<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>18:45-19:00</td>
<td>FrE02.6</td>
<td>Polar Decomposition Radio-Frequency Current Density Imaging</td>
<td>Ma, Angela W.* (Univ. of Toronto); Wang, Dinghui (Univ. of Toronto); DeMonte, Tim P. (Field Metrica Inc.); Nachman, Adrian I. (Univ. of Toronto); Joy, Michael L.G. (Univ. of Toronto)</td>
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### FrE03: 17:30-19:00

**Libertador C**

### 3.5.2 Wireless Sensors and Systems (Oral Session)

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Speakers</th>
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</thead>
<tbody>
<tr>
<td>17:30-17:45</td>
<td>FrE03.1</td>
<td>Experimental Demonstration of Noncontact Pulse Wave Velocity Monitoring Using Multiple Doppler Radar Sensors</td>
<td>Lu, Li (Texas Tech Univ.); Li, Changzhi*(Texas Tech Univ.); Lie, Donald (Texas Tech Univ.)</td>
</tr>
<tr>
<td>17:45-18:00</td>
<td>FrE03.2</td>
<td>Preliminary Characterization of a Glucose-Sensitive Hydrogel</td>
<td>Beier, Brooke* (Purdue Univ.); Brandner, Eric (Purdue Univ.); Musick, Katherine (Purdue Univ.); Matsumoto, Akira (Univ. of Tokyo); Nauman, Eric (Purdue Univ.); Irazoqui, Pedro (Purdue Univ.)</td>
</tr>
<tr>
<td>18:00-18:15</td>
<td>FrE03.3</td>
<td>Towards Unobtrusive in Vivo Monitoring of Patients Prone to Falling</td>
<td>Karel, Joël* (Maastricht Univ.); Senden, Rachel (Maastricht Univ.); Janssen, Joep (Maastricht Univ.); Savelberg, Hans (Maastricht Univ.); Grimm, B. (Atrium MC Heerlen); Heyligers, I.C. (Atrium MC Heerlen); Peeters, Ralf (Univ. Maastricht); Meijer, Kenneth (NUTRIM School of Nutrition, Toxicology &amp; Metabolism, Maastricht Univ. Medical Centre)</td>
</tr>
<tr>
<td>18:15-18:30</td>
<td>FrE03.4</td>
<td>Wireless Transmission of Cardiac Action Potentials with Ultrasonically Guided Insertion of Silicon Probes</td>
<td>Shen, Ching-Ping* (Cornell Univ.); Ramkumar, Abhishek (Cornell Univ.); Lal, Amit (Cornell Univ.); Gilmour, Robert (Cornell Univ.)</td>
</tr>
<tr>
<td>18:30-18:45</td>
<td>FrE03.5</td>
<td>Introducing Knowledge of Wearing Compression Stockings on the Skin Blood Flow by Using µHematron Device</td>
<td>Toumi, Dareen* (INSa Lyon); Gehin, Claudine (INSa Lyon); Grenier, Etienne (INSa Lyon); Dittmar, Andre (INSa Lyon); McAdams, Eric (Univ. of Ulster)</td>
</tr>
<tr>
<td>18:45-19:00</td>
<td>FrE03.6</td>
<td>A Miniature, Wearable Activity/Fall Monitor to Assess the Efficacy of Mobility Therapy for Children with Cerebral Palsy During Everyday Living</td>
<td>Smith, Warren* (California State Univ., Sacramento); Bagley, Anita (Shriners Hospitals for Children)</td>
</tr>
</tbody>
</table>
FrE04: 17:30-19:00  
2.7.12 Image Segmentation II (Oral Session)

17:30-17:45  
FrE04.1  
Real Time MRI Prostate Segmentation Based on Wavelet Multiscale Products Flow Tracking  
Flores-Tapia, Daniel* (CancerCare Manitoba); Niranjan, Venugopal (Univ. of Manitoba); Thomas, Gabriel (Univ. of Manitoba); McCurdy, Boyd (CancerCare Manitoba); Ryner, Lawrence (Inst. of Biodiagnostics); Pistorius, Stephen (CancerCare Manitoba / Univ. of Manitoba)

17:45-18:00  
FrE04.2  
Brain Volume Segmentation in Newborn Infants Using Multi-Modal MRI with a Low Inter-Slice Resolution  
Despotovic, Ivana* (Gent Univ.)

18:00-18:15  
FrE04.3  
Multiphase Level Set Algorithm for Coupled Segmentation of Multiple Regions. Application to MRI Segmentation  
Merino-Caviedes, Susana* (Univ. de Valladolid); Pérez, María Teresa (Univ. of Valladolid); Martín-Fernandez, Marcos (Univ. of Valladolid)

18:15-18:30  
FrE04.4  
A Novel Object-Oriented Stereo Matching on Multi-Scale Superpixels for Low-Resolution Depth Mapping  
Tong, Hanyang (Zhejiang Univ. of Tech.); Liu, Sheng* (Zhejiang Univ. of Tech.); Liu, Nianjun (Natl. ICT Australia Limited); Barnes, Nick (NICTA Canberra Research Center)

18:30-18:45  
FrE04.5  
Analysis of Lipid Vesicle Populations from Microscopy Video Sequences  
Zupanc, Jernej (Faculty of Computer & Information Science); Bas, Erhan* (Northeastern Univ.); Erdogmus, Deniz (Northeastern Univ.)

18:45-19:00  
FrE04.6  
Improving a CAD System Using Bilateral Information  
Tortajada, Meritxell (Univ. of Girona); Oliver, Amau (Univ. of Girona); Diez, Yago (Univ. of Girona); Martí, Robert (Univ. of Girona); Freixenet, Jordi* (Univ. of Girona); Vilanova, Joan Carles (Univ. of Girona)

FrE05: 17:30-19:00  
6.7.4 Neurorehabilitation – Prosthesis (Oral Session)

17:30-17:45  
FrE05.1  
Selection of Sampling Rate for EMG Pattern Recognition Based Prosthesis Control  
Li, Guanglin* (Shenzhen Inst. of Advanced Tech., Chinese Academy of Sciences); Li, Yaonan (Purdue Univ.); Zhang, Zhiyong (Shenzhen Inst. of Advanced Tech.); Geng, Yanjuan (Shenzhen Inst. of Advanced Tech.); Zhou, Rui (Shenzhen Inst. of Advanced Tech)

17:45-18:00  
FrE05.2  
A Multigrasp Hand Prosthesis for Transradial Amputees  
Dalley, Skyler (Vanderbilt Univ.); Wiste, Tuomas (Vanderbilt Univ.); Varol, Huseyin Atakan (Vanderbilt Univ.); Goldfarb, Michael* (Vanderbilt Univ.)

18:00-18:15  
FrE05.3  
Structural Preservation of Deafferented Cortex Induced by Electrical Stimulation of a Sensory Peripheral Nerve  
Herrera-Rincón, Celia (Complutense Univ. of Madrid); Torells, Carlos (Complutense Univ. of Madrid); Sanchez-Jimenez, Abel (Complutense Univ. of Madrid); Avendaño, Carlos (Facultad de Medicine, Autonomous Univ. of Madrid); Guillen, Pedro (Complutense Univ. of Madrid); Panetsos, Fivos* (Complutense Univ. of Madrid)
18:15-18:30 FrE05.4 Acquisition of Myoelectric Signals to Control a Hand Prosthesis with Implantable Epimysial Electrodes 5070-5073
Ruff, Roman* (Fraunhofer Inst. für Biomedizinische Technik); Poppendieck, Wigand (Fraunhofer Inst. für Biomedizinische Technik); Gall, Alexander (German Primate Center & the Bernstein Center for Computational Neuroscience); Westendorff, Stephanie (German Primate Center & the Bernstein Center for Computational Neuroscience); Russold, Michael (Otto Bock Healthcare Products GmbH); Lewis, Sören (Otto Bock Healthcare Products GmbH); Meiners, Thomas (Werner-Wieder-Klinik); Hoffmann, Klaus-Peter (Fraunhofer Inst.)

