT); Sarela, Antti (CSIRO)</i>	
17:55-18:10	SaE09.6
<b>Open Loop Linear Parametric Modeling of the QT Variability</b> .....	<b>6453-6456</b>
<i>Porta, Alberto* (Universita' degli Studi di Milano); Tobaldini, Eleonora (Universita' degli Studi di Milano); Magagnin, Valentina (Istituto Ortopedico IRCCS Galeazzi); Bassani, Tito (Politecnico di Milano); Gnechi-Ruscione, Tomaso (Ospedale S.L. Mandic); Montano, Nicola (Universita' degli Studi di Milano)</i>	

SaE10: 16:40-18:10 Grand Ballroom - Salon C  
**6.4.2 Brain-Machine Interface II** (Oral Session)  
**Chair:** Gerwin Schalk, *Wadsworth Center, New York State Department of Health*  
**Co-Chair:** Justin Williams, *Univ. of Wisconsin*

- 16:40-16:55 SaE10.1  
**Application of Support Vector Machines to Reliability-Based Automatic Repeat Request for Brain-Computer Interfaces** ..... **6457-6460**  
*Takahashi, Hiromu\* (Nagoya University); Yoshikawa, Tomohiro (Nagoya University); Furuhashi, Takeshi (Nagoya University)*
- 16:55-17:10 SaE10.2  
**A Half-Field Stimulation Pattern for SSVEP-based Brain-computer Interface** ..... **6461-6464**  
*Yan, Zheng (Tsinghua University); Gao, Xiaorong (Tsinghua University); Bin, Guangyu (Tsinghua University); Hong, Bo (Tsinghua University); Gao, Shangkai\* (Tsinghua University)*
- 17:10-17:25 SaE10.3  
**Detection of Spontaneous Class-Specific Visual Stimuli with High Temporal Accuracy in Human Electroencephalography** ..... **6465-6468**  
*Miller, Kai J\* (University of Washington); Hermes, Dora (University Medical Center Utrecht); Schalk, Gerwin (Wadsworth Center, New York State Department of Health); Ramsey, Nick (University Medical Center Utrecht); Jagadeesh, Bharathi (University of Washington); denNijs, Marcel (University of Washington); Ojemann, Jeffrey G (University of Washington); Rao, Rajesh PN (University of Washington)*
- 17:25-17:40 SaE10.4  
**Motion Classification Using Epidural Electrodes for Low-Invasive Brain-Machine Interface** ..... **6469-6472**  
*Uejima, Takeshi\* (Ministry of Defense); Kita, Kahori (The University of Tokyo); Kato, Ryu (The University of Tokyo); Yokoi, Hiroshi (University of Tokyo)*
- 17:40-17:55 SaE10.5  
**Impact of Time-Frequency Representation to the Generalization Ability of Synthesized Time-Frequency Spatial Patterns Algorithm in Brain Computer Interface** ..... **6473-6476**  
*Yao, Jun\* (Northwestern University); Dewald, Julius P. A. (Northwestern University)*
- 17:55-18:10 SaE10.6  
**Optimization of Electrode Channels in Brain Computer Interfaces** ..... **6477-6480**  
*Kamrunnagar, Mst (Kamrun)\* (The Pennsylvania State University); Dias, Nuno S. (University of Minho); Schiff, Steven (Pennsylvania State University)*

SaE11: 16:40-18:10 Marquette I  
**6.7.3 Deep Brain Stimulation II** (Oral Session)  
**Chair:** Greg Molnar, *Medtronic*  
**Co-Chair:** Aviva Abosch, *Univ. of Minnesota*

- 16:40-16:55 SaE11.1  
**One-Dimensional Representation of a Neuron in a Uniform Electric Field** ..... **6481-6484**  
*Radman, Thomas (City College CUNY); Datta, Abhishek\* (The City College of the CUNY); Bikson, Marom (The City College of New York)*
- 16:55-17:10 SaE11.2  
**Finite Difference Time Domain (FDTD) Modeling of Implanted Deep Brain Stimulation Electrodes and Brain Tissue** ..... **6485-6488**  
*Gabran, Salam\* (University of Waterloo); Saad, John (University of Waterloo); Salama, Magdy (University of Waterloo); Mansour, Raafat (University of Waterloo)*
- 17:10-17:25 SaE11.3  
**NeuroRighter: Closed-Loop Multielectrode Stimulation and Recording for Freely Moving Animals and Cell Cultures** ..... **6489-6492**  
*Rolston, John\* (Emory University School of Medicine); Gross, Robert (Emory University); Potter, Steve (Georgia Institute of Technology)*

17:25-17:40 SaE11.4  
**3-D Microfabricated Electrodes for Targeted Deep Brain Stimulation** ..... 6493-6496  
*Laotaveerungrueng, Noppasit\* (Case Western Reserve University); Lin, Chia-Hua (Case Western Reserve University); McCallum, Grant (Case Western Reserve University); Rajgopal, Srihari (Case Western Reserve Univ.); Steiner, Charles P. (Cleveland Clinic Foundation); Rezai, Ali R. (Cleveland Clinic Foundation); Mehregany, Mehran (Case Western Reserve University)*

17:40-17:55 SaE11.5  
**Effects of the electrical double layer and dispersive tissue properties in a volume conduction model of deep brain stimulation** ..... 6497-6500  
*Grant, Peadar\* (University College Dublin); Lowery, Madeleine (University College Dublin)*

17:55-18:10 SaE11.6  
**Influence of Coil Current Configuration in Magnetic Stimulation of a Nerve Fiber in Inhomogeneous and Anisotropic Conducting Media** ..... 6501-6504  
*Hyodo, Akira\* (Kyushu University); Iramina, Keiji (Kyushu University); Ueno, Shoogo (Kyushu University)*

SaE12: 16:40-18:10 Marquette VI  
**7.7.1 Electrical Fields at the Cell and Protein Scale (Oral Session)**  
**Chair:** Rafael Davalos, *Virginia Tech*  
**Co-Chair:** Raphael Lee, *University of Chicago*

16:40-16:55 SaE12.1  
**In Silico Estimates of Cell Electroporation by Electrical Incapacitation Waveforms** ..... 6505-6508  
*Gowrishankar, Thiruvallur\* (Massachusetts Institute of Technology); Esser, Axel (Massachusetts Institute of Technology); Smith, Kyle (Massachusetts Institute of Technology); Burns, Stephen (Massachusetts Institute of Technology); Weaver, James (Massachusetts Institute of Technology)*

16:55-17:10 SaE12.2  
**Non-Ionizing Radiation with Nanosecond Pulsed Electric Fields As a Cancer Treatment: In Vitro Studies** ..... 6509-6512  
*Beebe, Stephen\* (Old Dominion University); Ford, Wentia (Old Dominion University); Ren, Wei (Old Dominion University); Chen, Xinhua (Old Dominion University); Schoenbach, Karl (Old Dominion University)*

17:10-17:25 SaE12.3  
**Pilot Study of Irreversible Electroporation for Intracranial Surgery** ..... 6513-6516  
*Garcia, A.\* (Virginia Tech - Wake Forest University); Rossmeis, John H. (Virginia-Maryland Regional College of Veterinary Medicine); Robertson, John (Virginia-Maryland Regional College of Veterinary Medicine); Ellis, Thomas L. (Wake Forest School of Medicine); Davalos, Rafael (Virginia Tech)*

17:25-17:40 SaE12.4  
**Alignment and Elongation of Human Adipose-Derived Stem Cells in Response to Direct-Current Electrical Stimulation** ..... 6517-6521  
*Tandon, Nina\* (Columbia University); goh, Brian (Louisiana State University); Marsano, Anna (Columbia University); Chao, Pen-hsiu Grace (College of Engineering and College of Medicine, National Taiwan University); Montouri-Sorrentino, Chrystina (The Cooper Union for the Advancement of Science and Art); Jeffrey, Gimble (Louisiana State University); Vunjak-Novakovic, Gordana (Columbia University)*

17:40-17:55 SaE12.5  
**A Study of Long Term Symptomatology Reported in Non-Head-Involved Low Voltage Electrical Contacts** ..... 6522-6525  
*Morse, Michael\* (University of San Diego)*

17:55-18:10 SaE12.6  
**Whole Organ Decellularization - a Tool for Bioscaffold Fabrication and Organ Bioengineering** ..... 6526-6529  
*Baptista, Pedro M. (Wake Forest University Health Sciences); Orlando, Giuseppe (Wake Forest University Health Sciences); Mirmalek-Sani, Sayed-Hadi (Wake Forest University Health Sciences); Sidiqqi, Mohammad M. (Wake Forest University Health Sciences); Atala, Anthony (Wake Forest University Health Sciences); Soker, Shay\* (Wake Forest University Health Sciences)*

SaE13: 16:40-18:10	Conrad D
<b>8.9.1 Orthopaedic and Musculoskeletal Biomechanics</b> (Oral Session)	
<b>Chair:</b> Yoshihiko Nakamura, <i>Univ. of Tokyo</i>	
<b>Co-Chair:</b> Mitsuhiro Hayashibe, <i>INRIA</i>	

16:40-16:55 SaE13.1  
**EMG-Based Neuromuscular Modeling with Full Physiological Dynamics and Its Comparison with Modified Hill Model** ..... 6530-6533  
*Hayashibe, Mitsuhiro\* (INRIA); Guiraud, David (INRIA); POIGNET, Philippe (LIRMM, UMR CNRS 5506, University of Montpellier II)*

16:55-17:10 SaE13.2  
**Reconstruction and EMG-Informed Control, Simulation and Analysis of Human Movement for Athletics: Performance Improvement and Injury Prevention** ..... 6534-6537  
*Demircan, Emel\* (Stanford University); Khatib, Oussama (Stanford University); Wheeler, Jason (Sandia National Laboratories); Delp, Scott (Stanford University)*

17:10-17:25 SaE13.3  
**Identification and Validation of FES Physiological Musculoskeletal Model in Paraplegic Subjects** ..... 6538-6541  
*Benoussaad, Mourad\* (INRIA); Hayashibe, Mitsuhiro (INRIA); Fattal, Charles (PROPARGA); POIGNET, Philippe (LIRMM, UMR CNRS 5506, University of Montpellier II); Guiraud, David (INRIA)*

17:25-17:40 SaE13.4  
**Characterization of Motor Skill Based on Musculoskeletal Model** ..... 6542-6545  
*Murai, Akihiko\* (The University of Tokyo); Katsu, Yamane (University of Tokyo); Nakamura, Yoshihiko (University of Tokyo)*

17:40-17:55 SaE13.5  
**Computationally Fast Estimation of Muscle Tension for Realtime Bio-feedback** ..... 6546-6549  
*Murai, Akihiko\* (The University of Tokyo); Kurosaki, Kosuke (The University of Tokyo); Katsu, Yamane (University of Tokyo); Nakamura, Yoshihiko (University of Tokyo)*

