<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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</thead>
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<tr>
<td>15:00-16:30</td>
<td>WeD13.11</td>
<td>Prototype of an Auto-Calibrating, Context-Aware, Hybrid Brain-Computer Interface</td>
<td>Falter, Josef* (Graz University of Technology); Torrellas, Sergi (Barcelona Digital); Miralles, Felip (Barcelona Digital); Holzner, Clemens (g.tec medical engineering GmbH); Kapeller, Christoph (g.tec medical engineering GmbH); Guger, Christoph (g.tec medical engineering GmbH); Bund, Jürgen (Meticube); Müller-Putz, Gerot (Graz University of Technology); Scherer, Reinhold (Graz University of Technology)</td>
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<tr>
<td>15:00-16:30</td>
<td>WeD13.12</td>
<td>Mental Task Classifications Using Prefrontal Cortex Electroencephalograph Signals</td>
<td>Chai, Rifai* (University of Technology, Sydney); Ling, Steve (University of Technology Sydney); Hunter, Gregory Peter (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</td>
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</tbody>
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**WeD14: 15:00-16:30**

**6.3 Motor Neuroprostheses Posters I (Oral Session)**

<table>
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<th>Time</th>
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<td>15:00-16:30</td>
<td>WeD14.1</td>
<td>Development of a Non-Invasive, Multifunctional Grasp Neuroprosthesis and Its Evaluation in an Individual with a High Spinal Cord Injury</td>
<td>Rupp, Rüdiger* (Heidelberg University Hospital); Kreilinger, Alex (Graz University of Technology); Rohm, Martin (Heidelberg University Hospital); Kaiser, Vera (Graz University of Technology); Müller-Putz, Gerot (Graz University of Technology)</td>
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<tr>
<td>15:00-16:30</td>
<td>WeD14.2</td>
<td>Muscle Response to Simultaneous Stimulated and Physiological Action Potential Trains – A Simulation Study</td>
<td>Crago, Patrick* (Case Western Reserve University); Makowski, Nathaniel (Case Western Reserve University)</td>
</tr>
<tr>
<td>15:00-16:30</td>
<td>WeD14.3</td>
<td>Co-contraction of Antagonist Muscles During Knee Extension against Gravity: Insights for Functional Electrical Stimulation Control Design</td>
<td>Lynch, Cheryl* (Toronto Rehab-UHN); Sayenko, Dimitry (Toronto Rehab-UHN); Popovic, Milos R. (University of Toronto)</td>
</tr>
<tr>
<td>15:00-16:30</td>
<td>WeD14.4</td>
<td>Empirical Mode Decomposition As a Tool to Remove the Function Electrical Stimulation Artifact from Surface Electromyograms: Preliminary Investigation</td>
<td>Pilkar, Rakesh* (Kessler Foundation / UMDNJ); Yarossi, Mathew (University of Medicine &amp; Dentistry New Jersey/Kessler Foundation); Forrest, Gail (Kessler Foundation)</td>
</tr>
<tr>
<td>15:00-16:30</td>
<td>WeD14.5</td>
<td>Localized Stimulation and Recording in the Spinal Cord with Microelectrode Arrays</td>
<td>Arle, Jeffrey* (Beth Israel Deaconess Medical Center); Shills, Jay (Lahey Clinic/Tufts Medical School); Malik, Wasiq Q. (Massachusetts Institute of Technology)</td>
</tr>
<tr>
<td>15:00-16:30</td>
<td>WeD14.6</td>
<td>Modulation of Ankle EMG in Spinally Contused Rats through Application of Neuromuscular Electrical Stimulation Timed to Robotic Treadmill Training</td>
<td>Askari, Sina (University of Southern California); Kangar, Parsa (California State University, Los Angeles); Chao, Tekang (Student, University of Southern California); de Leon, Ray (California State University Los Angeles); Won, Deborah Soonmee* (California State University, Los Angeles); Diaz, Eric (University of Southern California)</td>
</tr>
<tr>
<td>15:00-16:30</td>
<td>WeD14.7</td>
<td>Automatic Determination of Parameters for Multipad Functional Electrical Stimulation: Application to Hand Opening and Closing</td>
<td>Hoffmann, Ulrich* (Tecnalia Research &amp; Innovation); Deinhofer, Martin (Technikum Wien); Keller, Thierry (Tecnalia Research &amp; Innovation)</td>
</tr>
</tbody>
</table>
Step Trajectory Analysis of Spinal Cord Injured Rats Trained with Neuromuscular Electrical Stimulation Coordinated with Robotic Treadmill Training .............................................. 1864-1867
Kamgar, Parisa* (California State University, Los Angeles); Agarwal, Ankit (California State University, Los Angeles); Chao, Tekang (Student, California State University Los Angeles); Askari, Sina (University of Southern California); Tan, Matthew (California State University, Los Angeles); Honor, Ryan (Cal State Los Angeles); Won, Deborah Soonmee (California State University, Los Angeles)

A Novel FES Control Paradigm Based on Muscle Synergies for Postural Rehabilitation Therapy with Hybrid Exoskeletons ................................................................. 1868-1871
Piazza, Stefano* (Consejo Superior de Investigaciones Científicas (CSIC)); Torricelli, Diego (Grupo de Bioingeniería, CSIC); Brunetti, Fernando (Centro de Automática y Robótica); del-Ama, Antonio J. (Hospital Nacional de Parapléjicos de Toledo); Gil-Agudo, Ángel (Hospital Nacional de Parapléjicos de Toledo); Pons, Jose Luis (Instituto de Automática Industrial)

Directed Causality of the Human Electrocorticogram During Dexterous Movement ................................................................. 1872-1875
Benz, Heather* (Johns Hopkins University); Collard, Maxwell (Johns Hopkins University); Tsimpouris, Charalampos (University of Patras); Acharya, Sounyadipta (Johns Hopkins University); Crone, Nathan E. (Johns Hopkins University, School of Medicine); Thakor, Nitish (Johns Hopkins University); Bezerianos, Anastasios (University of Patras)