18:30-18:45 FrE05.5 Rechargeable Wireless EMG Sensor for Prosthetic Control 5074-5076
Lichter, Patrick (Koronis Biomedical Technologies); Riehle, Timothy (Koronis Biomed. Technologies Corp.); Anderson, Shane (Koronis Biomedical Technologies); Hedin, Daniel* (Advanced Medical Electronics); Lange, Erik (PYXIS Integrated Technologies, LLC)

18:45-19:00 FrE05.6 Toward Improved Sensorimotor Integration and Learning Using Upper-Limb Prosthetic Devices 5077-5080
Gillespie, R. Brent* (Univ. of Michigan); Contreras-Vidal, José (Univ. of Maryland); Shewokis, Patricia A (Drexel Univ.); O’Malley, Marcia K. (Rice Univ.); Brown, Jeremy (Univ. of Michigan); Agashe, Harshvardhan (Univ. of Maryland-College Park); Gentili, Rodolphe (Univ. of Maryland); Davis, Alicia (Univ. of Michigan)

17:30-17:45 FrE06.1 Automatic Annotation of Actigraphy Data for Sleep Disorders Diagnosis Purposes 5081-5084
Domingues, Alexandre* (Inst. Superior Técnico); Adamec, Ondrej (VSB Technical Univ. of Ostrava); Paiva, Terese (Inst. Superior Técnico); Sanches, J. Miguel (Inst. for Systems & Robotics, NIF)

17:45-18:00 FrE06.2 Automatic Detection of a Phases of the Cyclic Alternating Pattern During Sleep 5085-5088
Mariani, Sara* (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano); Manfredini, Elena (Politecnico di Milano, Dept. of Biomedical Engineering); Rosso, Valentina (Sleep Disorders Centre, Dept. of Neurology, Univ. of Parma, Parma, Italy); Mendez, Martin Oswaldo (Univ. Autonoma de San Luis Potosi); Parrino, Liborio (Sleep Disorders Centre, Dept. of Neurology, Univ. of Parma, Parma, Italy); Matteucci, Matteo (Politecnico di Milano); Grassi, Andrea (Sleep Disorders Centre, Dept. of Neurology, Univ. of Parma, Parma, Italy); Cerutti, Sergio (Politecnico di Milano); Terzano, Mario Giovanni (Sleep Disorders Centre, Dept. of Neurology, Univ. of Parma, Parma, Italy)

18:00-18:15 FrE06.3 Sleep/Wake Detection Based on Cardiorespiratory Signals and Actigraphy 5089-5092
Devot, Sandrine* (Philips Research Europe); Dratwa, Reimund (Philips Research Europe); Naujokat, Elke (Philips Research Europe Laboratories)

18:15-18:30 FrE06.4 REM Behaviour Disorder Detection Associated with Neurodegenerative Diseases 5093-5096
Kempfner, Jacob* (Technical Univ. of Denmark); Sorensen, Gertrud Laura (Technical Univ. of Denmark); Zoetmulder, Marielle (Danish Centre for Sleep Medicing); Jønnum, Pouil (Danish Centre for Sleep Medicing); Sorensen, Helge (Technical Univ. of Denmark)

18:30-18:45 FrE06.5 Automated Polysomnogram Artifact Compensation Using the Generalized Singular Value Decomposition Algorithm 5097-5100
Fairley, Jacqueline (Emory Univ.); Johnson, Ashley* (Georgia Inst. of Tech.); Georgoulas, George (Univ. of Patras); Vachtsevanos, George (Georgia Inst. of Tech.)

18:45-19:00 FrE06.6 The Mean Value of the Descriptors of the Pathological Events Recorded on the Polysomnogram As a Support Tool in the Diagnosis of SAHS 5101-5104
Otero, Abraham* (San Pablo CEU); Félix Lamas, Paulo (Univ. of Santiago de Compostela); Rodríguez Álvarez, Miguel (Univ. of Santiago de Compostela); Zamarrón, Carlos (Hospital Clínico Univ.)
17:30-17:45 FrE07.1
Comparison of Two Commercial Patellofemoral Prostheses by Means of Computational Modeling
Müller, Cobus* (Stellenbosch Univ.); Scheffer, Cornie (Stellenbosch Univ.); Erasmus, P. J. (Stellenbosch Medi-clinic); Dillon, Edwin (Stellenbosch Medi-clinic); Elvin, Alex (Univ. of the Witwatersrand)

17:45-18:00 FrE07.2
Force Feedback in Limb Lengthening
Wee, Jinyong (Drexel Univ.); Rahman, Tariq* (Nemours); Seliktar, Rahamim (Drexel Univ.); Akins, Robert (Nemours – A.I. duPont Hospital for Children); Levine, David (Univ. of Pennsylvania); Richardson, Dean (Univ. of Pennsylvania); Dodge, George (Univ. of Pennsylvania); Thabet, Ahmed (Benha Medical School); Holmes, Lauren (A.I. duPont Hospital for Children); Mackenzie, William (A.I. duPont Hospital for Children)

18:00-18:15 FrE07.3
Contact Stresses in a Patient-Specific Unicompartmental Knee Replacement
Van Den Heever, Dawie (Stellenbosch Univ.); Scheffer, Cornie* (Stellenbosch Univ.); Erasmus, P. J. (Stellenbosch Medi-clinic); Dillon, Edwin (Stellenbosch Medi-clinic)

18:15-18:30 FrE07.4
The Sacroiliac Spine – Computer Simulation of Motion and Modeling of the Ligaments
Buford, Jr., William L* (The Univ of Texas Medical Branch); Moulton, Darrell (Univ of Texas Medical Branch); Gugala, Zbigniew (Univ of Texas Medical Branch); Lindsey, Ronald (Univ of Texas Medical Branch)

18:30-18:45 FrE07.5
Self-Powered Instrumented Knee Implant for Early Detection of Postoperative Complications
Almouahed, Shaban* (Inst. Télécom – Télécom Bretagne); Gourion, Manuel (Inst. Télécom – Télécom Bretagne); Hammotouche, Chafiaâ (École Natl. e Supérieure des Télécommunications de Bretagne); Stindel, Eric (Univ. de Bretagne Occidentale); Roux, Christian (TELECOM Bretagne – INSERM)

18:45-19:00 FrE07.6
Repeatability of an Off-The-Shelf, Full Body Inertial Motion Capture System During Clinical Gait Analysis
Scheffer, Cornie* (Stellenbosch Univ.); Cloete, Teunis (Stellenbosch Univ.)

17:30-17:45 FrE08.1
Sources of Non-Physiologic Noise in Simultaneous EEG-fMRI Data: a phantom study
Politte, David (Washington Univ. School of Medicine); Prior, Fred (Washington Univ. School of Medicine); Ponton, Curtis (Compumedics Neuroscan Inc.); Nolan, Tracy (Washington Univ. School of Medicine); Larson-Prior, Linda* (Washington Univ. in St. Louis)

17:45-18:00 FrE08.2
Detection of EEG Electrodes in Brain Volumes
Graffigna, Juan Pablo* (Univ. Nacional de San Juan); Gómez, María Eugenia (Univ. Nacional de San Juan); Bustos, José Javier (Univ. Nacional de San Juan, Argentina)

18:00-18:15 FrE08.3
Localization of Class-Related Mu-Rhythm Desynchronization in Motor Imagery Based Brain-Computer Interface Sessions
Haufe, Stefan* (Berlin Inst. of Tech.); Tomioka, Ryota (The Univ. of Tokyo); Dickhaus, Thorsten (Berlin Inst. of Tech.); Sannelli, Claudia (Berlin Inst. of Tech., BBCI Group); Blankertz, Benjamin (Berlin Inst. of Tech.); Nolte, Guido (Fraunhofer FIRST); Müller, Klaus-Robert (Berlin Inst. of Tech.)