SaE14: 16:40-18:10	Marquette III
<b>9.4.3 Diagnostic Devices and Instrumentation</b> (Oral Session)	
<b>Chair:</b> Mike McShane, <i>Texas A&amp;M Univ.</i>	
<b>Co-Chair:</b> Steven Johnson, <i>EMBS Buenaventura Chapter</i>	

16:40-16:55 SaE14.1  
**Development of Effective Photoplethysmographic Measurement Techniques: From Contact to Non-Contact and from Point to Imaging** ..... 6550-6553  
*Hu, Sijung\* (Loughborough University); Azorin Peris, Vicente (Loughborough University); Echiadis, Angelos (Loughborough University); Zheng, Jia (Loughborough University); Shi, Ping (Loughborough University)*

16:55-17:10 SaE14.2  
**Quantitative Spectral Reflectance Imaging Device for Intraoperative Breast Tumor Margin Assessment** ..... 6554-6556  
*Ramanujam, Nimmi\* (Duke University)*

17:10-17:25 SaE14.3  
**Spatial Mapping of Real-Time Quantitative Shear Stress with Vascular Oxidative Stress** ..... 6557-6559  
*Ai, Lisong\* (University of Southern California); Hsiai, John T. K. (USC)*

17:25-17:40 SaE14.4  
**Digital Microfluidic Chips for Chemical and Biological Applications** ..... 6560-6564  
*Fair, Richard\* (Duke University)*

17:40-17:55 SaE14.5  
**Development of a Multispectral Tissue Characterization System for Optimization of an Implantable Perfusion Status Monitor for Transplanted Liver** ..... 6565-6568  
*Baba, Justin S.\* (Oak Ridge National Laboratory); Letzen, Brian S. (Oak Ridge National Laboratory); Ericson, Nance (Oak Ridge National Laboratory); Coté, Gerard L. (Texas A&M); Xu, Weijian (VA Pittsburgh Healthcare System); Wilson, Mark A. (VA Pittsburgh Healthcare System)*

SaE15: 16:40-18:10 Marquette IX  
**10.6.1 Wireless Biomedical and Health Technologies** (Oral Session)  
**Chair:** Emil Jovanov, *Univ. of Alabama in Huntsville*  
**Co-Chair:** Kwang S. Park, *Seoul National Univ.*

16:40-16:55 SaE15.1  
**Potential and Challenges of Body Area Networks for Personal Health** ..... **6569-6572**  
*Penders, Julien\** (Stichting IMEC Nederland); *van de Molengraft, Jef* (Holst Centre);  
*Brown, Lindsay* (Stichting IMEC Nederland); *Grundlehner, Bernard* (Holst Centre);  
*Gyselinckx, Bert* (Stichting IMEC-NL); *Van Hoof, Chris* (IMEC)

16:55-17:10 SaE15.2  
**Nonintrusive Measurement of Biological Signals for Ubiquitous Healthcare** ..... **6573-6575**  
*Park, Kwang S.\** (Seoul National University)

17:10-17:25 SaE15.3  
**Sensium: An Ultra-Low-Power Wireless Body Sensor Network Platform:  
Design & Application Challenges** ..... **6576-6579**  
*Wong, Alan Chi Wai\** (Toumaz Technology Ltd.); *McDonagh, Declan* (Toumaz Technology Ltd.);  
*Omeni, Okundu* (Toumaz Technology Ltd.); *Nunn, Chris* (Toumaz Technology Ltd.);  
*Silveira, Miguel* (Toumaz Technology Ltd.); *Burdett, Alison* (Toumaz Technology Ltd.)

17:25-17:40 SaE15.4  
**Clinical Applications of Wearable Technology** ..... **6580-6583**  
*Bonato, Paolo\** (Harvard Medical School)

17:40-17:55 SaE15.5  
**UK and Canadian Perspectives of the Effectiveness of Mobile Diabetes Management Systems** ..... **6584-6587**  
*Istepanian, Robert* (Kingston University London); *Cafazzo, Joseph* (University Health Network); *Seto, Emily\**  
(University Health Network); *Logan, Alexander* (Mount Sinai Hospital); *Sungoor, Ala* (Kingston University London)

SaE16: 16:40-18:10 Grand Ballroom - Salon A  
**11.4.2 Minisymposium: People, Places and Companies Involved in the Early History of Biomedical Devices and  
Instrumentation**  
**Chair:** Robert P. Patterson, *Univ. of Minnesota*  
**Co-Chair:** Ron Leder, *Univ. Nacional Autonoma de Mexico*

16:40-17:10 SaE16.1  
**Medical Alley: The Rise of the Medical Device Industry in Minnesota** ..... **6588-6589**  
*Rhees, David\** (Bakken Museum)

17:10-17:40 SaE16.2  
**Evolution of Microcomputer-Based Medical Instrumentation** ..... **6590-6593**  
*Tompkins, Willis J.\** (University of Wisconsin - Madison)

17:40-18:10 SaE16.3  
**Otto Schmitt's Contributions to Basic and Applied Biomedical Engineering and to the Profession** ..... **6594**  
*Patterson, Robert P.\** (University of Minnesota)

SaE17: 16:40-18:10 Directors Row 4  
**SS 4. Pathways to Success in Biomedical Engineering: Early Career Development** (Special Session)  
**Chair:** Kaustubh Patil, *Medtronic, Inc.*

**Sunday, 6 September 2009**

SuA01: 08:30-10:00 Conrad B  
**1.2.6 EEG Signal Processing II** (Oral Session)  
**Chair:** Chang-Hwan Im, *Yonsei Univ.*  
**Co-Chair:** Yingchun Zhang, *Univ. of Minnesota*

08:30-08:45 SuA01.1  
**A New Method for Spatiotemporal Identification of Event-Related Potential Subcomponents** ..... 6595-6598  
*Mohseni, Hamid\* (Cardiff University); Sanei, Saeid (Cardiff University)*

08:45-09:00 SuA01.2  
**Regularized Common Spatial Patterns with Generic Learning for EEG Signal Classification** ..... 6599-6602  
*Lu, Haiping\* (University of Toronto); Plataniotis, Konstantinos (University of Toronto); Venetsanopoulos, Anastasios (Ryerson University)*

09:00-09:15 SuA01.3  
**Automated Epilepsy Diagnosis Using Interictal Scalp EEG** ..... 6603-6607  
*Bao, Forrest S.\* (Texas Tech University); Gao, Jue-Ming (Jiangsu Provincial Hospital of Chinese Medicine); Hu, Jing (Jiangsu Provincial Hospital of Chinese Medicine); Lie, Donald (Texas Tech University); Zhang, Yuanlin (Texas Tech University); Oommen, K. J. (Texas Tech University Health Sciences Center)*

09:15-09:30 SuA01.4  
**Detection of Nocturnal Frontal Lobe Seizures in Pediatric Patients by Means of Accelerometers: A First Study** ..... 6608-6611  
*Cuppens, Kris\* (Katholieke Hogeschool Kempen); Lagae, Lieven (University Hospital of Leuven); Ceulemans, Berten (University Hospital of Antwerp); Van Huffel, Sabine (Katholieke Universiteit Leuven); Vanrumste, Bart (Katholieke Universiteit Leuven)*

09:30-09:45 SuA01.5  
**Age-Independent Seizure Detection** ..... 6612-6615  
*Faul, Stephen\* (University College Cork); Temko, Andriy (University College Cork); Marnane, Liam (University College Cork)*

09:45-10:00 SuA01.6  
**Localizing the Neonatal and Fetal Spontaneous Brain Activity by Hilbert Phase Analysis** ..... 6616-6619  
*Govindan, Rathinaswamy\* (UAMS); Vairavan, Srinivasan (University of Arkansas at Little Rock); Haddad, Naim (UAMS); Wilson, James (University of Arkansas at Little Rock); Preissl, Hubert (University of Tübingen); Eswaran, Hari (Univ of Arkansas for Medical Sci)*

SuA02: 08:30-10:00 Conrad C  
**1.9.1 Data Mining and Biomedical Signal Processing** (Oral Session)  
**Chair:** Konstantina Nikita, *National Tech. Univ. of Athens*  
**Co-Chair:** Kazuo Yana, *Hosei Univ.*

08:30-08:45 SuA02.1  
**Spatial Feature Extraction Techniques for the Analysis of Ductal Tree Structures** ..... 6620-6623  
*Skoura, Aggeliki (University of Patras); Barnathan, Michael (Temple University); Megalooikonomou, Vasileios\* (University of Patras)*

08:45-09:00 SuA02.2  
**Characterization of Patient Specific Signaling Via Augmentation of Bayesian Networks with Disease and Patient State Nodes** ..... 6624-6627  
*Sachs, Karen\* (University of Stanford)*

09:00-09:15 SuA02.3  
**Biomedical Image Analysis Using Markov Random Fields & Efficient Linear Programming** ..... 6628-6631  
*komodakis, Nikos (University of Crete); Besbes, Ahmed (Ecole Centrale de Paris); Glocker, Ben (Technische Universität München); Paragios, Nikos\* (Ecole Centrale de Paris/INRIA Saclay, Ile-de-France)*

09:15-09:30 SuA02.4  
**Leveraging Dynamic User Profiles for the Assistance of Anxiety Disorders' Treatment Using Inferential Rules** ..... 6632-6635  
*Panagiotakopoulos, Theodor (University of Patras); Lyras, Dimitris (University of Patras); Manolessos, George (St. Andreas Hospital of Patras); Lymberopoulos, Dimitrios\* (University of Patras); Sgarbas, Kyriakos (University of Patras)*

09:30-09:45 SuA02.5  
**A Data Mining Algorithmic Approach for Processing Wireless Capsule Endoscopy Data Sets** ..... 6636-6639  
*Karargyris, Alexandros (Wright State University); Bourbakis, Nikolaos\* (Wright State University)*

09:45-10:00 SuA02.6  
**Novel MEMS Stiffness Sensor for In-Vivo Tissue Characterization Measurement** ..... 6640-6643  
*Peng, Peng\* (University of Minnesota); Rajamani, Rajesh (University of Minnesota); Sezen, A. Serdar (St. Cloud State University); Erdman, Arthur (University of Minnesota)*

SuA03: 08:30-10:00 Grand Ballroom - Salon B  
**2.6.1 Biomedical Image Reconstruction and Retrieval (Oral Session)**  
**Chair:** Jong Chul Ye, *Korea Advanced Inst. of Science & Tech.*  
**Co-Chair:** Mark Anastasio, *Illinois Inst. of Tech.*

08:30-08:45 SuA03.1  
**Efficient Parametric Encoding Scheme for White Matter Fiber Bundles** ..... 6644-6647  
*Chung, Moo K.\* (University of Wisconsin-Madison); Adluru, Nagesh (University of Wisconsin-Madison); Lee, Jee Eun (University of Wisconsin-Madison); Lazar, Mariana (New York university school of medicine); Lainhart, J.E. (University of Utah); Alexander, Andrew (University of Wisconsin)*