Prosthesis-Guided Training of Pattern Recognition-Controlled Myoelectric Prosthesis ................................................................. 1876-1879
Chicoine, Caitlin (Rehabilitation Institute of Chicago); Simon, Ann* (Rehabilitation Institute of Chicago); Hargrove, Levi (Rehabilitation Institute of Chicago)

Control of Tibialis Anterior FES Envelop for Unilateral Drop Foot Gait Correction Using NARX Neural Network ................................................................. 1880-1883
Kordjazi, Neda* (Islamic Azad University, Mashhad Branch); Kobravi, Hamid Reza (Islamic Azad University, Mashhad Branch)

Development of a Bayesian Neural Network to Perform Obstacle Avoidance for an Intelligent Wheelchair ................................................................. 1884-1887
Nguyen, Anh V.* (University of Technology, Sydney); Nguyen, Lien B. (University of Technology, Sydney); Su, Steven Weidong (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)

Biomimetic NMES Controller for Arm Movements Supported by a Passive Exoskeleton ................................................................. 1888-1891
Ferrante, Simona* (Politecnico di Milano); Ambrosini, Ermilla (Politecnico di Milano); Ferrigno, Giancarlo (Politecnico di Milano); Pedrocchi, Alessandra (Politecnico di Milano)

A Comparative Study of the 3D Precentral Gyrus Model for Unipolar and Bipolar Current Stimulations ...... 1892-1895
Seo, Hyeon (Gwangju Institute of Science and Technology); Jun, Sung Chan* (Gwangju Institute of Science and Technology)

Activation Using Infrared Light in a Mammalian Axon Model ................................................................. 1896-1899
Peterson, Erik* (Case Western Reserve University); Tyler, Dustin (Case Western Reserve University)
8.1.2 Orthotics (Oral Session)

15:00-16:30 WeD16.1
Active AFO with Ankle Joint Brake Friction Control Using Force Observer .................................................. 1900-1903
Yoshizawa, Nobuyuki* (Nippon Institute of Technology)

15:00-16:30 WeD16.2
Gait Planning and Double Support Phase Model for Functional Electrical Stimulation-Based Walking ... 1904-1907
Sharma, Nitin* (University of Alberta); Stein, Richard B. (University of Alberta)

15:00-16:30 WeD16.3
Performance Evaluation of a Lower Limb Exoskeleton for Stair Ascent and Descent with Paraplegia ..... 1908-1911
Farris, Ryan* (Vanderbilt University); Quintero, Hugo A. (Vanderbilt University);
Goldfarb, Michael (Vanderbilt University)

15:00-16:30 WeD16.4
Towards the Use of a Lower Limb Exoskeleton for Locomotion Assistance in Individuals with Neuromuscular Locomotor Deficits .......................................................... 1912-1915
Murray, Spencer* (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)

8.4.1 Assistive and Cognitive Robotics (Oral Session)

15:00-16:30 WeD17.1
Single Degree-Of-Freedom Exoskeleton Mechanism Design for Thumb Rehabilitation ......................... 1916-1920
Yihun, Yimesker (Idaho State University); Miklos, Robert (Idaho State University); Perez Gracia, Alba* (Idaho State University); Reinkensmeyer, David J. (University of California); Denney, Keith (University of Idaho);
Wolbrecht, Eric (University of Idaho)

15:00-16:30 WeD17.2
A Taxonomy for User-Healthcare Robot Interaction .................................................................................. 1921-1924
Bzura, Conrad (Worcester Polytechnic Institute); Im, Hosung (Worcester Polytechnic Institute); Liu, Tammy (Worcester Polytechnic Institute); Malehorn, Kevin (Worcester Polytechnic Institute); Padir, Taskin* (Worcester Polytechnic Institute); Tulu, Bengisu (Worcester Polytechnic Institute)

15:00-16:30 WeD17.3
Double Loop Control Strategy with Different Time Steps Based on Human Characteristics .................. 1925-1928
Gu, Gwang Min (KAIST); Lee, Jinoh (KAIST);
Kim, Jung* (Korea Advanced Institute of Science and Technology)

15:00-16:30 WeD17.4
Prosthesis-User-In-The-Loop: User-Centered Design Parameters and Visual Simulation ...................... 1929-1932
Christ, Oliver* (Technische Universität Darmstadt); Wolffsch, Janis Nikolai Herald (Technische Universität Darmstadt); Beckerle, Philipp (Technische Universität Darmstadt, Institute for Mechatronic Systems in Mechanical Engineering); Wolff, Kerstin (Technische Universität Darmstadt, Work and Engineering Psychology Research Group); Vogt, Joachim (TU Darmstadt); von Stryk, Oskar (Technische Universität Darmstadt); Rinderknecht, Stephan (TU Darmstadt, Institute for Mechatronic Systems in Mechanical Engineering)

15:00-16:30 WeD17.5
Electric Motor Assisted Bicycle as an Aerobic Exercise Machine .......................................................... 1933-1935
Nagata, Takaumi* (Ritsumeikan University)

15:00-16:30 WeD17.6
An Upper Limb Robot Model of Children Limb for Cerebral Palsy NeuroRehabilitation ...................... 1936-1939
Pathak, Yagna (Marquette University); Johnson, Michelle* (Medical College of Wisconsin)

15:00-16:30 WeD17.7
Hidden Marker Position Estimation During Sit-To-Stand with Walker .................................................... 1940-1943
Yoon, Sang Ho* (LG Electronics); Jun, Hong Gul (LG Electronics); Dan, Byung Ju (LG Electronics);
Jo, Byeong-Rim (LG Electronics); Min, Byung Hoon (LG Electronics)
9.2.2 Patient Monitoring Devices and Systems I (Oral Session)