18:15-18:30 FrE08.4
DYNAMO: Dynamic Multi-Model Source Localization Method for EEG And/or MEG
Antelis, Javier M.* (Univ. of Zaragoza); Minguez, Javier (Zaragoza Univ.)
Variation-Based Sparse Cortical Current Density Imaging in Estimating Cortical Sources with MEG Data

Ding, Lei* (Univ. of Oklahoma); Zhu, Min (Univ. of Oklahoma); Zhang, Wenbo (Minnesota Epilepsy Group); Dickens, Deanna (Minnesota Epilepsy Group)

3D Reconstruction of Wireless Capsule Endoscopy Images

Fan, Yichen* (The Chinese Univ. of Hong Kong); Meng, Max Q.-H. (The Chinese Univ. of Hong Kong); Li, Baopu (The Chinese Univ. of Hong Kong)

17:30-17:45
Using Magnetic Resonance Imaging Measurements for the Determination of Local Wave Speed and Arrival Time of Reflected Waves in Human Ascending Aorta

Li, Ye (Brunel Univ.); Borlotti, Alessandra* (Brunel Univ., London, UK); Hickson, Stacey (Univ. of Cambridge); McEntirey, Carmel (Univ. of Cambridge); Wilkinson, Ian (Cambridge Univ.); Khir, Ashraf (Brunel Univ.)

17:30-17:45
Structured Light Imaging of Epicardial Mechanics

Laughner, Jacob (Washington Univ. in St. Louis); Gong, Yuanzheng (Iowa State Univ.); Filas, Benjamem (Washington Univ. in St. Louis); Zhang, Song (Iowa State Univ.); Efimov, Igor* (Washington Univ. in St. Louis)

18:00-18:15
Observation of Capillary Flow in Human Skin During Tissue Compression Using CCD Video-Microscopy

Shibata, Masahiro* (Shibaura Inst. of Tech.); Yamakoshi, Takehiro (Kanazawa Univ.); Yamakoshi, Ken-ichi (Kanazawa Univ.); Komeda, Takashi (Shibaura Inst. of Tech.)

18:15-18:30
A New Gradient-Based Algorithm for Edge Detection in Ultrasonic Carotid Artery Images

Morsy, Ahmed* (Cairo Univ.); De Groot, Eric (AMC Vascular Imaging); Hassan, Ahmed (Cairo Univ.)

18:30-18:45
Silicone Rubber Trileaflet Valve Assessment Using Cardiovascular Magnetic Resonance Imaging

Garcia, Julio* (Laval Univ.); Kadem, Lyes (Concordia Univ.); Pibarot, Philippe (Laval Univ.)

18:45-19:00
Patient Based Abdominal Aortic Aneurysm Rupture Risk Prediction Combining Clinical Visualizing Modalities with Fluid Structure Interaction Numerical Simulations

Xenos, Michalis (Stony Brook Univ., Dept of Biomedical Engineering); Ramhia, Suraj (Stony Brook Univ., Dept of Biomedical Engineering); Alemu, Yared (Stony Brook Univ., Dept of Biomedical Engineering); Elnav, Shmuel (Tel Aviv & Stony Brook Univ.); Ricotta, John (Washington Hospital Center, Dept. of Surgery); Labropoulos, Nicos (Stony Brook Univ., Dept of Surgery); Tassiopoulos, Apostolos (Stony Brook Univ., Dept of Surgery); Bluestein, Danny* (Stony Brook Univ.)

18:45-19:00
Multiscale Imaging of the Human Heart: Building the Foundation for Human Systems

Physiology and Translational Medicine

Efimov, Igor* (Washington Univ. in St. Louis); Fedorov, Vadim (Washington Univ. in St. Louis); Glukhov, Alexey (Washington Univ. in St. Louis); Lou, Qing (Washington Univ. in St. Louis); Ambrosi, Christina (Washington Univ. in St. Louis); Janks, Deborah (Washington Univ. in St. Louis); Huck, William (Washington Univ. in St. Louis); Kurian, Thomas (Washington Univ. in St. Louis); Schuessler, Richard (Washington Univ. in St. Louis); Moazami, Nader (Washington Univ. in St. Louis)

19:00-19:15
Multiscale Imaging of the Human Heart: Building the Foundation for Human Systems

Paradiso, Rita* (Smartex srl); Caltani, Laura (Smartex srl); Pacelli, Maria (Smartex s.r.l.); Negro, Francesco (Aalborg Univ., Aalborg, Denmark); Farina, Dario (Aalborg Univ.)
Energy Expenditure Estimation Using Triaxial Accelerometry and Barometric Pressure Measurement
Voleno, Matteo (Politecnico di Milano); Redmond, Stephen James* (Univ. of New South Wales); Cerutti, Sergio (Politecnico di Milano); Lovell, Nigel H (Univ. of New South Wales)

A Sensor Middleware for Integration of Heterogeneous Medical Devices
Brito, Mario (CISUC, Centre for Informatics & Systems, Univ. of); Vale, Leandro (Univ. of Coimbra); de Carvalho, Paulo* (Univ. of Coimbra); Henriques, Jorge (Univ. of Coimbra)

Behavioral Pattern Detection from Personalized Ambient Monitoring
Amor, James* (Univ. of Southampton); James, Christopher (Univ. of Warwick)

A System for Monitoring Cardiac Vibration, Respiration, and Body Movement in Bed Using an Infrared
Maki, Hiromichi* (Hiroshima Inst. of Tech.); Ogawa, Hidekuni (Hiroshima Inst. of Tech.); Tsukamoto, Sosuke (Hiroshima Inst. of Tech.); Yonezawa, Yoshiharu (Hiroshima Inst. of Tech.); Caldwell, Morton (Caldwell Biomedical Electronics)

Predicting Severity of Parkinson’s Disease from Speech
Asgari, Meysam (The Center for Spoken Language Understanding, OHSU); Shafran, Izhak* (The Center for Spoken Language Understanding, OHSU)

Estimated Venous Return Surface and Cardiac Output Curve Precisely Predicts New Hemodynamics after Volume Change
Sugimachi, Masaru* (Natl Cardio Center Research Inst); Sunagawa, Kenji (Kyushu Univ.); Uemura, Kazunori (Natl. Cardio. Center Research Inst); Kamiya, Atsunori (Natl. Cardiovascular Center Research Inst.); Shimizu, Shuji (Natl. Cardiovascular Center Research Inst.); Inagaki, Masashi (Natl. Cardiovascular Research Inst.); Shishido, Toshiaki (Natl. Cardiovascular Center Research Inst.)

Model-Based Data Integration in Clinical Environments
Heidt, Thomas* (Massachusetts Inst. of Tech.); Verghese, George (Massachusetts Inst. of Tech.)

Heuristics to Determine Ventilation Times of ICU Patients from the MIMIC-II Database
Cao, Hanqing* (Philips Research North America); Lee, K. P. (Philips Research); Ennett, Colleen M. (Philips Research North America); Eseshman, Larry J (Philips Research); Nielsen, Larry (Philips Healthcare); Saed, Mohammed (MIT); Gross, Brian (Philips Healthcare)

Evaluation of Monitoring Cardiac Output by Long Time Interval Analysis of a Radial Arterial Blood Pressure Waveform Using the MIMIC II Database
Zhang, Guanqun (Michigan State Univ.); Mukkamala, Ramakrishna* (Michigan State Univ.)

Preliminary Study of Physiological Control for the Undulation Pump Ventricular Assist Device
Saito, Itsuro* (The Univ. of Tokyo); Ishii, Kohei (The Univ. of Tokyo); Isoyama, Takashi (The Univ. of Tokyo); Ono, Toshiya (The Univ. of Tokyo); Nakagawa, Hidemoto (The Univ. of Tokyo); Shi, Wei (The Univ. of Tokyo); Inoue, Yusuke (The Univ. of Tokyo); Abe, Yusuke (The Univ. of Tokyo)

Automated Drug Delivery System for the Management of Hemodynamics and Cardiac Energetic in Acute Heart Failure
Uemura, Kazunori (Natl. Cardio. Center Research Inst); Sugimachi, Masaru* (Natl Cardio Center Research Inst); Kawada, Toru (Natl. Cardiovascular Center Res Inst); Sunagawa, Kenji (Kyushu Univ.)
6.9.3 Human Performance Modeling (Oral Session)

17:30-17:45 FrE12.1

Different Models for Predicting Driving Performance in People with Brain Disorders ........................................... 5226-5229
Innes, Carrie R. H.* (Canterbury District Health Board); Lee, Dominic (Univ. of Canterbury); Chen, Chen (Univ. of Canterbury); Ponder-Sutton, Agate (Univ. of Canterbury); Jones, Richard D. (Van der Veer Inst.)