08:45-09:00 SuA03.2  
**Statistical Properties of X-Ray Phase-Contrast Tomography** ..... 6648-6650  
*Chou, Cheng-Ying (National Taiwan University); Anastasio, Mark\* (Illinois Institute of Technology)*

09:00-09:15 SuA03.3  
**Dynamic Imaging of Speech and Swallowing with MRI** ..... 6651-6654  
*Sutton, Bradley P.\* (University of Illinois at Urbana-Champaign); Conway, Charles A. (University of Illinois at Urbana-Champaign); Bae, Youkyung (University of Illinois at Urbana-Champaign); Brinegar, Cornelius (Univ of Illinois at Urbana-Champaign); Liang, Zhi-Pei (University of Illinois at Urbana-Champaign); Kuehn, David P. (University of Illinois at Urbana-Champaign)*

09:15-09:30 SuA03.4  
**Multimodal Optical Molecular Image Reconstruction with Frequency Domain Measurements** ..... 6655-6658  
*Bartels, Marc (Baylor College of Medicine); Chen, Wenxue (Baylor College of Medicine); Bardhan, Rizia (Rice University); Ke, Shi (UT M. D. Anderson Cancer Center); Halas, Naomi J. (Rice University); Wareing, Todd A. (Transpire Inc.); McGhee, John (Transpire Inc.); Joshi, Amit\* (Baylor College of Medicine)*

09:30-09:45 SuA03.5  
**Single Channel Exact 3-D Blind Image Deconvolution from Cylindrically Symmetric Blur Kernel** ..... 6659-6662  
*Jang, Kwang Eun (Korean Advanced Institute of Science and Technology); Ye, Jong Chul\* (Korea Advanced Inst of Science & Tech)*

09:45-10:00 SuA03.6  
**Spatial Spectral Modeling for Robust MRSI** ..... 6663-6666  
*Eslami, Ramin (University of Rochester); Mathews, Jacob\* (University of Rochester)*



SuA05: 08:30-10:00 Marquette V  
**2.7.8 Tumor Image Analysis** (Oral Session)  
**Chair:** Raj Rangayyan, *Univ. of Calgary*  
**Co-Chair:** Shai Ashkenazi, *Univ. of Minnesota*

08:30-08:45 SuA05.1  
**Detection of Architectural Distortion in Prior Mammograms of Interval-Cancer Cases with Neural Networks** ..... **6667-6670**  
*Banik, Shantanu\* (Schulich); Rangayyan, Raj (University of Calgary); Desautels, J. E. Leo (University of Calgary)*

08:45-09:00 SuA05.2  
**Classification of Low Resolution Virtual Slides from Breast Tumor Sections: Comparison between Global and Local Analysis** ..... **6671-6674**  
*Oger, Myriam\* (François Baclesse Cancer Center - University of Caen); Belhomme, Philippe (University of Caen); Gurcan, Metin (The Ohio State University)*

09:00-09:15 SuA05.3  
**Identification of Different Types of Lymphoblasts in Acute Lymphoblastic Leukemia Using Relevance Vector Machines** ..... **6675-6678**  
*Gupta, Lalit\* (Philips Electronics India Ltd.); Jayavanth, Sanjay (Philips Research Asia - Bangalore); Ramaiah, Aruna (Philips Research Asia - Bangalore)*

09:15-09:30 SuA05.4  
**Computer-Aided Renal Cancer Quantification and Classification Via Histograms of Curvature-Related Features** ..... **6679-6682**  
*Linguraru, Marius George\* (National Institutes of Health); Wang, Shijun (National Institutes of Health); Shah, Furhawn (National Institutes of Health); Gautam, Rabindra (National Institutes of Health); Peterson, James (National Institutes of Health); Linehan, W. Marston (National Cancer Institutes); Summers, Ronald (National Institutes of Health)*

09:30-09:45 SuA05.5  
**Automatic Detection of Small Bowel Tumors in Capsule Endoscopy Based in Color Curvelet Covariance Statistical Texture Descriptors** ..... **6683-6686**  
*Barbosa, Daniel (University of Minho); Ramos, Jaime (Hospital dos Capuchos); Correia, Higinio (University of Minho); Lima, Carlos Manuel Gregorio Santos\* (University of Minho)*

09:45-10:00 SuA05.6  
**Automated Classification of Renal Cell Carcinoma Subtypes Using Scale Invariant Feature Transform** . **6687-6690**  
*Raza, Syed Hussain (Georgia Institute of Technology); Sharma, Yachna (Georgia Institute of Technology); Chaudry, Qaiser (Georgia Institute of Technology); Young, Andrew N (Emory University); Wang, May Dongmei\* (Georgia Tech and Emory University)*

SuA06: 08:30-10:00 Conrad A  
**3.7.1 BioMEMS** (Oral Session)  
**Chair:** Jun Zou, *Texas A & M Univ.*  
**Co-Chair:** Shuichi Takayama, *Univ. of Michigan*

08:30-09:00 SuA06.1  
**Hybrid Micro-Technologies for Medical Applications** ..... **6691-6692**  
*Gianchandani, Yogesh\* (University of Michigan)*

09:00-09:15 SuA06.2  
**A Nano Grating Tunable MEMS Optical Filter for High-Speed On-Chip Multispectral Fluorescent Detection** ..... **6693-6695**  
*Truxal, Steven (University of Michigan); Huang, Nien-Tsu (University of Michigan); Kurabayashi, Katsuo\* (University of Michigan)*

09:15-09:30 SuA06.3  
**Implantable MEMS Drug Delivery Pumps for Small Animal Research** ..... 6696-6698  
*Meng, Ellis\** (University of Southern California); *Li, Po-Ying* (University of Southern California);  
*Lo, Ronalee* (University of Southern California); *Sheybani, Roya* (University of Southern California);  
*Gutierrez, Christian* (University of Southern California)

09:30-09:45 SuA06.4  
**Aptamer-Encoded Nanopore for Ultrasensitive Detection of Bioterrorist Agent Ricin at Single-Molecule Resolution** ..... 6699-6702  
*Gu, Li-Qun\** (University of Missouri)

09:45-10:00 SuA06.5  
**MEMS-Based 3D Optical Microendoscopy** ..... 6703-6705  
*Xie, Huikai\** (University of Florida)

SuA07: 08:30-10:00 Marquette VII  
**2.7.2 Cellular and Molecular Image Processing** (Oral Session)  
**Chair:** David Odde, *Univ. of Minnesota*  
**Co-Chair:** Baowei Fei, *Case Western Res. Univ.*

08:30-08:45 SuA07.1  
**Extraction of Informative Cell Features by Segmentation of Densely Clustered Tissue Images** ..... 6706-6709  
*Kothari, Sonal* (Georgia Institute of Technology); *Chaudry, Qaiser* (Georgia Institute of Technology);  
*Wang, May Dongmei\** (Georgia Tech and Emory University)

08:45-09:00 SuA07.2  
**Automatic Detection of Molecular Markers in Digital Images** ..... 6710-6713  
*Marcal, Andre R. S.* (Faculdade de Ciencias, Universidade do Porto); *Caridade, Cristina M. R.\** (Instituto Superior de Engenharia de Coimbra); *Albuquerque, Pedro Miguel da Silva* (IBMC - Instituto de Biologia Molecular e Celular); *Mendes, Marta V.* (IBMC - Institute for Molecular and Cell Biology); *Tavares, Fernando* (Institute for Molecular and Cell Biology)

09:00-09:15 SuA07.3  
**A New Algorithm for Segmenting and Counting Aedes Aegypti Eggs in Ovitrap** ..... 6714-6717  
*Portela, Nara* (University of Pernambuco); *Mello, Carlos* (University of Pernambuco); *dos Santos, Wellington\** (Universidade de Pernambuco); *Candeias, Ana Lucia* (Federal University of Pernambuco); *Gusmao, Cristine* (University of Pernambuco); *Machado, Saulo* (University of Pernambuco); *Rodrigues, Marco Aurélio Benedetti* (Federal University of Pernambuco)

09:15-09:30 SuA07.4  
**Automatic Nuclei Segmentation and Spatial FISH Analysis for Cancer Detection** ..... 6718-6721  
*Nandy, Kaustav\** (SAIC-Frederick, National Cancer Institute); *Gudla, Prabhakar R* (National Cancer Institute-Frederick/SAIC-Frederick, Inc.); *Meaburn, Karen* (National Cancer Institute, National Institutes of Health); *Misteli, Tom* (National Cancer Institute, National Institutes of Health); *Lockett, Stephen* (SAIC-Frederick)

09:30-09:45 SuA07.5  
**Motion Detection for Subcellular Structure Trafficking** ..... 6722-6725  
*Gao, Jean\** (Univeristy of Texas)

09:45-10:00 SuA07.6  
**Registration-Based Segmentation of Nerve Cells in Microscopy Images** ..... 6726-6729  
*Wang, Yi-Ying* (National Cheng Kung University); *Sun, Yung-Nien\** (National Cheng Kung University);  
*Lin, Chou-Ching* (National Cheng Kung University)

SuA08: 08:30-10:00 Marquette VIII  
**4.2.1 Bioinformatics Algorithms for Genomics, Proteomics, Metabolomics, and Lipidomics** (Oral Session)  
**Chair:** Jiayu Liao, *University of California, Riverside*

08:30-08:45 SuA08.1  
**Analysis of Epigenetic Modifications by Next Generation Sequencing** ..... 6730  
*Liang, Shoudan\** (MD Anderson Cancer Center)

08:45-09:00 SuA08.2  
**Deblurring Molecular Images Using Desorption Electrospray Ionization Mass Spectrometry** ..... 6731-6734  
*Parry, R. Mitchell\* (Georgia Institute of Technology); Galhena, Asiri (Georgia Institute of Technology);  
Fernandez, Facundo (Georgia Institute of Technology); Wang, May Dongmei (Georgia Tech and Emory University)*

09:00-09:15 SuA08.3  
**Structural Feature Extraction Protocol for Classifying Reversible Membrane Binding Protein Domains** ..... 6735-6738  
*Kallberg, Morten (University of Illinois at Chicago); Lu, Hui\* (University of Illinois at Chicago)*

09:15-09:30 SuA08.4  
**Quality Control of Highly Multiplexed Proteomic Immunostaining with Quantum Dots: Correcting for Crosstalk** ..... 6739-6742  
*Moffitt, Richard A. \* (Georgia Institute of Technology); Caldwell, Matthew (Georgia Institute of Technology);  
Liu, Tao (Emory University); Liu, Jian (Emory University); Nie, Shuming (Emory University);  
Wang, May Dongmei (Georgia Tech and Emory University)*

09:30-09:45 SuA08.5  
**A Bayesian Based Functional Mixed-Effects Model for Analysis of LC-MS Data** ..... 6743-6746  
*Befekadu, Getachew (Georgetown University); Tadesse, Mahlet (Georgetown University);  
Ressom, Habtom\* (Georgetown University)*