15:00-16:30 WeD19.1
A Synchronization System for the Analysis of Biomedical Signals Recorded with Different Devices from Mechanically Ventilated Patients
Camacho Laverde, Alejandro (University of Antioquia); Hernandez, Alher Mauricio* (University of Antioquia); Serna Higuera, Leidy Yanet (Universitat Politècnica de Catalunya); Naranjo Londoño, Zulma (University of Antioquia); Mananas, Miquel Angel (Technical University of Catalonia (UPC))

15:00-16:30 WeD19.2
Evaluation of Pelvis Slope and Flattening on Children Gymnasts by Biophotogrammetry Technique
Vacari, Daiane A. (UTFPR – Federal Technological University of Paraná); Ricieri, Denise da Vinha (UFPR – Federal University of Paraná); Ulbricht, Leandra* (UTFPR – Federal University of Technology – Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Romaneli, Eduardo F. R. (UTFPR – Federal University of Technology – Paraná)

15:00-16:30 WeD19.3
Comparison between Body Fat Measurements Obtained by Portable Ultrasound and Caliper in Young Adults
Ulbricht, Leandra (UTFPR – Federal University of Technology – Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Ripka, Wagner L. (UTFPR-Federal Technological University of Paraná); Romaneli, Eduardo F. R. * (UTFPR – Federal University of Technology – Paraná)

15:00-16:30 WeD19.4
Automated Motion Sensor Quantification of Gait and Lower Extremity Bradykinesia
Heldman, Dustin* (Great Lakes NeuroTechnologies Inc); Filipkowski, Danielle (Great Lakes NeuroTechnologies Inc.); Riley, David (University Hospitals and Case Western Reserve University School of Medicine); Whitney, Christina (University Hospitals and Case Western Reserve University School of Medicine); Walter, Benjamin (University Hospitals and Case Western Reserve University School of Medicine); Gunzler, Steven (University Hospitals and Case Western Reserve University School of Medicine); Giuffrida, Joseph (Great Lakes NeuroTechnologies Inc.); Mera, Thomas (Great Lakes NeuroTechnologies Inc.)

15:00-16:30 WeD19.5
Accuracy Evaluation on Linear Measurement through Opto-Electronic Plethysmograph
Bastianini, Flavia* (University Campus Bio-Medico of Rome); Schena, Emiliano (University of Rome Campus Bio-Medico); Silvestri, Sergio (Università Campus Bio-Medico di Roma)

15:00-16:30 WeD19.6
Full Body Gait Analysis with Kinect
Gabel, Moshe (Technion – Israel Institute of Technology); Glid-Bachrach, Ran* (Microsoft Research); Renshaw, Erin (Microsoft Research); Schuster, Assaf (Technion – Israel Institute of Technology)

15:00-16:30 WeD19.7
Development and Clinical Validation of an Unobtrusive Ambulatory Knee Function Monitoring System with Inertial 9DoF Sensors
Schulze, Mareike* (Hannover Medical School, Peter L. Reichertz Institute for Medical Informatics); Calliess, Tilman (Hannover Medical School, Department of Orthopaedic Surgery); Getzelt, Matthias (University of Braunschweig – Institute of Technology); Wolf, Klaus-Hendrik (University of Braunschweig – Institute of Technology); Liu, Tsung-Han (Hannover Medical School, Peter L. Reichertz Institute for Medical Informatics); Seehaus, Frank (Hannover Medical School, Department of Orthopaedic Surgery); Backlage, Raphael (Hannover Medical School, Department of Orthopaedic Surgery); Windhagen, Henning (Hannover Medical School, Department of Orthopaedic Surgery); Marschollek, Michael (Unlv of Braunschweig-Inst of Tech)

15:00-16:30 WeD19.8
Indoor Magnetic Navigation for the Blind
Riehle, Timothy H (Koronis Biomed. Technologies Corp.); Anderson, Shane (Koronis Biomedical Technologies); Lichter, Patrick (Koronis Biomedical Technologies); Giudice, Nicholas (University of California, Santa Barbara); Sheikh, Suneel (ASTER Labs, Inc.); Knuessel, Robert (Koronis Biomedical Technologies); Kollmann, Daniel (Koronis Biomedical Technologies); Hedin, Daniel* (Advanced Medical Electronics)
15:00-16:30 WeD19.9
**A Smartphone Application of Alcohol Resilience Treatment for Behavioral Self-Control Training**

Yu, Fei* (The University of Southern Denmark); Albers, Jörg (University of Southern Denmark); Gao, Tian (University of Southern Denmark, Mads Clausen Institute); Bilberg, Arne (The University of Southern Denmark); Stenager, Elsebeth (University of Southern Denmark)

15:00-16:30 WeD19.10
**Towards the Run and Walk Activity Classification through Fall Detection – An Android Application**

Oner, Melis (Central Michigan University); Pulcifer-Stump, Jeffry (Central Michigan University); Seeling, Patrick (Central Michigan University); Kaya, Tolga* (Central Michigan University)

15:00-16:30 WeD19.11
**The Simulation of Click and Double-Click through EMG Signals**

Pinheiro, Jr., Carlos G.* (Universidade Federal de Goiás); Andrade, Adriano (Federal University of Uberlandia)

15:00-16:30 WeD19.12
**A Laser Doppler System for Monitoring of Intracerebral Microcirculation**

Rejmstad, Peter* (Linköping University); Åkesson, Gustav (Linköping University Hospital); Hillman, Jan (Linköping University Hospital); Wärdeell, Karin (Linköping University)

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**9.2.3 Patient Monitoring Devices and Systems II (Oral Session)**

**Indigo Ballroom**

15:00-16:30 WeD20.1
**A Low-Impedance, Skin-Grabbing, and Gel-Free EEG Electrode**

Sun, Mingui* (University of Pittsburgh); Jia, Wenyan (University of Pittsburgh); Liang, Wei (Zhengzhou Institute of Light Industry); Sclabassi, Robert (University of Pittsburgh)

15:00-16:30 WeD20.2
**Reliability and Validity of the Grip-Ball Dynamometer for Grip-Strength Measurement**