17:45-18:00 FrE12.2

Model-Based Inference of Cognitive Processes from Unobtrusive Gait Velocity Measurements ................................. 5230-5233
Austin, Daniel (Univ. of Southern California); Leen, Todd (Oregon Health & Science Univ.); Hayes, Tamara (Oregon Health & Science Univ.); Kaye, Jeffrey A. (Oregon Health & Science Univ.; Jimison, Holly (Oregon Health & Science Univ.); Pavel, Michael* (Oregon Health & Science Univ.)

18:00-18:15 FrE12.3

Models of Cognitive Performance Based on Home Monitoring Data ............................................................................. 5234-5237
Jimison, Holly* (Oregon Health & Science Univ.); McKenna, James (Oregon Health & Science Univ.); Kyle, Ambert (Oregon Health & Science Univ.); Hagler, Stuart (Oregon Health & Science Univ.); Hatt, William J (Oregon Health & Science Univ., Central Campus); Pavel, Michael (Oregon Health & Science Univ.)

18:15-18:30 FrE12.4

Cognitive Performance Modeling Based on General Systems Performance Theory ..................................................... 5238-5241
Kondraske, George* (Univ. of Texas at Arlington)

18:30-18:45 FrE12.5

Arm Path Fragmentation and Spatiotemporal Features of Hand Reaching in Healthy Subjects and Stroke Patients .......................... 5242-5245
Liebermann, Dario G.* (PT Dept – Sackler Faculty of Medicine, Univ. of Tel Aviv); McIntyre, Joseph (Centre d'Etude de la Sensorimotricité, CNRS – Univ. Paris Descartes, France); Levin, Mindy F. (School of Physical & Occupational Therapy, Faculty of Medicine, McGill Univ., Montreal, Canada); Weiss, Patrice (Tamar) (Dept. of Occupational Therapy, Faculty of Social Welfare & Health Sciences, Univ. of Haifa, Haifa, Israel); Berman, Sigal (Dept. of Industrial Engineering & Mgmt., Ben Gurion Univ. of the Negev, Beer Sheva, Israel)

18:45-19:00 FrE12.6

Human Strategies in Balancing an Inverted Pendulum with Time Delay ................................................................. 5246-5249
Lupu, Mircea Florian (Univ. of Pittsburgh); Sun, Mingui* (Univ. of Pittsburgh); Askey, David (Energid Technologies Corp.); Xia, Ruiping (Creighton Univ.); Mao, Zhi-Hong (Univ. of Pittsburgh)

FrE13: 17:30-19:00 Gomez Losada

3.5.1 Wearable Sensor Application (Oral Session)

17:30-17:45 FrE13.1

Wireless Control of Smartphones with Tongue Motion Using Tongue Drive Assistive Technology ......................... 5250-5253
Kim, Jeonghee (Georgia Inst. of Technology); Huo, Xueliang (Georgia Inst. of Tech.); Ghanavanlo, Maysam* (Georgia Inst. of Tech.)

17:45-18:00 FrE13.2

Wireless Fabric Patch Sensors for Wearable Healthcare ......................................................................................... 5254-5257
Yoo, Hoi-Jun (KAIST); Yoo, Jerald* (MIT); Yan, Long (KAIST)

18:00-18:15 FrE13.3

Development of a Sleep Apnea Event Detection Method Using Photoplethysmography .................................... 5258-5261
Suzuki, Takuj* (Toshiba Corp.); Kameyama, Ken-ichi (Toshiba); Inoko, Yoshimi (The Nippon Dental Univ. School of Life Dentistry at Niigata); Tamura, Toshiyo (Chiba Univ.)

18:15-18:30 FrE13.4

A Low-Power Asynchronous ECG Acquisition System in CMOS Technology ..................................................... 5262-5265
Hwang, Sungkil (Tufts Univ.); Trakimas, Michael (Tufts Univ.); Sonkusale, Sameer* (Tufts Univ.)
17:30-17:45 FrE14.1
Care Assessment Platform: An ICT-Enabled Home Care Model for Secondary Prevention of Cardiovascular Diseases
Karunanithi, Mohanraj* (CSIRO ICT Centre); Varnfield, Marlien (Australian e-Health Research Centre (AEHRC)); Ding, Hang (CSIRO); Garcia, Elsa (AEHRC); Whittaker, Frank (CAAIR); Sarela, Antti (goACT Pty Ltd)

17:45-18:00 FrE14.2
Telehealth Technologies for Managing Chronic Disease – Experiences from Australia and the UK
Lovell, Nigel H* (Univ. of New South Wales); Redmond, Stephen James (Univ. of New South Wales); Basilakis, Jim (Univ. of NSW); Shany, Tal (Univ. of New South Wales); Celler, Branko George (Univ. of New South Wales)

18:00-18:15 FrE14.3
A Diabetes Management System Empowering Patients to Reach Optimised Glucose Control: From Monitor to Advisor
Poulsen, Jens Ulrik* (Novo Nordisk A/S); Chauchard, Fabien (Ondalys, 34730 Prades Le Lez, France); Johansson, Rolf (Lund Univ.); Pogose, Mike (Tourmez Tech. Ltd, Abingdon, OX14 4RY England); Saudek, František (Inst. for Clinical & Experimental Medicine, Prague, Czech Republic)

18:15-18:30 FrE14.4
Personal Health Systems – Opportunities and Barriers for Adoption
Korhonen, Ilkka (Nokia); Mattila, Elina (VTT); van Gils, Mark* (VTT Tech Research Centre of Finland)

Saturday, 4 September 2010

SaA01: 09:15-10:45 Libertador A
1.2.5 Signal Processing in Physiological Systems VII (Oral Session)

09:15-09:30 SaA01.1
Hidden State Dynamics in Laser Doppler Vibrometry Measurements of the Carotid Pulse Under Resting Conditions
Kaplan, Alan D.* (Washington Univ. in St. Louis); O’Sullivan, Joseph A. (Washington Univ. in St. Louis); Sirevaag, Erik J. (Washington Univ. in St. Louis); Kristjansson, Sean D. (Washington Univ. in St. Louis); Lai, Po-Hsiang (Washington Univ. in St. Louis); Rohrbaugh, John W. (Washington Univ. in St. Louis)

09:30-09:45 SaA01.2
Pulse Wave Velocity in Patients with Severe Head Injury: A Pilot Study
Shahsavari, Sima* (Chalmers Univ. of Tech.); McKelvey, Tomas (Chalmers Univ. of Tech.); Eriksson-Ritzén, Catherine (Sahlgrenska Univ. Hospital); Rydenhag, Bertil (Sahlgrenska Univ. Hospital)

09:45-10:00 SaA01.3
Relative Blood Volume Monitoring During Hemodialysis in End Stage Renal Disease Patients
Ton Tatipiccolo, Jasmine (Politecnico di Milano); Ferrario, Manuele* (Politecnico di Milano); Garzotto, Francesco (Dep. Nephrology Dialysis & Transplantation, San Bortolo Hospital); Cruz, Dinna (Dep. Nephrology Dialysis & Transplantation, San Bortolo Hospital); Moissl, Ulrich ( Fresenius Medical Care, Deutschland, GmbH); Tetta, Ciro (Ulrich.Moissl@fmc-ag.com); Ronco, Claudio (Dep. Nephrology Dialysis & Transplantation, San Bortolo Hospital); Signorini, Maria G. (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano)

10:00-10:15 SaA01.4
Atrial Fibrillation Disorganization Is Reduced by Catheter Ablation: A Standard ECG Study
Bonizzi, Pietro* (Univ. of Nice-Sophia Antipolis); Meste, Olivier (UNSA-CNRS); Zarzoso, Vicente (Univ. de Nice – CNRS)

10:15-10:30 SaA01.5
Visualizing the Electrocardiogram through Orbital Transform
Illanes-Manriquez, Alfredo* (Univ. Austral de Chile); Jiménez, Raúl (Univ. de Concepción); Dinamarca, Gustavo (Univ. de Concepción); Jiménez, Claudia (Univ. de Concepción); Lecannelier, Eduardo (Hospital G. Grant Benavente)
10:30-10:45  
**SaA01.6**  
Relationship between Heart Rate Variability Using Lorenz Plot and Sleep Level  
Hagiwara, Hiroshi* (Ritsumeikan Univ.)