09:45-10:00 SuA08.6  
**Model Based Clustering for Tandem Mass Spectrum Quality Assessment** ..... 6747-6750  
*Ding, Jiarui (University of Saskatchewan); Wu, FangXiang\* (University of Saskatchewan)*

SuA09: 08:30-10:00 Marquette II  
**5.1.2 Cardiovascular Diagnostics & Therapeutics (Oral Session)**  
**Chair:** Mark Kroll, *Univ. of Minnesota*  
**Co-Chair:** Hairong zheng, *Shenzhen Inst. of Advanced Tech.*

08:30-08:45 SuA09.1  
**Visual3Dx: Algorithms for Quantitative Three-Dimensional Analysis of ECG Signals** ..... 6751-6754  
*Bojovic, Bosko (NewCardio, Inc); Ljupco, Hadzievski (NewCardio, Inc); Panescu, Dorin\* (NewCardio, Inc.);  
George, Samuel (NewCardio, Inc); Gussak, Ihor (NewCardio, Inc); Vajdic, Branislav (NewCardio, Inc);  
Shvilkin, Alexei (Beth Israel Deaconess Medical Center; Harvard Medical School); Vukcevic, Vladan (Clinical  
Center of Serbia)*

08:45-09:00 SuA09.2  
**System to Improve AED Resuscitation Using Interactive CPR Coaching** ..... 6755-6760  
*Lichter, Patrick\* (Koronis Biomedical Technologies); North, Robert (Human Centered Strategies);  
Andre, Anthony (Interface Analysis Associates); Riehle, Timothy (Koronis Biomed. Technologies Corp.);  
Anderson, Shane (Koronis Biomedical Technologies)*

09:00-09:15 SuA09.3  
**Optimizing Cardiac Resuscitation Outcomes Using Wavelet Analysis** ..... 6761-6764  
*Umapathy, Karthikeyan\* (Ryerson University); Krishnan, Sridhar (Ryerson University); Masse, Stephane  
(THCFM Lab, Toronto General Hospital); Xudong, Hu (St. Michael's Hospital); Dorian, Paul (St. Michael's  
Hospital); Nanthakumar, Kumaraswamy (THCFM Lab, Toronto General Hospital)*

09:15-09:30 SuA09.4  
**Cuffless Blood Pressure Estimation by Error-Correcting Output Coding Method Based on an Aggregation of AdaBoost with a Photoplethysmograph Sensor** ..... 6765-6768  
*Suzuki, Satomi\* (Aichi Prefectural University); Oguri, Koji (Aichi Prefectural University)*

09:30-09:45 SuA09.5  
**An Active Cardiac Stabilizer Based on Gyroscopic Effect** ..... 6769-6772  
*Gagne, Julien\* (Université de Strasbourg); Laroche, Edouard (Strasbourg University); Piccin, Olivier (INSA);  
Gangloff, Jacques (University of Strasbourg)*

09:45-10:00 SuA09.6  
**Non-Invasive Assessment of Cardiac Contractility on a Weighing Scale** ..... 6773-6776  
*Etemadi, Mozziyar\* (Stanford University); Inan, Omer (Stanford University); Wiard, Richard M. (Stanford University); Giovangrandi, Laurent (Stanford University); Kovacs, Gregory T.A. (Stanford University)*

SuA10: 08:30-10:00 Grand Ballroom - Salon C  
**6.11.1 Functional Electrical Stimulation (FES) (Oral Session)**  
**Chair:** Dominique Durand, *Case Western Res. Univ.*

08:30-08:45 SuA10.1  
**Computational Modeling of Peripheral Nerve Stimulation** ..... 6777-6780  
*Tracey, Brian\* (NEUROMetrix, Inc); Krastev, Plamen (Neurometrix, Inc); Han, Zhixiu (Neurometrix Inc); Williams, Michael (Neurometrix, Inc)*

08:45-09:00 SuA10.2  
**Intraurethral Activation of Excitatory Bladder Reflexes in Persons with Spinal Cord Injury** ..... 6781-6784  
*Yoo, Paul\* (Duke University); Horvath, Eric (Duke University); Amundsen, Cindy (Duke University Medical Center); Webster, George (Duke University Medical Center); Grill, Warren (Duke University)*

09:00-09:15 SuA10.3  
**Muscle Fatigue of Quadriceps in Paraplegics: Comparison between Single vs. Multi-Pad Electrode Surface Stimulation** ..... 6785-6788  
*Malešević, Nebojša (Faculty of Electrical Engineering, University of Belgrade); Popovic, Lana\* (Faculty of Electrical Engineering, University of Belgrade)*

09:15-09:30 SuA10.4  
**Motion Control of the Rabbit Ankle Joint Using a Flat Interface Nerve Electrode** ..... 6789-6792  
*Park, Hyunjoo\* (Case Western Reserve University); Durand, Dominique (Case Western Reserve University)*

09:30-09:45 SuA10.5  
**Development of an Implanted Intramuscular EMG-Triggered FES System for Ambulation after Incomplete Spinal Cord Injury** ..... 6793-6797  
*Dutta, Anirban\* (Howard Hughes Medical Institute); Kobetic, Rudi (Louis Stokes Veterans Affairs Medical Center); Triolo, Ronald J. (US Department of Veterans Affairs & Case Western Reserve University)*

09:45-10:00 SuA10.6  
**Single Channel Hybrid FES Gait System Using an Energy Storing Orthosis: Preliminary Design** ..... 6798-6801  
*Durfee, William\* (University of Minnesota)*

SuA11: 08:30-10:00 Marquette I  
**6.6.1 Neural Signal Processing I (Oral Session)**  
**Chair:** Shanbao Tong, *Shanghai Jiao Tong University*  
**Co-Chair:** Anastasios Bezerianos, *PATRAS*

08:30-09:00 SuA11.1  
**Predicting Perceptual Suppression from Local Field Potential in Visual Cortex** ..... 6802-6805  
*Zhang, Hongmiao\* (Drexel University); Logothetis, Nikos K. (MPI for Biological Cybernetics); Liang, Hualou (Drexel University)*

09:00-09:15 SuA11.2  
**Stochastic Resonance Can Enhance Information Transmission of Supra-Threshold Neural Signals** ..... 6806-6809  
*Kawaguchi, Minato\* (Waseda University); Mino, Hiroyuki (Kanto Gakuin University); Momose, Keiko (Waseda University); Durand, Dominique (Case Western Reserve University)*

09:15-09:30 SuA11.3  
**Correlation between Visual Stimulus Eccentricity and Multiscale Neuronal Activity in the Lateral Geniculate Nucleus** ..... 6810-6813  
*Farkas, Agnes (University of Szeged); Tsarouchas, Nikolaos (UNIVERSITY OF PATRAS); Gombkoto, Peter (University of Szeged); Nagy, Attila (University of Szeged); Benedek, Gyorgi (University of Szeged); BEZERIANOS, Anastasios (UNIVERSITY OF PATRAS); Berenyi, Antal\* (University of Szeged)*

09:30-09:45 SuA11.4  
**Statistical Analysis and Modeling of Variance in the SA-I Mechanoreceptor Response to Sustained Indentation** ..... 6814-6817  
*Lesniak, Daine (University of Virginia); Wellnitz, Scott (Baylor College of Medicine); Gerling, Gregory\* (University of Virginia); Lumpkin, Ellen (Baylor College of Medicine)*

09:45-10:00 SuA11.5  
**Influence of Subcortical Ischemic Stroke on Cortical Neural Network** ..... 6818-6821  
*Zhu, Chengyu (Shanghai Jiao Tong University); Guo, Xiaoli (Shanghai Jiao Tong University); Wu, Wenqing (Shanghai Jiao Tong University); Jin, Zheng (the 5th People's Hospital of Shanghai); Qiu, Yihong (Shanghai Jiao Tong University); Zhu, Yisheng (Shanghai Jiaotong University); Tong, Shanbao\* (Shanghai Jiao Tong University)*

SuA12: 08:30-10:00 Marquette VI  
**7.9.1 Hybrid Organic Synthetic Biomaterials for Sensing and Actuation (Oral Session)**  
**Chair:** John David Wyndham Madden, *University of British Columbia*  
**Co-Chair:** John Bischof, *Univ. of Minnesota*

08:30-09:00 SuA12.1  
**Artificial Muscle Actuators in Biorobotic Fish Fins** ..... 6822-6825  
*Phelan, Chris (Drexel University); MacDonald, Robert (Shearwater scientific); Tangorra, James\* (Drexel University)*

09:00-09:15 SuA12.2  
**Artificial Muscles Based on Synthetic Dielectric Elastomers** ..... 6826-6829  
*Pei, Qibing\* (UCLA)*

09:15-09:30 SuA12.3  
**Wearable Kinesthetic Systems and Emerging Technologies in Actuation for Upperlimb Neurorehabilitation** ..... 6830-6833  
*De Rossi, Danilo\* (University of Pisa); Carpi, Federico (University of Pisa); Iorussi, federico (University of Pisa); Scilingo, Enzo Pasquale (University of Pisa); tognetti, alessandro (University of Pisa)*

09:30-09:45 SuA12.4  
**Thermo-Mechanical Characterization of Polypyrrole Compliance Using Stochastic System Identification.** ..... 6834-6837  
*Pillai, Priam\* (Massachusetts Institute of Technology); Hunter, Ian (Massachusetts Institute of Technology)*

09:45-10:00 SuA12.5  
**Potential/Charge Induced Nanoporous Metal Actuators** ..... 6838-6841  
*RAGHAVAN NADAR, VISWANATH\* (Forschungszentrum Karlsruhe.)*

SuA13: 08:30-10:00 Conrad D  
**8.1.2 Minisymposium: Frontiers of Microrobotics in Endo-and Transluminal Therapy**  
**Chair:** Paolo Dario, *Scuola Superiore Sant'Anna*  
**Co-Chair:** Jacob Rosen, *Univ. of California - Santa Cruz*

08:30-08:45 SuA13.1  
**Miniaturized Robotic Devices for Endoluminal Diagnosis and Surgery: A Single-Module and a Multiple-Module Approach** ..... 6842-6845  
*Menciassi, Arianna\* (Scuola Superiore Sant'Anna); Dario, Paolo (Scuola Superiore Sant'Anna)*

08:45-09:00 SuA13.2  
**Modular "Plug-And-Play" Capsules for Multi-Capsule Environment in the Gastrointestinal Tract** ..... 6846-6849  
*Phee, Louis\* (Nanyang Technological University); Ting, Eng Kiat (Nanyang Technological University); Lin, Lin (Nanyang Technological University); HUYNH, VAN AN (NANYANG TECHNOLOGICAL UNIVERSITY); Kencana, Andy Prima (Nanyang Technological University); Wong, Kai-Juan (Nanyang Technological University); Tan, Su-Lim (Nanyang Technological University)*