Chkeir, Aly (University of Technology of Troyes); Jaber, Rana (UTT); Hewson, David J* (Université de technologie de Troyes); Duchêne, Jacques (UTT)

15:00-16:30 WeD20.3
**Multi-Signal Visualization of Physiology (MVP): A Novel Visualization Dashboard for Physiological Monitoring of Traumatic Brain Injury Patients**

Sebastian, Kevin (Anglo-Chinese School); Vivian, Sari (Hwa Chong Institute); Loy, Liang Yu (Institute for Infocomm Research); Zhang, Feng (Institute for Infocomm Research Singapore); Zhang, Zhuo* (A*STAR); Feng, Mengling (Institute for Infocomm Research)

15:00-16:30 WeD20.4
**Adaptive Cancellation of Motion Artifact in Wearable Biosensors**

Yousefi, Rasoul (Univ. of Texas at Dallas); Nourani, Mehrdad* (University of Texas at Dallas); Panahi, Issa (University of Texas at Dallas)

15:00-16:30 WeD20.5
**Negative Effects of Obesity Analyzed through Bioimpedance, Indirect Calorimetry, Splanthogovagal Index and the Clino-Ortho Maneuver**

Cadena, Miguel (Universidad Autonoma Metropolitana); Azpiroz-Jeehan, Joaquín* (Universidad Autonoma Metropolitana); Martínez-Licona, Fabiola (Universidad Autonoma Metropolitana); Borja, Gisella (UNIVERSIDAD AUTONOMA D EL CARIBE); Ramos-ibañez, Norma (UAM-X); Velázquez, Consuelo (Universidad Autonoma Metropolitana); Rodríguez, Magdalena (Universidad Autonoma Metropolitana); Díaz, Rafeal (Universidad Autonoma Metropolitana)

15:00-16:30 WeD20.6
**Scale-Independent Stiffness Measurement of Upper Limbs with Lymphedema by a Circular Compression**

Tanaka, Nobuyuki* (Tokyo Women’s Medical University); Kataoka, Tsuyoshi (Hiroshima University); Kaneko, Makoto (Osaka University); Yamato, Masayuki (Tokyo Women’s Medical University); Okano, Teruo (Tokyo Women’s Medical University)
15:00-16:30
**Wearable, Wireless Reflectance-Sensing Pulse Oximeter**

Coker, Brandilyn* (Oregon State University); Leung, Jerry (Oregon State University); Cohen, Caleb (Oregon State University); Goska, Benjamin (Oregon State University); Albright, Ryan (Oregon State University); House, Samuel (Oregon State University); Chiang, Patrick (Oregon State University)

15:00-16:30
**Human Behavior State Profile Mapping Based on Recalibrated Speech Affective Space Model**

Kamaruddin, Norhaslinda* (MARA University of Technology); Abdul, Wahab (International Islamic University Malaysia)

15:00-16:30
**A 3D Assessment Tool for Accurate Volume Measurement for Monitoring the Evolution of Cutaneous Leishmaniasis Wounds**

Zvietcovich, José Fernando* (Pontificia Universidad Católica del Perú); Castañeda, Benjamín (Pontificia Universidad Católica del Perú); Vafencia, Braulio (Institute of Tropical Medicine Alexander von Humboldt); Llanos, Alejandro (Institute of Tropical Medicine Alexander von Humboldt)

15:00-16:30
**A Remote Drip Infusion Monitoring System Employing Bluetooth**

Amano, Hikaru* (Hiroshima Institute of Technology); Ogawa, Hidekuni (Hiroshima Institute of Technology); Maki, Hiromichi (Hiroshima Institute of Technology); Tsukamoto, Sosuke (Hiroshima Institute of Technology); Yonezawa, Yoshiharu (Hiroshima Institute of Technology); Caldwell, Morton (Caldwell Biomedical Electronics)

15:00-16:30
**Biomechanical Assessment of Work Footwear for International Airline Personnel**

Zequera Diaz, Martha Lucia* (Pontificia Universidad Javeriana); Wilches Pérez, Carlos Andrés (Pontificia Universidad Javeriana)

15:00-16:30
**Basic Study on Non-Contact Measurement of Cardiac Beat by Using Grid-Based Active Stereo**

Aoki, Hirooki* (Hiroshima City University); Furukawa, Ryo (Hiroshima City University); Sagawa, Ryusuke (National Institute of Advanced Industrial Science and Technology); Kawasaki, Hiroshi (Kagoshima University); Hiura, Shinsaku (Hiroshima City University)

WeD21: 15:00-16:30

**9.2.4 Patient Monitoring Devices and Systems III (Oral Session)**

15:00-16:30
**Development of a Cuffless Blood Pressure Measurement System**

Shyu, Liang-Yu* (Chung Yuan Christian University); Kao, Yao-Lin (Chung Yuan Christian University); Tsai, Wen-Ya (Chung-Yuan Christian University); Hu, Wei-Chih (Chung Yuan Christian University)

15:00-16:30
**First Steps in Adaptation of an Evidential Network for Data Fusion in the Framework of Medical Remote Monitoring**

Paulo, Cavalcante (it-sudparis); Sehill, Mohamed El Amine* (ESIGETEL); Herbin, Michel (Université de Reims); Istrate, Dan (ESIGETEL); Blanchard, Frédéric (Université de Reims); Boudy, Jerome (it-sudparis); Dorizzi, Bernadette (Telecom Sud Paris)

15:00-16:30
**Evaluation of Novel Algorithm Embedded in a Wearable eEMG Device for Seizure Detection**

Conradsen, Isa* (Technical University of Denmark); Beniczky, Sandor (Danish Epilepsy Centre); Wolf, Peter (Danish Epilepsy Centre); Jennum, Poul (Danish Centre for Sleep Medicine); Sorensen, Helge B D (Technical University of Denmark)
WeD22: 15:00-16:30