**SaA02: 09:15-10:45**  
**2.2.1 Doppler Ultrasound Imaging (Oral Session)**

09:15-09:30  
**SaA02.1**  
High Range Resolution Medical Acoustic Vascular Imaging with Frequency Domain Interferometry  
Taki, Hirofumi* (Kyoto Univ.); Taki, Kousuke (Dept. of Anatomy, Shiga Univ. of Medical Science); Sakamoto, Takuya (Dept. of Communications & Computer Engineering, Kyoto Univ.); Yamakawa, Makoto (Advanced Biomedical Engineering Research Unit, Kyoto Univ.); Shiina, Tsuyoshi (Kyoto Univ.); Sato, Toru (Kyoto Univ.)

09:30-09:45  
**SaA02.2**  
Understanding the Vascular Environment of Myofascial Trigger Points Using Ultrasound Imaging and Computational Modeling  
Sikdar, Siddhartha* (George Mason Univ.); Ortiz, Robin (Natl. Inst. of Health); Gebreab, Tadesse (Natl. Inst. of Health Clinical Center); Gerber, Lynn (George Mason Univ.); Shah, Jay (Natl. Inst. of Health Clinical Center)

09:45-10:00  
**SaA02.3**  
Non-Invasive Hemodynamic State Monitoring Using Ultrasound  
Dentinger, Aaron M.* (GE Global Research); Hoctor, Ralph T. (GE Global Research)

10:00-10:15  
**SaA02.4**  
Measurement of Tendon Velocities Using Vector Tissue Doppler Imaging: A Feasibility Study  
Eranki, Avinash* (George Mason Univ.); Bellini, Lindsey (Natl. Inst. of Health); Prosser, Laura (Natl. Inst. of Health); Blaisdell, Daniel (Natl. Inst. of Health); Damiano, Diane (Natl. Inst. of Health); Sikdar, Siddhartha (George Mason Univ.)

10:15-10:30  
**SaA02.5**  
Separation of Preterm Infection Model from Normal Pregnancy in Mice Using Texture Analysis of Second Harmonic Generation Images  
Yousefi, Siamak* (Univ. of Texas at Dallas); Kehtarnavaz, Nasser (Univ. of Texas at Dallas); Akinc, Meredith (Univ. of Texas Southwestern Medical Center); Luby-Phelps, Kate (The Univ. of Texas Southwestern Medical Center); mahendroo, mala (Univ. of Texas Southwestern Medical Center)

**SaA03: 09:15-10:45**  
**3.12.1 Implantable Sensors Principle and Technology (Oral Session)**

09:15-09:30  
**SaA03.1**  
Probing Protein Binding Spectra with Fourier Microfluidics  
Mastrangelo, Carlos* (Univ. of Utah); Williams, Layne (Univ. of Utah, Dept. of Electrical & Computer Engineering); Ghosh, Tridib (Univ. of Utah, Dept. of Bioengineering)

09:30-09:45  
**SaA03.2**  
A Miniaturized Device for Wireless FSCV Monitoring of Dopamine in an Ambulatory Subject  
Roham, Masoud (Case Western Reserve Univ.); Covey, Daniel (Illinois State Univ.); Daberkow, David (Illinois State Univ.); Ramsson, Eric (Illinois State Univ.); Howard, Christopher (Illinois State Univ.); Garris, Paul (Illinois State Univ.); Mohseni, Pedram* (Case Western Reserve Univ.)

09:45-10:00  
**SaA03.3**  
A Novel Pulse-Based Modulation Technique for Wideband Low Power Communication with Neuroprosthetic Devices  
Ghovanloo, Maysam* (Georgia Inst. of Tech.); Inanlou, Farzad (Georgia Inst. of Tech.); Kiani, Mehdi (Georgia Inst. of Tech.)

10:00-10:15  
**SaA03.4**  
Microsystems Technology in Radiation Therapy  
ziaie, babak* (Purdue Univ.); Maleki, Teimour (Purdue Univ.)
10:15-10:30
CMOS/Microfluidic Lab-On-Chip for Cells-Based Diagnostic Tools ...................................... 5334-5337
Sawan, Mohamed* (Ecole Polytechnique); Miled, Amine (Ecole Polytechnique);
Ghafar-Zadeh, Ebrahim (Ecole Polytechnique)

SaA04: 09:15-10:45
2.7.13 Image Segmentation VI (Oral Session)

09:15-09:30
Segmenting the Sepal and Shoot Apical Meristem of Arabidopsis Thaliana ......................... 5338-5342
Cunha, Alexandre* (California Inst. of Tech.); Roeder, Adrienne H.K. (California Inst. of Tech.);
Tobin, Cory J. (California Inst. of Tech.); Meyerowitz, Elliot M. (California Inst. of Tech.)

09:30-09:45
Automatic Identification of Internal Carotid Artery from 3DRA Images ........................... 5343-5346
Bogunovic, Hrvoje* (Univ. Pompeu Fabra, Barcelona); Pozo, Jose Maria (Univ. Pompeu Fabra,
Barcelona); Cardenes, Ruben (Univ. Pompeu Fabra, Barcelona); Frangi, Alejandro (Univ. Pompeu Fabra)

09:45-10:00
Identification of Lobar Fissures in Pathological Lungs ...................................................... 5347-5350
Wei, Qiao (Univ. of Calgary); Hu, Yaoping* (The Univ. of Calgary); MacGregor, J. H. (Foothills Medical Center);
Gelfand, Gary (Foothills Medical Center)

10:00-10:15
Automatic Liver Segmentation from CT Scans Based on a Statistical Shape Model ............... 5351-5354
Zhang, Xing (Inst. of Automation, Chinese Academy of Sciences); Tian, Jie* (Chinese Academy of Sciences);
Deng, Kexin (Inst. of Automation Chinese Academy of Sciences); Wu, Yongfeng (Inst. of Automation,
Chinese Academy of Sciences); Li, Xiuli (Inst. of Automation, Chinese Academy of Sciences)

10:15-10:30
Learning-Based Approach for the Automatic Detection of the Optic Disc in
Digital Retinal Fundus Photographs ................................................................. 5355-5358
Wong, Damon* (Inst. for Infocomm Research); Liu, Jiang (Inst for Infocomm Resrch, A STAR);
Tan, Ngen Meng (A*STAR, Inst. for Infocomm Research); Yin, Fengshou (Inst. for Infocomm Research);
Lee, Beng Hai (Inst for Infocomm Research); Wong, Tien Yin (Natl. Univ. of Singapore)

10:30-10:45
Automatic Detection of Posterior Subcapsular Cataract Opacity for Cataract Screening ....... 5359-5362
Li, Huiqi* (Inst. for Infocomm Research); Lim, Joo Hwee (Inst. for Infocomm Research); Liu, Jiang (Inst for
Infocomm Resrch, A STAR); Wong, Damon (Inst. for Infocomm Research); Foo, Yongfeng (Natl. Univ. of
Singapore); Sun, Ying (Natl. Univ. of Singapore); Wong, Tien Yin (Natl. Univ. of Singapore)

SaA05: 09:15-10:45
1.7.1 Blind Source Separation (Oral Session)

09:15-09:30
In Vivo Snapshot Hyperspectral Image Analysis of Age-Related Macular Degeneration .......... 5363-5366
Lee, Noah* (Columbia Univ.); Wielaard, Jim (Columbia Univ.); Fawzi, Amani (Univ. of Southern California, Doheny
Eye Inst.); Sajda, Paul (Columbia Univ.); Laine, Andrew (Columbia Univ.); Martin, Gabriel (Reichert Ophthalmic
Instruments Inc.); Humayun, Mark (Univ. of Southern California); Smith, R Theodore (Columbia Univ.)