09:00-09:15 SuA13.3  
**Some Control-Related Issues in Mini-Robotics for Endoluminal Surgery** ..... 6850-6855  
*POIGNET, Philippe\* (LIRMM, UMR CNRS 5506, University of Montpellier II); chemori, ahmed (LIRMM); Zemiti, Nabil (Université Montpellier 2, CNRS/UM2); Liu, Chao (LIRMM Laboratory)*

09:15-09:30 SuA13.4  
**Characterization of SMA Actuator for Applications in Robotic Neurosurgery** ..... 6856-6859  
*Desai, Jaydev\* (University of Maryland)*

09:30-09:45 SuA13.5  
**Teleoperation in Surgical Robotics – Network Latency Effects on Surgical Performance** ..... 6860-6863  
*Rosen, Jacob\* (University of California - Santa Cruz); Lum, Mitchell (Intel Corp.); Lendvay, Thomas (University of Washington); Sinanan, Mika (University of Washington); Hannaford, Blake (University of Washington); Friedman, Diana (University of Washington); Wright, Andrew (University of Washington)*

SuA14: 08:30-10:00 Marquette III  
**9.4.4 Quantitative Metabolic Physiology** (Oral Session)  
**Chair:** Jon Moon, *Devicix, LLC*  
**Co-Chair:** Kong Chen, *National Inst. of Health*

08:30-08:45 SuA14.1  
**Optimizing Energy Expenditure Detection in Human Metabolic Chambers** ..... 6864-6868  
*Brychta, Robert\* (National Institutes of Diabetes and Digestive and Kidney Diseases, NIH); Rothney, Megan (GE); Skarulis, Monica (National Institutes of Health); Chen, Kong (National Institutes of Health)*

08:45-09:00 SuA14.2  
**Quantification of Food Intake Using Food Image Analysis** ..... 6869-6872  
*Martin, Corby\* (Pennington Biomedical Research Center); KAYA, SERTAN (Louisiana State University); Gunturk, Bahadir (Louisiana State University)*

09:00-09:15 SuA14.3  
**A Novel Approach for Measuring Energy Expenditure in Free-Living Humans** ..... 6873-6877  
*Melanson, Edward\* (University of Colorado Denver); Szuminsky, Neil (LifeChek LLC); Dykstra, John (MetaLogics Corporation)*

09:15-09:30 SuA14.4  
**Assessing the Metabolic Cost of Walking: The Influence of Baseline Subtractions** ..... 6878-6881  
*Weyand, Peter\* (Southern Methodist University); Sandell, Rosalind (Southern Methodist University)*

09:30-09:45 SuA14.5  
**Integration of Multiple Physiological Signals to Evaluate the Human Body's Response to an Environmental Challenge.** ..... 6882-6884  
*McKenzie, Jack\* (Philips Respironics)*

SuA15: 08:30-10:00 Marquette IX  
**10.2.1 Wireless and Ubiquitous Medical Devices** (Oral Session)  
**Chair:** Robert Istepanian, *Kingston Univ. London*  
**Co-Chair:** Julien Penders, *Stichting IMEC Nederland*

08:30-08:45 SuA15.1  
**Understanding Energy Consumption of Sensor Enabled Applications on Mobile Phones** ..... 6885-6888  
*Crk, Igor\* (University of Arizona); Albinali, Fahd (MIT); Hartman, John (University of Arizona); Gniady, Chris (University of Arizona)*

08:45-09:00 SuA15.2  
**Predicting Cardiovascular Disease from Real-Time Electrocardiographic Monitoring: An Adaptive Machine Learning Approach on a Cell Phone** ..... 6889-6892  
*Jin, Zhanpeng (University of Pittsburgh); Sun, Yuwen (University of Pittsburgh); Cheng, Allen C.\* (University of Pittsburgh)*

09:00-09:15 SuA15.3  
**Time Encoding and Reconstruction of Multichannel Data by Brain Implants Using Asynchronous Sigma Delta Modulators** ..... 6893-6896  
*Senay, Seda (University of Pittsburgh); Chaparro, Luis F. (University of Pittsburgh); Sclabassi, Robert (University of Pittsburgh); Sun, Mingui\* (University of Pittsburgh)*

09:15-09:30	SuA15.4
<b>Performance Evaluation of Wireless Communications through Capsule Endoscope .....</b>	<b>6897-6900</b>
<i>Takizawa, Kenichi* (NICT)</i>	
09:30-09:45	SuA15.5
<b>Episodic Sampling: Towards Energy-efficient Patient Monitoring with Wearable Sensors .....</b>	<b>6901-6905</b>
<i>Au, Lawrence* (University of California, Los Angeles); Batalin, Maxim (University of California, Los Angeles); Stathopoulos, Thanos (University of California, Los Angeles); Bui, Alex (University of California, Los Angeles); Kaiser, William (University of California, Los Angeles)</i>	
09:45-10:00	SuA15.6
<b>Analysis of a Multi-Access Scheme and Asynchronous Transmit-Only UWB for Wireless Body Area Networks .....</b>	<b>6906-6909</b>
<i>Ho, Chee Keong* (University of Newcastle, Australia); Yuce, Mehmet Rasit (University of Newcastle)</i>	

SuA16: 08:30-10:00	Grand Ballroom - Salon A
<b>6.11.2 Prosthetic Control</b> (Oral Session)	
<b>Chair:</b> Guanglin Li, <i>Chinese Acad. of Sciences</i>	
<b>Co-Chair:</b> Kathleen H. Sienko, <i>Univ. of Michigan</i>	

08:30-08:45	SuA16.1
<b>Assessing the Effect of Vibrotactile Feedback During Continuous Multidirectional Platform Motion: A Frequency Domain Approach .....</b>	<b>6910-6913</b>
<i>Vichare, Vivek (University of Michigan); Wall, Conrad (Harvard Medical School); Balkwill, M. David (Massachusetts Eye &amp; Ear Infirmary); Sienko, Kathleen H.* (University of Michigan)</i>	

08:45-09:00	SuA16.2
<b>EMG Pattern Recognition Control of Multifunctional Prostheses by Transradial Amputees .....</b>	<b>6914-6917</b>
<i>Li, Guanglin* (Chinese Academy of Sciences); Kuiken, Todd (Rehabilitation Institute of Chicago)</i>	

09:00-09:15	SuA16.3
<b>Development of a Portable Actuated Orthotic Glove to Facilitate Gross Extension of the Digits for Therapeutic Training after Stroke .....</b>	<b>6918-6921</b>
<i>Ochoa, Jose Mauricio* (Antioquia School of Engineering, CES Univ.); Kamper, Derek (Rehabilitation Institute of Chicago and Illinois Institute of Technology); Jia, Yicheng (Rehabilitation Institute of Chicago); Narasimhan, Dev (Northwestern University)</i>	

09:15-09:30	SuA16.4
<b>Prosthetic Hand Control Using Motion Discrimination from EMG Signals .....</b>	<b>6922-6925</b>
<i>Kurusu, Naoyuki* (Doshisha University); Tsujiuchi, Nobutaka (Doshisha University); Koizumi, Takayuki (Doshisha University)</i>	

09:30-09:45	SuA16.5
<b>Promise of Embedded System with GPU in Artificial Leg Control: Enabling Time-Frequency Feature Extraction from Electromyography .....</b>	<b>6926-6929</b>
<i>Xiao, Weijun* (University of Rhode Island); Huang, He (University of Rhode Island); Sun, Yan (University of Rhode Island); Yang, Qing (University of Rhode Island)</i>	

SuB01: 10:20-11:50	Conrad B
<b>1.6.1 Biomedical Adaptive Filtering I</b> (Oral Session)	
<b>Chair:</b> Issa Panahi, <i>Univ. of Texas at Dallas</i>	
<b>Co-Chair:</b> Massimo Mischi, <i>Eindhoven Univ. of Tech.</i>	

10:20-10:35	SuB01.1
<b>Impedance Cardiography Filtering Using Scale Fourier Linear Combiner Based on RLS Algorithm .....</b>	<b>6930-6933</b>
<i>Dromer, Olivier* (University of Poitiers); ALATA, Olivier (Lab. XLIM-SIC, UMR CNRS 6172, University of Poitiers); BERNARD, Olivier (University of Poitiers)</i>	

10:35-10:50 SuB01.2  
**Electrohysterographic Conduction Velocity Estimation** ..... **6934-6937**  
*Mischi, Massimo\* (Eindhoven University of Technology); Rabotti, Chiara (Eindhoven University of Technology);  
Vosters, Luc (Eindhoven University of Technology); Oei, S. Guid (Maxima Medisch Centrum, Veldhoven);  
Bergmans, Johannes Wilhelmus Maria (Eindhoven University of Technology)*

10:50-11:05 SuB01.3  
**A Simple Filter Circuit for Denoising Biomechanical Impact Signals** ..... **6938-6941**  
*SUBRAMANIAM, SUBA\* (KING'S COLLEGE LONDON);  
GEORGAKIS, APOSTOLOS (KING'S COLLEGE LONDON)*

11:05-11:20 SuB01.4  
**A Pulse Simulator for Crystal Identification Validation of Phoswich Detectors Used in Positron  
Emission Tomography** ..... **6942-6945**  
*YOUSEFZADEH, HOORVASH CAMILIA\* (Université de Sherbrooke); Lecomte, Roger (Université de  
Sherbrooke); Fontaine, Réjean (Université de Sherbrooke)*

11:20-11:35 SuB01.5  
**A Multichannel Speech Enhancement Method for Functional MRI Systems Using a Distributed  
Microphone Array** ..... **6946-6949**  
*Milani, Ali\* (University of Texas at Dallas); Kannan, Govind (The University of Texas at Dallas);  
Panahi, Issa (University of Texas at Dallas); Briggs, Richard (UT Southwestern Medical Center at Dallas)*

11:35-11:50 SuB01.6  
**Real Time Speech Enhancement System for Noisy MRI Environment** ..... **6950-6953**  
*Pathak, Nishank\* (UT Dallas); Devineni, Naga Parameswara Rao (University of Texas at Dallas);  
Panahi, Issa (University of Texas at Dallas); Briggs, Richard (UT Southwestern Medical Center at Dallas)*

SuB02: 10:20-11:50 Conrad C  
**1.9.2 Computational Genomics and Proteomics (Oral Session)**  
**Chair:** Konstantina Nikita, *National Tech. Univ. of Athens*

10:20-10:35 SuB02.1  
**Network Topological Reordering Revealing Systemic Patterns in Yeast Protein Interaction Networks ....** **6954-6957**  
*Wu, Xiaogang (Indiana University); Pandey, Ragini (Indiana University); Chen, Jake\* (Indiana University)*

10:35-10:50 SuB02.2  
**Supporting Genotype-To-Phenotype Association Studies with Grid-Enabled Knowledge  
Discovery Workflows** ..... **6958-6962**  
*Koumakis, Lefteris (Foundation for Research and TEchnology Hellas); MOUSTAKIS, VASSILIS (Technical  
University of Crete); Tsiknakis, Manolis (ICS-FORTH); Kafetzopoulos, Dimitris (FORTH); Potamias, George\*  
(Foundation for Research and Technology - Hellas)*