9.2.5 Diagnostic and Therapeutic Devices (Oral Session)

Indigo Ballroom

15:00-16:30

**A Computational Model of a Controllable Needle-Free Jet Injector** .......................................................... 2052-2055
Williams, Rhys Matthew James* (University of Auckland); Hogan, N. Catherine (Massachusetts Institute of Technology); Nielsen, Poul (The University of Auckland); Hunter, Ian (Massachusetts Institute of Technology); Taberner, Andrew (The University of Auckland)

15:00-16:30

**Experimental Glucose Regulation with a High-Order Sliding-Mode Controller** ........................................... 2056-2059
Gallardo-Hernández, Ana Gabriela* (Instituto Mexicano del Seguro Social); Revilla-Monsalve, Maria Cristina (Unidad de Investigación Médica en Enfermedades Metabólicas.CMN SXXI); Fridman, Leonid (Universidad Nacional Autónoma de México); Leder, Ron (Universidad Nacional Autónoma de Mexico); Islas-Andrade, Sergio (Unidad de Investigación Médica en Enfermedades Metabólicas. CMN SXXI); Shtessel, Yuri (University of Alabama in Huntsville)

15:00-16:30

**A New Approach to Assess the Spasticity in Hamstrings Muscles Using Mechanomyography Antagonist Muscular Group** .................................................. 2060-2063
Krueger, Eddy* (Federal Technological University of Paraná); Scheeren, Eduardo Mendonga (Federal Technological University of Paraná); Nogueira-Neto, Guilherme (State University of Campinas); Button, Vera Lúcia da Silveira Nantes (State University of Campinas); Nohama, Percy (Universidade Tecnológica Federal do Paraná)

15:00-16:30

**Observation of Flow Variation in Capillaries of Artificial Blood Vessel by Producing Microbubble Aggregations** ................................................................... 2064-2067
Masuda, Kohji* (Tokyo Univ. A&T); Shigehara, Nobuhiko (Tokyo Univ of A&T); Koda, Ren (Graduate School of Bio-Applications and Systems Engineering); Watarai, Nobuyuki (Tokyo Univ of A&T); Ikeda, Seiichi (Nagoya University); Arai, Fumihiro (Nagoya University); Miyamoto, Yoshitaka (Nagoya University); Chiba, Toshio (National Center for Child Health and Development)

15:00-16:30

**Intradermal Needle-Free Powdered Drug Injection by a Helium-Powered Device** ........................................... 2068-2071
Liu, John* (Massachusetts Institute of Technology); Hogan, N. Catherine (Massachusetts Institute of Technology); Hunter, Ian (Massachusetts Institute of Technology)

15:00-16:30

**Dissolution of Magnetically Marked Tablets: Investigations in a Physical Phantom** ........................................... 2072-2075
Biller, Sebastian* (Ilmenau University of Technology); Domey, Jörg (Ilmenau University of Technology); Fiedler, Patrique (Ilmenau University of Technology); Hotzhey, Rocco (Innovent e. V.); Richert, Hendryk (Innovent e. V.); Hausißen, Jens (Technical University Ilmenau)

WeD23: 15:00-16:30

10.1.1 Personal Health Systems (Oral Session)

Indigo Ballroom

15:00-16:30

**Estimation of Accelerometer Orientation for Activity Recognition** .......................................................... 2076-2079
Hajj Chehade, Nabil* (UCLA); Friedman, Ascher (UCLA Center For Embedded Networked Systems); Chien, Chieh (University of California, Los Angeles); Pottie, Greg (UCLA EE Department)

15:00-16:30

**High Resolution Wireless Body Area Network with Statistically Synchronized Sensor Data for Tracking Pulse Wave Velocity** .................................................. 2080-2083
Li, Kejia (Kansas State University); Warren, Steve* (Kansas State University)
15:00-16:30 WeD23.3
Energy-Efficient Process-Stacking Multiplexing Access for 60-GHz Mm-Wave Wireless Personal Area Networks ................................................................. 2084-2087
Estevez, Claudia (Department of Electrical Engineering, Universidad de Chile, Santiago, Chile); Kailas, Aravind* (The University of North Carolina at Charlotte)

15:00-16:30 WeD23.4
A Review of Non-Contact, Low-Cost Physiological Information Measurement Based on Photoplethysmographic Imaging .................................................. 2088-2091
Wang, Lei* (Shenzhen Institutes of Advanced Technology)

15:00-16:30 WeD23.5
Wireless Photoplethysmographic Device for Heart Rate Variability Signal Acquisition and Analysis ...... 2092-2095
Franco, Mario (The University of Texas at El Paso); Nazeran, Homayoun (The University of Texas at El Paso); Reyes, Ivan* (University of Texas at El Paso); Haltiwanger, Emily (College of Health Sciences)

15:00-16:30 WeD23.6
Real Time Digitally Assisted Analog Motion Artifact Reduction in Ambulatory ECG Monitoring System .... 2096-2099
Kim, Sunyoung* (IMEC)

15:00-16:30 WeD23.7
Evaluation of a Technology Enabled Garment for Older Walkers ......................................................... 2100-2103
Burns, William Paul (University of Ulster); Nugent, Chris (University of Ulster); McCullagh, Paul (University of Ulster); Finlay, Dewar (University of Ulster); Cland, Ian (University of Ulster); Scotney, Bryan (University of Ulster); McClean, Sally (University of Ulster); McCann, Jane (University of Wales, Newport); Guldenring, Daniel* (University of Ulster)

15:00-16:30 WeD23.8
Speech Analysis for Mood State Characterization in Bipolar Patients ....................................................... 2104-2107
Vanello, Nicola (University of Pisa); Guidi, Andrea (University of Pisa); Gentili, Claudio (University of Pisa); Werner, Sandra (Forenap); Bertschy, Gilles (Department of Psychiatry and Mental Health, Strasbourg University Hospital); Valenza, Gaetano* (University of Pisa); Lanata*, Antonio (University of Pisa); Scilingo, Enzo Pasquale (University of Pisa)