09:30-09:45
Comparison of Source Separation Techniques for Multilead T-Wave Alternans Detection in the EGG .... 5367-5370
Monasterio, Violeta* (Univ. of Zaragoza); Clifford, Gari (Massachusetts Inst. of Tech.);
Martinez, Juan Pablo (Univ. of Zaragoza)

09:45-10:00
Reference Estimation in EEG Recordings ................................................................. 5371-5374
Ranta, Radu* (Nancy-Univ.); Salido-Ruiz, Ricardo (CRAN, Nancy Univ.); Louis-Dorr, Valerie (Nancy-Univ.)
10:00-10:15
Multi-Dimensional PARAFAC2 Component Analysis of Multi-Channel EEG Data Including Temporal Tracking
Weis, Martin* (Ilmenau Univ. of Tech.); Husar, Peter (Ilmenau Univ. of Tech.); Jannek, Dunja (Ilmenau Univ. of Tech.); Roemer, Florian (Ilmenau Univ. of Tech.); Guenther, Thomas (Ilmenau Univ. of Tech.); Haardt, Martin (Ilmenau Univ. of Tech.)

10:15-10:30
EEG Sensor Selection by Sparse Spatial Filtering in P300 Speller Brain-Computer Interface
Rivet, Bertrand (Grenoble Univ.); Cecotti, Hubert (INPG/CNRS UMR 5216); Phlypo, Ronald* (INPG/CNRS UMR 5216); Bertrand, Olivier (INSERM); Maby, Emmanuel (INSERM); Mattout, Jérémie (INSERM)

10:30-10:45
Automatic Artifact Removal from EEG – A Mixed Approach Based on Double Blind Source Separation and Support Vector Machine
Bartels, Georg (Shanghai Jiao Tong Univ.); Shi, Lichen (Shanghai Jiao Tong Univ.); Lu, Bao-Liang* (Shanghai Jiao Tong Univ.)

10:45-11:00
Linear and Nonlinear Analysis of Autonomic Regulation of Heart Rate Variability in Healthy First-Degree Relatives of Patients with Schizophrenia
Voss, Andreas* (Univ. of Applied Sciences Jena); Schulz, Steffen (Univ. of Applied Sciences Jena); Bär, Karl-Jürgen (Friedrich-Schiller-Univ. of Jena)

11:00-11:15
Evaluation of an ECG Heartbeat Classifier Designed by Generalization-Driven Feature Selection
Llamedo, Mariano* (Zaragoza Univ.); Martinez, Juan Pablo (Univ. of Zaragoza)

11:15-11:30
Development of a Novel Border Detection Method for Melanocytic and Non-Melanocytic Dermoscopy Images
Norton, Kerri-Ann* (Rutgers Univ.); Iyatomi, Hitoshi (Hosei Univ.); Celebi, M. Emre (Louisiana State Univ in Shreveport); Schaefer, Gerald (Loughborough Univ.); Tanaka, Masaru (Tokyo Women's Medical Univ., Medical Center East); Ogawa, Koichi (Hosei Univ.)

11:30-11:45
Classification of Melanocytic Skin Lesions from Non-Melanocytic Lesions
Iyatomi, Hitoshi* (Hosei Univ.); Norton, Kerri-Ann (Rutgers Univ.); Celebi, M. Emre (Louisiana State Univ in Shreveport); Schaefer, Gerald (Loughborough Univ.); Tanaka, Masaru (Tokyo Women’s Medical Univ., Medical Center East); Ogawa, Koichi (Hosei Univ.)
### 8.3.4 Surgical Robotics (Oral Session)

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<td>Design and Control of a Robotic System for Assistive Laser Phonoincision</td>
<td>Mattos, Leonardo* (IIIT – Italian Inst. of Tech.); Caldwell, Darwin G. (IIIT – Italian Inst. of Tech.); Dellepiane, Massimo (Univ. of Genoa – ENT Dept.); Grant, Edward (NC State Univ.)</td>
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<td>09:30-09:45</td>
<td>SaA07.2</td>
<td>Target Motion Compensation in MRI-Guided Prostate Biopsy with Static Images</td>
<td>Tadayyon, Hadi (Queen's Univ., School of Computing); Lasso, Andras* (Queen's Univ.); Gill, Sean (Queen's Univ.); Kaushal, Aradhana (Natl. Cancer Inst.); Guion, Peter (Natl. Cancer Inst.); Fichtinger, Gabor (Johns Hopkins Univ.)</td>
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<td>09:45-10:00</td>
<td>SaA07.3</td>
<td>Retinal Vessel Cannulation with an Image-Guided Handheld Robot</td>
<td>Becker, Brian C.* (Carnegie Mellon Univ.); Voros, Sandrine (Johns Hopkins Univ.); Lobes, Louis A. (Univ. of Pittsburgh Medical Center); Hada, James T (Johns Hopkins Univ.); Hager, Gregory D (Johns Hopkins Univ.); Riviere, Cameron N (Carnegie Mellon Univ.)</td>
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<td>10:00-10:15</td>
<td>SaA07.4</td>
<td>Targeting Error Simulator for Image-Guided Prostate Needle Placement</td>
<td>Lasso, Andras* (Queen's Univ.); Avni, Shachar (Queen's Univ., School of Computing); Fichtinger, Gabor (Johns Hopkins Univ.)</td>
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<td>SaA07.5</td>
<td>Application of the HeartLander Crawling Robot for Injection of a Thermally Sensitive Anti-Remodeling Agent for Myocardial Infarction Therapy</td>
<td>Chapman, Michael (Univ. of Pittsburgh); López González, Jose Luis (Univ. of Valladolid); Goyette, Brina (Carnegie Mellon Univ.); Fujimoto, Kazuro (Univ. of Pittsburgh); Ma, Zuwei (Univ. of Pittsburgh); Wagner, William R (Univ. of Pittsburgh); Zenati, Marco (Harvard Medical School); Riviere, Cameron N* (Carnegie Mellon Univ.)</td>
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<td>10:30-10:45</td>
<td>SaA07.6</td>
<td>Needle Steering System Using Duty-Cycled Rotation for Percutaneous Kidney Access</td>
<td>Wood, Nathan* (Carnegie Mellon Univ.); Shahrouq, Khaled (Univ. of Pittsburgh); Ost, Michael (Univ. of Pittsburgh); Riviere, Cameron N (Carnegie Mellon Univ.)</td>
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### 6.7.1 Musculoskeletal Models as a Guide for Rehabilitation Interventions (Oral Session)

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<td>Computational Hypothesis Testing for Neuromuscular Systems</td>
<td>Kutch, Jason* (Univ. of Southern California); Valero-Cuevas, Francisco (Univ. of Southern California)</td>
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<td>09:30-09:45</td>
<td>SaA08.2</td>
<td>Probabilistic Musculoskeletal Modeling of the Knee: A Preliminary Examination of an ACL-Reconstruction</td>
<td>Barry, Megan (Northwestern Univ.); Kwon, Tae-Hyun (Northwestern Univ.); Dhafer, Yasin* (Northwestern Univ.)</td>
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<td>09:45-10:00</td>
<td>SaA08.3</td>
<td>Predictive Simulation of Gait in Rehabilitation</td>
<td>Ackermann, Marko* (Centro Univ. da FEI); van den Bogert, Antonie J. (Cleveland Clinic)</td>
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<tr>
<td>10:00-10:15</td>
<td>SaA08.4</td>
<td>Adaptive Terminal Sliding Mode Control of Ankle Movement Using Functional Electrical Stimulation of Agonist-Antagonist Muscles</td>
<td>Nekoukar, Vehab (Neuromuscular Control Systems Lab., Neural Tech. Research Centre, Dept. of Biomedical Engineering, Iran Univ. of); Erfanian, Abbas* (Iran Univ. of Science &amp; Tech.)</td>
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Model of Postural Control System Applied in Parkinson’s Disease Patients
Nogueira, Santiago (Laboratorio de Otoneurologia); Ferreira, Enrique D. (Univ. Catolica del Uruguay); Geisinger, Dario (Laboratory of Otoneurology); San Román, María Cecilia* (Lab. of Otoneurology. British Hospital); Suarez, Hamlet (Laboratory of Otoneurology)

Model to Estimate Hamstrings Behavior in Cerebral Palsy Patients: As a Pre-Surgical Clinical Diagnosis Tool
Ravera, Emilian Pablo (Univ. Nacional de Entre Ríos, Facultad de Ingeniería); Crespo, Marcos (FLENI, Inst. for Neurological Research); Catalafamo, Paola Andrea Lucia (Univ. Nacional de Entre Ríos, Facultad de Ingeniería); Braidot, Ariel Andrés* (Univ. Nacional de Entre Ríos, Facultad de Ingeniería)

Causal Neuronal Networks Provide Functional Signatures of Stimulus Encoding
Eldawlatly, Seif* (Michigan State Univ.); Oweiss, Karim (Michigan State Univ.)