10:50-11:05 SuB02.3  
**Identification of Markers of Cardiovascular Disease in Women and the Reconstruction of Its  
Corresponding Protein Interaction Network** ..... **6963-6968**  
*Camargo, Anyela\* (University of East Anglia)*

11:05-11:20 SuB02.4  
**Imaging Mass Spectrometry Analysis for Follicular Lymphoma Grading** ..... **6969-6972**  
*Samsi, Siddharth\* (Ohio Supercomputer Center); Krishnamurthy, Ashok (Ohio Supercomputer Center);  
Groseclose, Mark (Vanderbilt University); Caprioli, Richard (Vanderbilt University); Lozanski, Gerard (The Ohio  
State University, Medical Center); Gurcan, Metin (The Ohio State University)*

11:20-11:35 SuB02.5  
**Application of Signal Processing Techniques for Estimating Regions of Copy Number Variations in  
Human Meningioma DNA** ..... **6973-6976**  
*Stamoulis, Catherine\* (Harvard Medical School); Betensky, Rebecca (Harvard School of Public Health);  
Mohapatra, Gayatri (Massachusetts General Hospital, Harvard Medical School); Louis, David (Massachusetts  
General Hospital, Harvard Medical School)*



SuB03: 10:20-11:50 Grand Ballroom - Salon B  
**2.8.1 Image Visualization and Volume Rendering** (Oral Session)  
**Chair:** Anthony Reeves, *Cornell Univ.*  
**Co-Chair:** Ashish Raj, *Weill Medical Coll. of Cornell Univ.*

10:20-10:35 SuB03.1  
**New Blockwise Permutation Tests Preserving Exchangeability in Functional Neuroimaging** ..... 6977-6980  
*Zhou, Chunxiao (University of Illinois at Urbana-Champaign);*  
*Wang, Yongmei Michelle\* (University of Illinois at Urbana-Champaign)*

10:35-10:50 SuB03.2  
**An Integrated Multimodality MR Brain Imaging Study: Gray Matter Tissue Loss Mediates the Association between Cerebral Hypoperfusion and Alzheimer's Disease** ..... 6981-6984  
*Tosun, Duygu\* (Center for Imaging Neurodegenerative Diseases)*

10:50-11:05 SuB03.3  
**Visualization and Segmentation of Liver Tumors Using Dynamic Contrast MRI** ..... 6985-6989  
*Raj, Ashish\* (Weill Medical College of Cornell University)*

11:05-11:20 SuB03.4  
**Local and Global Panoramic Imaging for Fluorescence Bladder Endoscopy** ..... 6990-6993  
*Behrens, Alexander\* (RWTH Aachen University); Stehle, Thomas (RWTH Aachen University);*  
*Gross, Sebastian (RWTH Aachen University); Aach, Til (RWTH Aachen University)*

11:20-11:35 SuB03.5  
**Automated 3-D Tracking of Centrosomes in Sequences of Confocal Image Stacks** ..... 6994-6997  
*Kerekes, Ryan\* (Oak Ridge National Laboratory); Gleason, Shaun S. (Oak Ridge National Laboratory);*  
*Trivedi, Niraj (St. Jude Children's Research Hospital); Solecki, David (St. Jude Children's Research Hospital)*

SuB05: 10:20-11:50 Marquette V  
**1.2.5 Biomedical Modelling and Simulation I** (Oral Session)  
**Chair:** Junichi Hori, *Niigata Univ.*  
**Co-Chair:** Jie Zhang, *Medical School, Univ. of Minnesota*

10:20-10:35 SuB05.1  
**Spike Library Based Simulator for Extracellular Single Unit Neuronal Signals** ..... 6998-7001  
*Thorbergsson, Palmi Thor\* (Lund University); Jorntell, Henrik (Experimental Medical Science);*  
*Bengtsson, Fredrik (Experimental Medical Science); Garwicz, Martin (Lund University);*  
*Schouenborg, Jens (Lund University); Johansson, Anders (Lund University)*

10:35-10:50 SuB05.2  
**A Statistical Model for Multiphoton Calcium Imaging of the Brain** ..... 7002-7005  
*Malik, Wasim Q.\* (Massachusetts Institute of Technology); Schummers, James (Massachusetts Institute of Technology);*  
*Sur, Mriganka (MIT); Brown, Emery N (MGH-Harvard Medical School-MIT)*

10:50-11:05 SuB05.3  
**Medial-Lateral Postural Control in Older Adults Exhibits Increased Stiffness and Damping** ..... 7006-7009  
*Cenciarini, Massimo\* (University of Pittsburgh); Loughlin, Patrick (University of Pittsburgh);*  
*Sparto, Patrick (University of Pittsburgh); Redfern, Mark (University of Pittsburgh)*

11:05-11:20 SuB05.4  
**Using a Bi-Planar Postural Stability Model to Assess Children with Scoliosis** ..... 7010-7013  
*Riedel, Susan\* (Marquette University); Bustamante Valles, Karla (Marquette University); Harris, Gerald (Marquette University);*  
*Long, Jason (Medical College of Wisconsin); Graf, Adam (Shriners Hospital for Children); Krzak, Joe (Shriners Hospital of Chicago); Sturm, Peter (Shriners Hospitals for Children);*  
*Hassani, Sahar (Shriners Hospital of Chicago)*

11:20-11:35 SuB05.5  
**Dynamic Gesture Recognition Based on Multiple Sensors Fusion Technology** ..... 7014-7017  
*Wang, Wenhui\* (University of Science and Technology of China); Chen, Xiang (University of Science & Technology of China);*  
*Wang, Kong-qiao (Nokia); Zhang, Xu (University of Science & Technology of China);*  
*Yang, Jihai (University of Science and Technology of China)*

11:35-11:50 SuB05.6  
**Exploration on the Feasibility of Building Muscle-Computer Interfaces Using Neck and Shoulder Motions** ..... 7018-7021  
*Zhang, Xu\** (University of Science & Technology of China); *Chen, Xiang* (University of Science & Technology of China); *Lantz, Vuokko* (Nokia); *Yang, Jihai* (University of Science and Technology of China); *Wang, Kong-qiao* (Nokia)

SuB06: 10:20-11:50 Conrad A  
**3.9.2 Microfluidics Methods, Systems and Microtechnology** (Oral Session)  
**Chair:** Ali Khademhosseini, *Harvard-MIT*  
**Co-Chair:** Shuichi Takayama, *Univ. of Michigan*

10:20-10:35 SuB06.1  
**Polyimide-Based Multi-Channel Arrayed Electrode for Measuring EEG Signal on the Skull of Mouse** ..... 7022-7025  
*Baek, Dong-Hyun* (Korea University); *Lee, Eun-Joong* (College of Health Science, Korea University.); *Moon, Jin-hee* (Seoul National University); *Choi, Jee Hyun* (Korea Institute of Science and Technology, University of Science and Technology); *Pak, James Jungho* (Korea University); *Lee, Sang hun\** (College of Medicine Korea University)

10:35-10:50 SuB06.2  
**Hollow Polymer Microneedle Array Fabricated by Photolithography Process Combined with Micromolding Technique** ..... 7026-7029  
*Wang, Po-Chun\** (Georgia Tech); *Allen, Mark* (Georgia Institute of Technology)

10:50-11:05 SuB06.3  
**A Passive Microfluidic Device for Plasma Extraction from Whole Human Blood** ..... 7030-7033  
*Sollier, Elodie\** (CEA Leti Minatec); *Cubizolles, Myriam* (CEA Leti Minatec); *Faivre, Magalie* (CEA Leti Minatec); *Fouillet, Yves* (CEA Leti Minatec); *Achard, Jean-Luc* (Laboratoire des Ecoulements Géophysiques et Industriels)

11:05-11:20 SuB06.4  
**Improving Alternate Flow Mixing by Obstacles Located Along a Micro-Channel** ..... 7034-7036  
*Miranda, Joao Mario* (University of Minho); *Teixeira, Jose* (University of Minho); *Vicente, Antonio* (University of Minho); *Correia, Higino* (University of Minho); *Minas, Graca\** (University of Minho)

11:20-11:35 SuB06.5  
**Microfluidic Encapsulation of Cells in Alginate Capsules for High Throughput Screening** ..... 7037-7040  
*Trivedi, Varun* (Wayne State University); *Ereifej, Evon* (Wayne State University); *Doshi, Ankur* (Wayne State University); *Sehgal, Priyanka* (Wayne State University); *VandeVord, Pamela* (Wayne State University); *Basu, Amar\** (Wayne State University)

SuB07: 10:20-11:50 Marquette VII  
**11.1.1 Technology Development, Assessment and Management** (Oral Session)  
**Chair:** Mark Kroll, *Univ. of Minnesota*

10:20-10:35 SuB07.1  
**Is BIS Monitoring Cost-Effective?** ..... 7041-7044  
*Abenstein, John Peter\** (Mayo Clinic College of Medicine)

10:35-10:50 SuB07.2  
**A Protocol Design for Evaluation of Wearable Cuff-Less Blood Pressure Measuring Devices** ..... 7045-7047  
*Yan, Renfei\** (The Chinese University of Hong Kong); *Poon, Carmen CY* (The Chinese University of Hong Kong); *Zhang, Yuan-Ting* (The Chinese University of Hong Kong)

10:50-11:05 SuB07.3  
**Medical Devices for Developing Countries: Design Constraints and Approaches** ..... 7048-7051  
*Nimunkar, Amit\** (University of Wisconsin-Madison); *Baran, Jonathan* (University of Wisconsin-Madison); *Webster, John* (University of Wisconsin Madison)

11:05-11:20 SuB07.4  
**Cells to Society: Lactate and Neuromuscular Incapacitation Devices** ..... 7052-7056  
*Marino, Bruno\** (Axonix Technologies); *Stethem, Kenneth* (Aegis Industries)

11:20-11:35	SuB07.5
<b>Proving Experience Speeds Medical Device Time to Market</b> .....	<b>7057-7060</b>
<i>Lucke, Lori* (Minnetronix Inc); Mickelson, Anne (Minnetronix, Inc.); Anderson, Dave (Minnetronix)</i>	
11:35-11:50	SuB07.6
<b>Security of the Food Supply Chain</b> .....	<b>7061-7064</b>
<i>Setola, Roberto* (Univ. CAMPUS Bio-Medico); De Maggio, Maria Carla (University Campus Bio-Medico of Rome)</i>	

SuB08: 10:20-11:50	Marquette VIII
<b>4.6.1 Biological and Medical Data Management, Ontology, Mining, and Visualization (Oral Session)</b>	
<b>Chair:</b> Gregory A. Worrell, <i>Mayo Clinic</i>	

10:20-10:35	SuB08.1
<b>Computing Human Image Annotation</b> .....	<b>7065-7068</b>
<i>Channin, David Samuel* (Northwestern University); Mongkolwat, Pattanasak (Northwestern University); Kleper, Vladimir (Northwestern University); Rubin, Daniel (Stanford University)</i>	