15:00-16:30 WeD23.9
Estimating Uncomfortable Loudness Levels Using Evoked Potentials to Auditory Stimuli for Hearing Aid Fitting ................................................................. 2108-2111
Adachi, Shinobu* (Panasonic Corporation); Morikawa, Koji (Panasonic Corporation); Kato O., Yumiko (Panasonic Corporation); Ozawa, Jun (Panasonic Corporation); Nittono, Hiroshi (Hiroshima University)

15:00-16:30 WeD23.10
Speech Activity Detection Using Accelerometer ....................................................................................... 2112-2115
Matic, Aleksandar* (CREATE-NET); Osmani, Venet (CREATE-NET); Mayora, Oscar (CREATE-NET)

10:1.3 Personal Health Systems, Mhealth/Ehealth and Telehealth (Oral Session)
Indigo Ballroom

15:00-16:30 WeD24.1
Tailor-made Preventive Medicine Integrating Amino Acid Checkup and Its Application toward Disaster-stricken Areas ................................................................. 2116-2119
Kuroda, Masahiro* (National Inst of Information & Comm); Tochikubo, Osamu (Yokohama City University)

15:00-16:30 WeD24.2
Group Profile Management in Ubiquitous Healthcare Environment .......................................................... 2120-2123
Fengou, Maria-Anna (University of Patras); Mantas, Georgios (University of Patras); Lymberopoulos, Dimitrios* (University of Patras)
15:00-16:30 WeD24.3
A Preliminary Study of the Effect of Electrode Placement in Order to Define a Suitable Location for Two Electrodes and Obtain Sufficiently Reliable ECG Signals When Monitoring with Wireless System 2124-2127
Noh, Hyung Wook* (Electronics and Telecommunications Research Institute); Lee, InBum (ETRI); Song, Yoonseon (Electronics & Telecom Research Inst); Jeong, Ji-Wook (ETRI); Lee, Sooyeul (Electronics & Telecom Research Inst)

15:00-16:30 WeD24.4
Vital Analysis: Field Validation of a Framework for Annotating Biological Signals of First Responders in Action 2128-2131
Gomes, Pedro Tiago* (Faculdade de Ciências da Universidade do Porto, Portugal); Lopes, Bruno (Instituto de Telecomunicações / Universidade do Porto); Coimbra, Miguel (Instituto de Telecomunicações / Universidade do Porto)

15:00-16:30 WeD24.5
Protocol for Cardiac Assessment of Recreational Athletes 2132-2135
Chinea Espinoza, Ana Marian (GBBA); Lollett, Carlos Miguel* (Simon Bolivar University); HERRERA, HECTOR A (Universidad Simón Bolívar); Passariello, Gianfranco (Universidad Simón Bolívar); Wong C, Sara (Universidad Simon Bolivar)

15:00-16:30 WeD24.6
HIMS Walking – Smart Game Designed for Promotion of Health N/A
Farooq, Umar* (Kyung Hee University); Jang, Dae-Geun (Korea Advanced Institute of Science and Technology); Park, Seung-Hun (Kyung Hee University)

15:00-16:30 WeD24.7
Parameters Characterizing Nature of Personal Health in the Correlation between Energy Expenditure/Supply and Body-Fat 2140-2143
Takeuchi, Hiroshi* (Takasaki University of Health and Welfare); Mayuzumi, Yuuki (Takasaki University of Health and Welfare); Kodama, Naoki (Takasaki University of Health and Welfare)

15:00-16:30 WeD24.8
Sleep and Activity Monitoring for Returning Soldier Adjustment Assessment 2144-2148
Cleary, Daniel J.* (General Electric Global Research); Yardibi, Tarik (General Electric Global Research); Wood, Joseph C (Department of Clinical Investigation, Dwight David Eisenhower Army Medical Center); Stachura, Max E. (Center for Telehealth, Medical College of Georgia); Astapova, Elena V. (Center for Telehealth, Medical College of Georgia); Dicks, Adrianne (Geneva Foundation)

15:00-16:30 WeD24.9
Using Accelerometry to Identify Poor Signal Quality in Telehealth Blood Pressure Recordings N/A
Tamura, Sayuri (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Redmond, Stephen James* (University of New South Wales)

15:00-16:30 WeD24.10
PersonA: Persuasive Social Network for Physical Activity 2153-2157
Ayubi, Soleh* (University of Pittsburgh); Parmanto, Bambang (University of Pittsburgh)

15:00-16:30 WeD24.11
PersonB: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.12
PersonC: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.13
PersonD: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.14
PersonE: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.15
PersonF: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.16
PersonG: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.17
PersonH: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.18
PersonI: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.19
PersonJ: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.20
PersonK: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.21
PersonL: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.22
PersonM: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.23
PersonN: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.24
PersonO: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.25
PersonP: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.26
PersonQ: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.27
PersonR: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.28
PersonS: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.29
PersonT: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.30
PersonU: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.31
PersonV: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.32
PersonW: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.33
PersonX: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.34
PersonY: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD24.35
PersonZ: Persuasive Social Network for Physical Activity N/A

15:00-16:30 WeD25.1
Summarized Data to Achieve Population-Wide Anonymized Wellness Measures 2158-2161
Clarke, Andrew Parame (University of Sydney); Steele, Robert* (University of Sydney)

15:00-16:30 WeD25.2
Development of a Patch Type Embedded Cardiac Function Monitoring System Using Dual Microprocessor for Arrhythmia Detection in Heart Disease Patient 2162-2165
Jang, Yongwon* (Electronics & Telecom Research Inst); Noh, Hyung Wook (Electronics and Telecommunications Research Institute); Lee, InBum (ETRI); Jeong, Ji-Wook (ETRI); Song, Yoonseon (Electronics & Telecom Research Inst); Lee, Sooyeul (Electronics & Telecom Research Inst); Kim, Seunghwan (Electronics & Telecom Research Inst)
15:00-16:30 WeD25.3
Measurement of Food Volume Based on Single 2-D Image without Conventional Camera Calibration .... 2166-2169
Yue, Yaofeng (University of Pittsburgh); Jia, Wenyan (University of Pittsburgh);
Sun, Mingui* (University of Pittsburgh)