Changes of Hippocampal CA3-CA1 Population Nonlinear Dynamics across Different Training Sessions in Rats Performing a Memory-Dependent Task
Chan, Rosa H. M.* (Univ. of Southern California); Song, Dong (Univ. of Southern California); Hampson, Robert (Wake Forest Univ.); Deadwyler, Sam (Wake Forest Univ.); Berger, Theodore (Univ. of Southern California)

Quantitative Analysis of Neural Plasticity in Motorcortex During Functional Recovery Post Spinal Cord Injury
Huo, Yan (Beijing Inst. of Tech.); Li, Ping (Beijing Inst. of Tech.); Ma, Chaolin (Arizona State Univ.); Zhang, Hang (Arizona State Univ.); Lv, Bin (Inst. of Automation, Chinese Academy of Sciences); He, Jiping* (Arizona State Univ.)

Can We Infer Subthalamic Nucleus Spike Trains from Intranuclear Local Field Potentials?
Michmizos, Kostis* (Natl. Technical Univ. of Athens); Nikita, Konstantina (Nat. Technical Univ. of Athens)

ATP Consumption and Neural Electrical Activity: A Physiological Model for Brain Imaging
Gafaniz, Rita (Inst. for Systems & Robotics); Sanches, J. Miguel* (Inst. for Systems & Robotics, NIF)

Development of Mobile Psychiatry for Bipolar Disorder Patients
Prociow, Pawel* (Univ. of Nottingham); Crowe, John (Univ. of Nottingham)

A Novel Method to Detect Heart Beat Rate Using a Mobile Phone
Pelegris, Panagiotis (Brunel Univ.); Banitsas, Konstantinos* (Brunel Univ.); Orbach, Tuvi (Health-Smart); Marias, Kostas (Foundation for Res. & Tech. Hellas)
An Internet-Based System for Home Monitoring of Respiratory Muscle Disorders
Silva Junior, Evert* (Univ. do Estado do Rio de Janeiro); Esteves, Guilherme (Univ. do Estado do Rio de Janeiro); Feria, Alvaro Camilo Dias (Univ. do Estado do Rio de Janeiro); Melo, Pedro Lopes (Univ. do Estado do Rio de Janeiro)

A Mobile Communications System for Home-Visit Medical Services: The Electronic Doctor's Bag
Yoshizawa, Makoto* (Tohoku Univ.); Yambe, Tomoyuki (Tohoku Univ.); Sajjo, Yoshifumi (Tohoku Univ.); Sugita, Norihito (Tohoku Univ.); Sugai, Telma Keiko (Tohoku Univ.); Abe, Makoto (Tohoku Univ.)

A Cardiore Based Technique to Identify Cardiovascular Diseases Using Mobile Phones and Body Sensors
Sufi, Fahim (RMIT Univ.); Khalil, Ibrahim* (RMIT Univ.); Tari, Zahir (RMIT Univ.)

Mobile Middleware for Wireless Body Area Network
Chen, Xiang* (Inst. for Infocomm Research); Waluyo, Agustinus Borgy (Monash Univ.); Pek, Isaac (Inst. for Infocomm Research); Yeoh, Wee Soon (Inst. for Infocomm Research)

4.1.1 Algorithms and Computational Tools for Proteomics and Gene Expression Profiling (Oral Session)

Protein Surface Functional Description
Cristea, Paul Dan* (Univ. Politehnic of Bucharest); Tuduce, Rodica (Univ. Politehnic of Bucharest); Arsene, Octavian (Politehnic Univ. of Bucharest)

Predictability of Protein Subcellular Locations by Pattern Recognition Techniques
Jaramillo Garzón, Jorge Alberto* (Univ. Nacional de Colombia); Perera, Alexandre (Univ. Politècnica de Catalunya); Castellanos-Dominguez, Germán (Univ. Nacional de Colombia)

Adaptive Threshold for Detecting Differentially Expressed Genes in Microarray Data – A Simulation Study to Investigate Its Performance
Fukuoka, Yutaka* (Tokyo Medical & Dental Univ.); Inaoka, Hidenori (Kitasato Univ.); Noshiro, Makoto (Kitasato Univ.)

Towards a Digital Model of Zebrafish Embryogenesis. Integration of Cell Tracking and Gene Expression Quantification
Castro Gonzalez, Carlos* (Univ. Politècnica de Madrid); Luengo-Oroz, Miguel Angel (Univ. Politècnica de Madrid); Duloquin, Louise (CNRS); Savy, Thierry (Ecole Polytechnique); Melani, Camilo (Univ. de Buenos Aires); Desnooûez, Sophie (CNRS); Ledesma-Carbayo, María J. (Univ. Politècnica de Madrid); Bourgine, Paul (Ecole Polytechnique); Peyrèrèes, Nadine (CNRS); Santos, Andres (Univ. Politècnica Madrid)

Accurate Samples for Testing Mass Spectrometry Based Peptide Quantification Algorithms
Carrillo, Brian* (McGill Univ.); Laboissiere, Sylvie (McGill Univ. & Genome Quebec Innovation Centre Proteomics Platform); Nadon, Robert (Dept. of Human Genetics at McGill Univ.); Kearney, Robert Edward (McGill Univ.)

An Information Theory-Based Tool for Characterizing the Interaction Environment of a Protein
Massanet-Vila, Raimon* (Univ. Politècnica de Catalunya); Gallardo-Chacón, Joan-Josep (CIBER Bioengineering, Biomaterials, & Nanomedicine); Caminal, Pere (Technical Univ. of Catalonia (UPC)); Perera, Alexandre (Univ. Politècnica de Catalunya)
09:15-10:45 SaA13: 09:15-10:45
6.8.2 Neuroligical Disorders (Oral Session)

09:15-09:30
Quantitative Description of the State of Awareness of Patients in Vegetative and Minimally Conscious State

Wieser, Martin* (ETH Zurich); Buetler, Lilith (HUMAINE Clinic); Koenig, Alexander (ETH Zurich); Riener, Robert (ETH & Univ. Zurich)

09:30-09:45
Predicting Temporal Lobe Epileptic Seizures Based on Zero-Crossing Interval Analysis in Scalp EEG

Shahidi Zandi, Ali (The Univ. of British Columbia); Tafreshi, Reza* (Texas A&M Univ. at Qatar); Javidan, Manouchehr (Univ. of British Columbia & Vancouver General Hospital); Dumont, Guy (Univ. of British Columbia)

09:45-10:00
Epileptic Seizure Detection – An AR Model Based Algorithm for Implantable Device

Kim, Hyunchul (Univ. of California Santa Cruz); Rosen, Jacob* (Univ. of California – Santa Cruz)

10:00-10:15
A Novel Morphology-Based Classifier for Automatic Detection of Epileptic Seizures

Yadav, Rajeev* (Concordia Univ.); Agarwal, Rajeev (Concordia Univ.); Swamy, M.N.S. (Concordia Univ.)

10:15-10:30
Clinical Study of Neurorehabilitation in Stroke Using EEG-Based Motor Imagery Brain-Computer Interface with Robotic Feedback

Ang, Kai Keng* (Inst. for Infocomm Research); Guan, Cuntai (Inst. for Infocomm Research); Chua, Kaven Siu Geok (Tan Tock Seng Hospital Rehabilitation Centre); Ang, Beng Ti (Natl. Neuroscience Inst.); Kuah, Christopher Wee Keong (Tan Tock Seng Hospital Rehabilitation Centre); Wang, Chuanchu (Inst. for Infocomm Research); Phua, Koksoon (Inst. for Infocomm Research); Chin, Zheng Yang (Inst. for Infocomm Research); Zhang, Haihong (Inst. for Infocomm Research)

10:30-10:45
A Neural Repair Treatment with Gait Training Improves Motor Function Recovery after Spinal Cord Injury

Ma, Chaolin (Arizona State Univ.); He, Jiping* (Arizona State Univ.)