10:35-10:50	SuB08.2
<b>Entity/Quality-Based Logical Definitions for the Human Skeletal Phenome Using PATO</b> .....	<b>7069-7072</b>
<i>Robinson, Peter* (Charité - Universitätsmedizin Berlin)</i>	

10:50-11:05	SuB08.3
<b>Exploitation of Ontological Resources for Scientific Literature Analysis: Searching Genes and Related Diseases</b> .....	<b>7073-7078</b>
<i>Jimeno-Yepes, Antonio Jose (European Bioinformatics Institute); Berlanga-Llavori, Rafael (Universitat Jaume I, Spain); Rebholz-Schuhmann, Dietrich* (European Bioinformatics Institute)</i>	

11:05-11:20	SuB08.4
<b>Search of Phenotype-Related Candidate Genes Using Gene Ontology-Based Semantic Similarity and Protein Interaction Information: Application to Brugada Syndrome</b> .....	<b>7079-7082</b>
<i>Massanet Vila, Raimon* (Universitat Politècnica de Catalunya); Gallardo-Chacón, Joan-Josep (CIBER Bioengineering, Biomaterials, and Nanomedicin); Caminal, Pere (Technical University of Catalonia (UPC)); Perera, Alexandre (Universitat Politècnica de Catalunya)</i>	

11:20-11:35	SuB08.5
<b>Multiscale Electrophysiology Format: An Open-Source Electrophysiology Format Using Data Compression, Encryption, and Cyclic Redundancy Check</b> .....	<b>7083-7086</b>
<i>Brinkmann, Benjamin* (Mayo Foundation); Bower, Mark (Mayo Clinic); Worrell, Gregory A. (Mayo Clinic); Stead, Matt (Mayo Clinic)</i>	

11:35-11:50	SuB08.6
<b>Transcription Factor Binding Site Detection through Position Cross-Mutual Information Variability Analysis</b> .....	<b>7087-7090</b>
<i>Joan, Maynou Fernández* (Universitat Politècnica de Catalunya); Vallverdu, Montserrat (Technical University of Catalonia); Claria, Francesc (Lleida University); Gallardo-Chacón, Joan-Josep (CIBER Bioengineering, Biomaterials, and Nanomedicin); Caminal, Pere (Technical University of Catalonia (UPC)); Perera, Alexandre (Universitat Politècnica de Catalunya)</i>	

SuB09: 10:20-11:50	Marquette II
<b>5.10.1 Sleep Apnea (Oral Session)</b>	
<b>Chair:</b> Thomas Penzel, <i>Charite Univ. Hospital</i>	
<b>Co-Chair:</b> W. G. Besio, <i>Univ. of Rhode Island</i>	

10:20-10:35	SuB09.1
<b>SleepMinder: An Innovative Contact-Free Device for the Estimation of the Apnoea-Hypopnoea Index.</b> .....	<b>7091-7094</b>
<i>Zaffaroni, Alberto Antonio* (Biancamed Ltd); de Chazal, Philip (BiancaMed Ltd); Heneghan, Conor (BiancaMed); Mc Nicholas, Walter (St. Vincent's University Hospital); Boyle, Patricia (St Vincents Private Hospital); Ronayne, Patricia (St Vincent's Healthcare Group)</i>	

10:35-10:50 SuB09.2  
**Development of an Apnea Detector for Neonates Using Diaphragmatic Surface Electromyography** ..... 7095-7098  
*Osorio, Juan Sebastián\* (Antioquia School of Engineering, CES Univ.); Torres, Róbinson (Antioquia School of Engineering, CES University); Ochoa, Jose Mauricio (Antioquia School of Engineering, CES Univ.); McLeod, Christopher N (Imperial College London)*

10:50-11:05 SuB09.3  
**Revised Recommendations for Computer-Based Sleep Recording and Analysis** ..... 7099-7101  
*Penzel, Thomas\* (Charite University Hospital)*

11:05-11:20 SuB09.4  
**Automatic differentiation of obstructive and central hypopneas with esophageal pressure measurement during sleep** ..... 7102-7105  
*Morgenstern, Christian\* (Institut de Bioenginyeria de Catalunya); Schwaibold, Matthias (MCC-Med GmbH & Co KG); Randerath, Winfried (Klinikum Bethanien); Bolz, Armin (University of Karlsruhe); Jané, Raimon (Universitat Politècnica de Catalunya)*

11:20-11:35 SuB09.5  
**Sleep Disordered Breathing Detection Using Heart Rate Variability and R-Peak Envelope Spectrogram** ..... 7106-7109  
*Al-Abed, Mohammad\* (University of Texas at Arlington); Manry, Michael (The University of Texas at Arlington); Burk, John R. (Sleep Consultants Inc.); Lucas, Edgar A (Sleep Consultants Inc.); Behbehani, Khosrow (University of Texas at Arlington)*

11:35-11:50 SuB09.6  
**Acoustic Obstructive Sleep Apnea Detection** ..... 7110-7113  
*Yadollahi, Azadeh\* (University of Manitoba); Moussavi, Zahra (University of Manitoba)*

SuB10: 10:20-11:50 Grand Ballroom - Salon C  
**6.10.1 Robotics in Rehabilitation I (Oral Session)**  
**Chair:** James Patton, *Rehab Inst. of Chicago & U. of Illinois at Chicago*  
**Co-Chair:** Jaydev Desai, *Univ. of Maryland*

10:20-10:35 SuB10.1  
**Robust Multivariable Strategy and Its Application to a Powered Wheelchair** ..... 7114-7117  
*Nguyen, Tuan Nghia\* (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney); Su, Steven Weidong (University of Technology, Sydney)*

10:35-10:50 SuB10.2  
**Adaptive Shared Control Strategies Based in the Bayesian Recursive Technique in an Intelligent Wheelchair** ..... 7118-7121  
*Trieu, Tuyen Hoang\* (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney); Willey, Keith (University of Technology, Sydney)*

10:50-11:05 SuB10.3  
**Development of Hand Rehabilitation System for Paralysis Patients - Universal Design Using Wire-Driven Mechanism -** ..... 7122-7125  
*Yamaura, Hiroshi\* (The University of Tokyo); Matsushita, Kojiro (The University of Tokyo); Kato, Ryu (The University of Tokyo); Yokoi, Hiroshi (University of Tokyo)*

11:05-11:20 SuB10.4  
**Patient-Specific Walking Pattern Simulation in a Gait Trajectory Guiding Device** ..... 7126-7130  
*Hasan, Muhammad Kamrul\* (Kyung Hee University, South Korea); Park, Jang Ho (Kyunghee University); Park, Seung-Hun (Kyung Hee University); HWANG, SUN HEE (Kyung Hee University); Khang, Gon (Kyung Hee University)*

11:20-11:35 SuB10.5  
**Treadmill Motor Current Value Based Walk Phase Estimation** ..... 7131-7134  
*Ohki, Eiiichi (Waseda University); Nakashima, YASUTAKA (Waseda University); Ando, Takeshi\* (Waseda University); Fujie, Masakatsu G. (Waseda University)*

11:35-11:50 SuB10.6  
**Design and Development of an Upper Extremity Motion Capture System for a Rehabilitation Robot ..... 7135-7138**  
*Nanda, Pooja\* (Rochester Institute of Technology); Smith, Alan (Rochester Institute of Technology); Gebregiorgis, Adey (Rochester Institute of Technology); Brown, Edward (Rochester Institute of Technology)*

SuB11: 10:20-11:50 Marquette I  
**6.14.1 Tissue/Electrode Interface (Oral Session)**  
**Chair:** Hubert Lim, *Univ. of Minnesota*  
**Co-Chair:** Jack Judy, *UCLA*

10:20-10:35 SuB11.1  
**Effects of adsorbed proteins, an antifouling agent and long-duration DC voltage pulses on the impedance of silicon-based neural microelectrodes ..... 7139-7142**  
*Sommakia, Salah\* (Purdue University); Rickus, Jenna (Purdue University); Otto, Kevin (Purdue University)*

10:35-10:50 SuB11.2  
**In Vitro and in Vivo Electrochemical Characterization of a Microfabricated Neural Probe ..... 7143-7146**  
*Musa, Silke\* (IMEC); Welkenhuysen, Marleen (IMEC); Prodanov, Dimiter (IMEC); Eberle, Wolfgang (IMEC); Bartic, Carmen (IMEC); Nuttin, Bart (KU Leuven); Borghs, Gustaaf (IMEC)*

10:50-11:05 SuB11.3  
**Penetrating Microelectrode Arrays with Low-Impedance Sputtered Iridium Oxide Electrode Coatings .... 7147-7150**  
*Cogan, Stuart\* (EIC Laboratories, Inc.); Ehrlich, Julia (EIC Laboratories); Plante, Timothy D. (EIC Laboratories); Van Wagenen, Rick (Blackrock Microsystems)*

11:05-11:20 SuB11.4  
**Adhesion Molecules Promote Chronic Neural Interfaces Following Neurotrophin Withdrawal ..... 7151-7154**  
*Winter, Jessica\* (the Ohio State University); Han, Ning (the Ohio State University); Jensen, Ralph (Boston VA Healthcare System); Cogan, Stuart (EIC Laboratories, Inc.); Rizzo, Joseph F. (Boston VA Healthcare System)*

11:20-11:35 SuB11.5  
**An in Vitro System for Modeling Brain Reactive Responses and Changes in Neuroprosthetic Device Impedance ..... 7155-7158**  
*Frampton, John\* (SUNY at Albany); Hynd, Matthew (New York State Department of Health); Vargun, Aytekin (Rensselaer Polytechnic Institute); Roysam, Badrinath (Rensselaer Polytechnic Institute); Shain, William (New York State Department of Health)*

SuB12: 10:20-11:50 Marquette VI  
**8.8.2 Biomechanical Modeling and Simulation I (Oral Session)**  
**Chair:** Victor Barocas, *Univ. of Minnesota*  
**Co-Chair:** Yo Kobayashi, *Waseda Univ.*

10:20-10:35 SuB12.1  
**Longitudinal Strain Estimation in Incompressible Cylindrical Tissues from Magnetic Resonance Imaging ..... 7159-7163**  
*Wei, Qi\* (Rutgers University); Pai, Dinesh K. (UBC)*

10:35-10:50 SuB12.2  
**Upper Extremity Biomechanical Model of Crutch-Assisted Gait in Children ..... 7164-7167**  
*Bhagchandani, Neha\* (Marquette University); Slavens, Brooke (Marquette University); Wang, Mei (Medical College of Wisconsin); Harris, Gerald (Marquette University)*

10:50-11:05 SuB12.3  
**A Morphological Approach to the Simulation of Forearm Motion ..... 7168-7171**  
*Fuemstahl, Philipp\* (ETH Zuerich); Schweizer, Andreas (Balgrist University Hospital); Nagy, Ladislav (Balgrist University Hospital); Szekely, Gabor (ETH Zurich); Harders, Matthias (Swiss Federal Institute of Technology (ETH))*