15:00-16:30 WeD25.4
High Efficiency Video Coding for Ultrasound Video Communication in M-Health Systems ..................... 2170-2173
Panayides, Andreas (University of Cyprus); C. Antoniou, Zinon (Department of Computer Science, University of
Cyprus); Pattichis, Marios (University of New Mexico); Pattichis, Constantinos* (University of Cyprus)

15:00-16:30 WeD25.5
Validation of Heart Rate Extraction Using Video Imaging on a Built-In Camera System of a Smartphone ......................................................... 2174-2177
Kwon, Sungjun* (Seoul National University); Kim, Hyun Seok (Seoul National University);
Park, Kwang S. (Seoul National University)

15:00-16:30 WeD25.6
A Mobile-Health System to Manage Chronic Obstructive Pulmonary Disease Patients at Home ................. 2178-2181
Ding, Hang (CSIRO); Moodley, Yuben (The Royal Perth Hospital, Perth, WA.); Kanagasingam, Yogi (The Australian eHealth Research Centre, Perth, CSIRO.); Karunanithi, Mohanraj* (CSIRO ICT Centre)

15:00-16:30 WeD25.7
Medication Adherence for Patients with Mental Illness .......................................................... 2182-2185
Varshney, Upkar* (Georgia State University); Vetter, Ron (University of North Carolina)

15:00-16:30 WeD25.8
Biometric Identity Management for Standard Mobile Medical Networks .................................................. 2186-2189
Egner, Alexander (University of Padova); Soceanu, Alexandru* (Munich University of Applied Sciences);
Moldoveanu, Florica (University Politehnica of Bucharest)

15:00-16:30 WeD25.9
EHS Subjects Do Not Perceive RF EMF Emitted from Smart Phones Better Than Non-EHS Subjects ..... 2190-2193
Kwon, Min Kyung (Yonsei University); Kim, Sung Kean (Yonsei University);
Koo, Jeong Mo (Yonsei University); Kim, Deok Won* (Yonsei University College of Medicine)

10.7.2 Decision Support and Data Mining II (Oral Session) Indigo Ballroom

15:00-16:30 WeD26.1
Overcoming Barriers to Development of Cooperative Medical Decision Support Models ...................... 2194-2197
Hudson, Donna L* (University of California, San Francisco);
Cohen, Maurice (University of California San Francisco)

15:00-16:30 WeD26.2
Generalized Precursor Pattern Discovery for Biomedical Signals .................................................. 2198-2201
Lan, Mars* (University of California Los Angeles); Ghasemzadeh, Hassan (University of California Los
Angeles); Sarrafzadeh, Majid (University of California Los Angeles)

15:00-16:30 WeD26.3
Identifying Relatively High-Risk Group of Coronary Artery Calcification Based on Progression Rate: Statistical and Machine Learning Methods ........................................... 2202-2205
Kim, Ha-Young* (Samsung Advanced Institute of Technology (SAIT)); Yoo, Sanghyun (Samsung Advanced
Institute of Technology (SAIT), Samsung Electronics); Lee, Jihyun (Samsung Advanced Institute of Technology
(SAIT), Samsung Electronics); Kamm, Hyun Jin (SAIT, Samsung Electronics); Woo, Kyoun-Gu (Samsung
Advanced Institute of Technology (SAIT), SamsungElectronics); Choi, Yoon-Ho (Center for Health Promotion,
Samsung Medical Center, Sungkyunkwan University School of Medicine); Sung, Jidong (Center for Health
Promotion, Samsung Medical Center, Sungkyunkwan University School of Medicine); Kang, Mira (Center for
Health Promotion, Samsung Medical Center, Sungkyunkwan University School of Medicine)
15:00-16:30
Automated Knowledge-Based Fuzzy Models Generation for Weaning of Patients Receiving Ventricular Assist Device (VAD) Therapy
Tsipouras, Markos G.* (University of Ioannina); Karvounis, Evaggelos (University of Ioannina); Tzallas, Alexandros (University of Ioannina); Goletsis, Yorgos (University of Ioannina); Fotiadis, Dimitrios I. (University of Ioannina); Adamopoulos, Stamatis (Qassis Cardiac Surgery Center, Athens); Trivella, Maria G. (Istituto di Fisiologia Clinica-CNR, Pisa)

15:00-16:30
Heart Failure Analysis Dashboard for Patient’s Remote Monitoring Combining Multiple Artificial Intelligence Technologies
Guidi, Gabriele (Department of Electronics and Telecommunications); Iadanza, Ernesto* (Università degli Studi di Firenze); Pettenati, Maria Chiara (ICON Foundation); Miniati, Roberto (Università di Firenze)

15:00-16:30
Multi-Label Classification for the Analysis of Human Motion Quality
Taylor, Portia* (Carnegie Mellon University); Almeida, Gustavo J.M. (University of Pittsburgh); Hodgins, Jessica (Carnegie Mellon University)

15:00-16:30
NEUROZONE: On-Line Recognition of Brain Structures in Stereotactic Surgery — Application to Parkinson’s Disease
Vargas Cardona, Hernan Dario (Universidad Tecnológica de Pereira); Padilla Bejarano, José Bestler (Universidad del Quindio); Arango, Ramiro (Universidad del Quindio); Carmona Villada, Hans (Universidad tecnológica de Pereira); Álvarez, Mauricio A.* (Universidad Tecnológica de Pereira); Guirarro, Enrique (Politecnico University of Valencia); Orozco, Álvaro (Universidad Tecnológica de Pereira)

15:00-16:30
Dynamic Self-Adaptive Remote Health Monitoring System for Diabetics
Suh, Myung-kyung (University of California, Los Angeles); Moin, Tannaz (University of Los Angeles, California); Woodbridge, Jonathan (University of California, Los Angeles); Lan, Mars* (University of California Los Angeles); Ghaseemzadeh, Hassan (University of California Los Angeles); Ahmadl, Sheila (University of Los Angeles, California); Bui, Alex (University of California, Los Angeles); Sarrafzadeh, Majid (University of California Los Angeles)