10:45-12:15 SaBPo01: 10:45-12:15
2.7.8 Image Classification IV (Poster Session)

10:45-12:15
Small Bowel Tumors Detection in Capsule Endoscopy by Gaussian Modeling of Color Curvelet Covariance Coefficients

Lima, Carlos Manuel Gregorio Santos* (Univ. of Minho); Barbosa, Daniel (Univ. of Minho); Martins, Maria Manuel (Univ. of Minho)

10:45-12:15
Boosting Instance Prototypes to Detect Local Dermoscopic Features

Situ, Ning (Univ. of Houston); Yuan, Xiaojing (Univ. of Houston); Zouridakis, George* (Univ. of Houston)

10:45-12:15
Classification of Apoptosis Using Advanced Clustering Techniques on Digital Microscopic Images

Tasoylis, Sotirios (Univ. of Central Greece); Doukas, Charalampos* (Univ. of the Aegean); Magliogliantis, Ilias (Univ. of Central Greece); Plagianakos, Vassilis (Univ. of Central Greece)

10:45-12:15
Recognizing Physical Activity from Ego-Motion of a Camera

Zhang, Hong (Beihang Univ.); Li, Lu (Beihang Univ.); Jia, Wenyuan (Univ. of Pittsburgh); Fernstrom, John D. (Univ. of Pittsburgh); Sclabassi, Robert (Univ. of Pittsburgh); Sun, Mingui* (Univ. of Pittsburgh)

10:45-12:15
Parallel Nonlinear Analysis of Weighted Brain’s Gray and White Matter Images for Alzheimer’s Dementia Diagnosis

Razavian, Seiied-Mohammad-Javad (Sharif Univ. of Tech.); Torabi, Meysam* (Univ. of California, Berkeley)
10:45-12:15 SaBPo01.6
Computer-Aided Diagnosis of Breast Cancer from Magnetic Resonance Imaging Examinations by Custom Radial Basis Function Vector Machine
Levman, Jacob Evan Daniel*(Sunnybrook Health Sciences Centre, Univ. of Toronto);
Martel, Anne (Sunnybrook Health Sciences Centre, Univ. of Toronto)

10:45-12:15 SaBPo01.7
A Preliminary Study of Moment-Based Texture Analysis for Medical Images
Wu, Ke* (Southeast Univ. China); Garnier, Carole (Univ. de Rennes 1); Coatrieux, Jean Louis (INSERM-Univ. Rennes 1); Shu, Huazhong (Southeast Univ.)

10:45-12:15 SaBPo01.8
SVM Based Colon Polyps Classifier in a Wireless Active Stereo Endoscope
Ayoub, Jad (CNRS ENSEA Univ. Cergy Pontoise); Granado, Bertrand* (ENSEA – CNRS – Univ. Cergy Pontoise); Mohanna, Yasser (Faculty of Sciences I, Lebanese Univ.); Romain, Olivier (UPMC)

10:45-12:15 SaBPo01.9
Curvatures with Uncertainties Derived in Conformal Space to Characterize Tendon Microstructure
Harvey, Ann K.* (Oxford Univ.); Szilágyi, Tünde (Univ. of Oxford); Brady, Michael (Univ. of Oxford); Thompson, Mark (Oxford Univ.); Joshi, Niranjan (Oxford Univ.)

10:45-12:15 SaBPo01.10
Using PCA and LVQ Neural Network for Automatic Recognition of Five Types of White Blood Cells
Roshani Tabrizi, Pooneh* (Tehran); Rezatofighi, Seyed Hamid (Univ. of Tehran, Iran); Yazdanpanah, Mohammad Javed (Tehran)

10:45-12:15 SaBPo01.11
Genetic Algorithm and Image Processing for Osteoporosis Diagnosis
Jennane, Rachid* (Univ. of Orleans); almhdie, Ahmad (Univ. of Orleans); Hambl, Ridha (Univ. of Orleans); Ucan, Osman Nuri (Univ. of Istanbul); Benhanou, Claude-Laurent (Centre Hospitalier Régional d'Orléans)

10:45-12:15 SaBPo01.12
Automatic Learning of Spatial Patterns for Diagnosis of Skin Lesions
Zortea, Maciel*(Univ. of Tromsø); Skrøvseth, Stein Olav (Norwegian Centre for Integrated Care & Telemedicine); Godtliebsen, Fred (Univ. of Tromsø)

SaBPo02: 10:45-12:15 Catalinas/Golden Horn
2.7.10 Rigid-Body Image Registration I (Poster Session)

10:45-12:15 SaBPo02.1
Registration of 2D Point Sets by Complex Translation and Rotation Operations
Sahin, Ismet* (Univ. of Maryland)

10:45-12:15 SaBPo02.2
A Semi-Automatic Method for Positioning a Femoral Bone Reconstruction for Strict View Generation ...
Milano, Federico* (Univ. de Buenos Aires, Univ. Tecnologica Nacional); Ritacco, Lucas E (Hospital Italiano); Gomez, Adrian (Hospital Italiano de Buenos Aires); Gonzalez Bernaldo de Quiros, Fernán (Hospital Italiano de Buenos Aires); Risk, Marcelo (Univ. de Buenos Aires)

10:45-12:15 SaBPo02.3
Pre-Reconstruction Rigid Body Registration for Positron Emission Tomography: An Initial Validation against Ground Truth
Nordberg, Peter* (Univ. of Oxford); Declerck, Jerome (Siemens Molecular Imaging); Brady, Michael (Univ. of Oxford)

10:45-12:15 SaBPo02.4
Multimodal Target Correction by Local Bone Registration: A PET/CT Evaluation
Oliveira-Santos, Thiago* (ISTB – Inst. for Surgical Tech. & Biomechanics); Weltzel, Thilo (Dept. of Nuclear Medicine, Inselspital Bern, 3010 Bern, Switzerland); Klaeser, Bernd (Dept. of Nuclear Medicine, Inselspital Bern, 3010 Bern, Switzerland); Krause, Thomas (Univ. of Bern, 3010 Bern, Switzerland); Nolte, Lutz-Peter (Univ. of Bern); Weber, Stefan (Univ. of Bern); Reyes, Mauricio (MEM Research Center, Univ. Bern)
10:45-12:15  
**Postoperative Evaluation of Surgery for Craniosynostosis Based on Image Registration Techniques**  
Elias de Oliveira, Marcelo* (Univ. of Bern); Hallila, Harri (Dept. of Electronics, School of Science & Tech., Aalto Univ.); Ritvanen, Antti (Dept. of Electronics, School of Science & Tech., Aalto Univ.); Büchler, Philippe (Univ. of Bern); Paulasto, Mervi (Dept. of Electronics, School of Science & Tech., Aalto Univ.); Hukki, Jyri (Cleft Palate & Craniofacial Center, Dept. of Plastic Surgery, Helsinki Univ. Hospital)

10:45-12:15  
**FMRI 3D Registration Based on Fourier Space Subsets Using Neural Networks**  
Freire, Luis C.* (Escola Superior de Tecnologia da Saúde de Lisboa, Inst. Politécnico de Lisboa); Godinho, Fernando (Átomedical, Laboratório de Medicina Nuclear, Lda); Gouveia, Ana Isabel (Univ. da Beira Interior, CICS)

10:45-12:15  
**A Torsional Eye Movement Calculation Algorithm for Low Contrast Images in Video-Oculography**  
Jansen, Stephan* (Maastricht Univ.); Kingma, Herman (Univ. Hospital Maastricht); Peeters, Ralf (Univ. Maastricht); Westra, Ronald (Univ. Maastricht)

10:45-12:15  
**Analysis of Foveal Avascular Zone in Colour Fundus Images for Grading of Diabetic Retinopathy Severity**  
Ahmad Fadzil, Mohamad Hani* (Univ. Teknologi Petronas); Adi Nugroho, Hanung (Gadjah Mada Univ.)