11:05-11:20 SuB12.4  
**The Effect of Modern Total Knee Arthroplasty on Muscle Balance at the Knee ..... 7172-7175**  
*Buford, William L\* (The Univ of Texas Medical Branch); Ivey, F. Marty (University of Texas Medical Branch); Loveland, Dustin M. (Univ. of Texas Medical Branch); Flowers, Christopher W. (University of Texas Medical Branch)*

11:20-11:35 SuB12.5  
**Development of a Kinematic 3D Carpal Model to Analyze in Vivo Soft-Tissue Interaction across Multiple Static Postures** ..... 7176-7179  
*Marai, Georgeta Elisabeta\* (University of Pittsburgh); Crisco, Joseph (Brown University); Laidlaw, David (Brown University)*

11:35-11:50 SuB12.6  
**Dynamic AFM Elastography Reveals Phase Dependent Mechanical Heterogeneity of Beating Cardiac Myocytes** ..... 7180-7183  
*Costa, Kevin D.\* (Mount Sinai School of Medicine); Azeloglu, Evren U. (Mount Sinai School of Medicine)*

SuB13: 10:20-11:50 Conrad D  
**8.2.1 BioMimetic Robotics I (Oral Session)**  
**Chair:** Cecilia Laschi, *Scuola Superiore Sant'Anna*

10:20-10:35 SuB13.1  
**Investigations of Mammalian Echolocation** ..... 7184-7187  
*Edwards, David Steven\* (University of Southampton); Allen, Robert (University of Southampton); Papadopoulos, Timos (University of Southampton); Rowan, Daniel (University of Southampton); Kim, Su Yeon (University of Southampton); Wilmot-Brown, LaToya (University of Southampton)*

10:35-10:50 SuB13.2  
**Behavioral Match Evaluation of Spatial Cognition in Rats and Robots** ..... 7188-7191  
*Barrera, Alejandra\* (Mexico's Autonomous Institute of Technology); Weitzenfeld, Alfredo (ITAM)*

10:50-11:05 SuB13.3  
**Design and Development of Biomimetic Quadruped Robot for Behavior Studies of Rats and Mice** ..... 7192-7195  
*Ishii, Hiroyuki\* (Waseda University); Yuichi, Masuda (Waseda University); Miyagishima, Syunsuke (Faculty of Science and Engineering); Fumino, Shogo (Faculty of Science and Engineering); Takanishi, Atsuo (Waseda University); Laschi, Cecilia (Scuola Superiore Sant'Anna); Mazzolai, Barbara (Scuola Superiore Sant'Anna); Mattoli, Virgilio (Scuola Superiore Sant'Anna); Dario, Paolo (Scuola Superiore Sant'Anna)*

11:05-11:20 SuB13.4  
**Tools and Methods for Experimental In-Vivo Measurement and Biomechanical Characterization of an Octopus vulgaris Arm** ..... 7196-7199  
*Margheri, Laura (Scuola Superiore Sant'Anna); Mazzolai, Barbara (Scuola Superiore Sant'Anna); Cianchetti, Matteo (Scuola Superiore Sant'Anna); Dario, Paolo (Scuola Superiore Sant'Anna); Laschi, Cecilia\* (Scuola Superiore Sant'Anna)*

11:20-11:35 SuB13.5  
**A Multi-Level Robotic Architecture for Biologically-Inspired Modeling** ..... 7200-7203  
*Weitzenfeld, Alfredo\* (ITAM); Barrera, Alejandra (Mexico's Autonomous Institute of Technology)*

11:35-11:50 SuB13.6  
**Functional Contrast and Kinetic Analysis of Water-Dispersible Carbon Black Nanoparticles and MWNTs in Glucose Biosensors** ..... 7204-7207  
*yang, hao (Zhejiang University); Yang, Xiaohe (Zhejiang University); Pan, Min (Zhejiang University); Chen, Yuquan\* (Zhejiang University)*

SuB14: 10:20-11:50 Marquette III  
**9.6.1 Safety and Medical Device Design (Oral Session)**  
**Chair:** Dustin Tyler, *Case Western Res. Univ.*  
**Co-Chair:** Babak Ziaie, *Purdue Univ.*

10:20-10:35 SuB14.1  
**Safety Design for Medical Robots** ..... 7208-7211  
*Kazanzides, Peter\* (Johns Hopkins University)*

10:35-10:50 SuB14.2  
**Twenty Year Experience with Implanted Neuroprostheses** ..... 7212-7215  
*Kilgore, Kevin\* (MetroHealth Medical Center); Peckham, Hunter (Case Western Reserve University); Keith, Michael (MetroHealth Medical Center)*

10:50-11:05	SuB14.3
<b>An Investigation of Tissue-Temperature Elevation Caused by Transcutaneous Recharging of Neuromodulation Devices</b> .....	<b>7216-7219</b>
<i>Abraham, John* (University of St. Thomas)</i>	
11:05-11:20	SuB14.4
<b>Safety Measures Implemented for Modular Functioning Electrical Stimulators</b> .....	<b>7220-7223</b>
<i>Chen, Chiun-fan (National Taiwan University); Chen, Shih-Wei (National Taiwan Univ.); Lin, Yin-Tsong (National Taiwan University); Lai, Jin-Shin* (National Taiwan University Hospital); Kuo, Te-son (Nation Taiwan University)</i>	
11:20-11:35	SuB14.5
<b>Basic Study of Brain Injury Mechanism Caused by Cavitation</b> .....	<b>7224-7227</b>
<i>Kurosawa, Yusuke* (Meiji University); Kato, Kazuo (Meiji University); Saito, Satoshi (Meiji University)</i>	
SuB15: 10:20-11:50	Marquette IX
<b>10.4.1 Technologies for Chronic Disease Management and Assisted Living (Oral Session)</b>	
<b>Chair:</b> Michael Pavel, <i>Oregon Health and Science Univ.</i>	
<b>Co-Chair:</b> Constantinos Pattichis, <i>Univ. of Cyprus</i>	
10:20-10:35	SuB15.1
<b>Diabetes Management in OLDES Project</b> .....	<b>7228-7231</b>
<i>Novak, Daniel* (Czech Technical University in Prague); Uller, Miroslav (Czech Technical University in Prague); Rousseaux, Sébastien (CETIC); Mraz, Milos (Charles university); Smrz, Jan (University); Stepankova, Olga (CTU in Prague); Haluzik, Martin (Charles University); Massimo, Busuoli (ENEA - Italian National Agency for New Technologies, the Energy and the Environment)</i>	
10:35-10:50	SuB15.2
<b>Activity Density Map Dis-Similarity Comparison for Eldercare Monitoring</b> .....	<b>7232-7235</b>
<i>Wang, Shuang* (University of Missouri - Columbia); Skubic, Marjorie (University of Missouri); Zhu, Yingnan (University of Missouri - Columbia)</i>	
10:50-11:05	SuB15.3
<b>Automated Estimation of Elder Activity Levels from Anonymized Video Data</b> .....	<b>7236-7239</b>
<i>Harvey, Nicholas* (University of Missouri-Columbia); Zhou, Zhongna (University of Missouri-Columbia); Keller, James M (University of Missouri); Rantz, Marilyn (University of Missouri); He, Zhihai (University of Missouri)</i>	
11:05-11:20	SuB15.4
<b>SoundView: An Auditory Guidance System Based on Environment Understanding for the Visually Impaired People</b> .....	<b>7240-7243</b>
<i>Nie, Min (Shanghai Jiao Tong University); Ren, Jie (Shanghai Jiao Tong University); Li, Zhengjun (Shanghai Jiao Tong University); Niu, Jinhai (Shanghai Jiao Tong University); Qiu, Yihong (Shanghai Jiao Tong University); Zhu, Yisheng (Shanghai Jiaotong University); Tong, Shanbao* (Shanghai Jiao Tong University)</i>	
11:20-11:35	SuB15.5
<b>Adaptive Notification Framework for Smart Nursing Home</b> .....	<b>7244-7247</b>
<i>Betgé-Brezetz, Stéphane* (Alcatel-Lucent Bell Labs); Dupont, Marie-Pascale (Alcatel-Lucent Bell Labs); Ghorbel, Mahmoud (Alcatel-Lucent Bell Labs); Kamga, Guy-Bertrand (Alcatel-Lucent Bell Labs); Piekarec, Sophie (Alcatel-Lucent Bell Labs)</i>	
11:35-11:50	SuB15.6
<b>Unobtrusive Assessment of Walking Speed in the Home Using Inexpensive PIR Sensors</b> .....	<b>7248-7251</b>
<i>Hayes, Tamara* (Oregon Health and Science University); Hagler, Stuart (Oregon Health and Science University); Austin, Daniel (University of Southern California); Kaye, Jeffrey A. (Oregon Health and Science University); Pavel, Michael (Oregon Health and Science University)</i>	

**6.11.3 Rehabilitation I** (Oral Session)**Chair:** William Durfee, *Univ. of Minnesota***Co-Chair:** Mehdi Mirbagheri, *Northwestern Univ.*

10:20-10:35

SuB16.1

**Prediction of Reflex Recovery after Stroke Using Quantitative Assessments of Motor****Impairment at 1 Month ..... 7252-7255***Mirbagheri, Mehdi\** (Northwestern University/RIC); *Rymer, William Zev* (Northwest. & Rehab Inst of Chicago)

10:35-10:50

SuB16.2

**A Wireless Gait Analysis System by Digital Textile Sensors ..... 7256-7260***Yang, Chang-Ming\** (Ming Yang Biomedical Corp.); *Hu, Jwu-Sheng* (National Chiao Tung University)

10:50-11:05

SuB16.3

**Head-Movements Produced During Linear Translations in Unexpected Directions ..... 7261-7264***Brown, Eric* (University of Rochester); *Luan, Hongge* (University of Rochester);  
*Gdowski, Martha Johnson* (University of Rochester); *Gdowski, Greg\** (University of Rochester)

11:05-11:20

SuB16.4

**Regulation of Feed-Forward and Feedback Strategies at the Human Ankle During Balance Control ..... 7265-7268***Finley, James\** (Northwestern University); *Dhafer, Yasin* (Northwestern University);  
*Perreault, Eric* (Northwestern University)

11:20-11:35

SuB16.5

**Evaluation of a Single Accelerometer Based Biofeedback System for Real-Time Correction of Neck****Posture in Computer Users ..... 7269-7272***Breen, Paul\** (National University of Ireland Galway); *Nisar, Aamer* (Health Services Executive);  
*OLaighin, Gearoid* (National University of Ireland Galway)

11:35-11:50

SuB16.6

**Development of a Cart for Independent Mobility Assistance for Non-Ambulatory Children ..... 7273-7276***Kakimoto, Akira\** (Polytechnic university); *Suzuki, Shigenobu* (Polytechnic University);  
*Sekiguchi, Yukio* (Precise Measurement Technique Promoting Foundation)