16:30-16:45
Robust, Automatic Real-Time Monitoring of the Time Course of the Individual Alpha Frequency in the Time and Frequency Domain
Garn, Heinrich* (AIT Austrian Institute of Technology GmbH); Waser, Markus (AIT Austrian Institute of Technology GmbH); Lechner, Manuel (AIT Austrian Institute of Technology GmbH); Dorfer, Matthias (AIT Austrian Institute of Technology GmbH); Grossegger, Dieter (B.E.S.T. Medical Systems Dr. Grossegger und Drbal GmbH)

16:45-17:00
Pre-Processing of Multi-Channel EEG for Improved Compression Performance Using SPIHT
Daou, Hoda* (McGill University); Labeau, Fabrice (McGill University)

17:00-17:15
Optimization of Time-Variant Autoregressive Models for Tracking REM – Non REM Transitions During Sleep
Tacchino, Giulia* (Politecnico di Milano); Mariani, Sara (Politecnico di Milano); Migliorini, Matteo (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano)
Clinical State Assessment in Bipolar Patients by Means of HRV Features Obtained with a Sensorized T-Shirt

Mariani, Sara* (Politecnico di Milano); Migliorini, Matteo (Politecnico di Milano); Tacchino, Giulia (Politecnico di Milano); Gentili, Claudio (University of Pisa); Bertschy, Gilles (Department of Psychiatry and Mental Health, Strasbourg University Hospital); Werner, Sandra (Forenap); Bianchi, Anna Maria (Politecnico di Milano)

Analysis of EMG Signals of Patients with Essential Tremor Focusing on the Change of Tremor Frequency

Matsumoto, Yuya* (Waseda University); Seki, Masatoshi (Waseda University); Ando, Takeshi (Waseda University); Kobayashi, Yo (Waseda University); Iijima, Hiroshi (Yokohama Rehabilitation Foundation); Nagaoka, Masanori (Juntendo University, Graduate school); Fujie, Masakatsu G. (Waseda University)

Discrete Wavelet Transform Coefficients for Emotion Recognition from EEG Signals

Yohanes, Rendi Ein Janvier (Nanyang Technological University); Ser, Wee* (Nanyang Technological University); Huang, Guang-bin (Nanyang Technological University)

Automated NREM Sleep Staging Using the Electro-Oculogram: A Pilot Study

Garcia-Molina, Gary Nelson* (Philips Research North America); Abtahi, Farhad (KTH (Royal Institute of Technology)); Lagares Lemos, Miguel (Universidad Carlos III of Madrid)

Adaptive Sleep Stage Classification under Covariate Shift

Khalighi, Sirvan* (Institute of systems and robotics, University of Coimbra); Sousa, Teresa (University of Coimbra); Nunes, Urbano (University of Coimbra)

A Gaussian Model for Movement Detection During Sleep

Adami, Adriana Miorelli (University of Caxias do Sul); Adami, Andre* (Universidade de Caxias do Sul); Hayes, Tamara (Oregon Health & Science University); Pavel, Michael (Oregon Health and Science University); Beattie, Zachary Todd (Oregon Health & Science University)

Automated Detection of Rapid Eye Movements in Children

Held, Claudio M.* (Universidad de Chile); Causa, Javier (Universidad de Chile); Causa, Leonardo (Universidad de Chile); Estevez, Pablo A. (Universidad de Chile); Perez, Claudio A. (Universidad de Chile); Garrido, Marcelo (Universidad de Chile); Chamorro, Rodrigo (Universidad de Chile); Algarín, Cecilia (Universidad de Chile); Peirano, Patricio (Universidad de Chile)

Adding Real-Time Noise Suppression Capability to the Cochlear Implant PDA Research Platform

Mirzahasanloo, Taher* (University of Texas-Dallas); Gopalkrishna, Vanishree (University of Texas at Dallas); Kehtarnavaz, Nasser (University of Texas at Dallas); Loizou, Philipos (University of Texas at Dallas)

An Actigraphy Heterogeneous Mixture Model for Sleep Assessment

Domínguez, Alexandre (IST-ID (509 830 072)); Paiva, Teresa (Instituto Superior Técnico); Sanches, J. Miguel* (IST(NIF:501507930))
2.1.3 MRI III: Neuroimaging (Oral Session)
Chair: Wu, Ed X. (The Univ. of Hong Kong)
Co-Chair: Ji, Jim Xiuquan (Texas A&M Univ.)

16:30-16:45
In vivo Manganese-enhanced MRI for Visuotopic Brain Mapping .................................................. 2279-2282
Chan, Kevin C. (University of Pittsburgh); Wu, Ed X.* (The University of Hong Kong)

16:45-17:00
A Novel Approach of Fmri-Guided Tractography Analysis within a Group: Construction of an Fmri-Guided Tractographic Atlas ................................................................. 2283-2286
Preti, Maria Giulia* (Politecnico di Milano); Makris, Nikos (Massachusetts General Hospital); Lagana, Maria Marcella (IRCCS S.Maria Nascente); Papadimitriou, George (CMA, A. Martins Center for Biomedical Imaging, MGH, Boston); Baglio, Francesca (Fondazione Don Carlo Gnocchi, Milano); Griffanti, Ludovica (Fondazione Don Carlo Gnocchi, Milano); Nenini, Raffaele (Fondazione Don Carlo Gnocchi Milano); Cecconi, Pietro (Fondazione Don Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano); Westin, Carl-Fredrik (Brigham and Women's Hospital, Harvard Medical School); Baselli, Giuseppe (Politecnico di Milano)

17:00-17:15
Directionality Analysis on Functional Magnetic Resonance Imaging During Motor Task Using Granger Causality ................................................................. 2287-2290
Anwar, Abdul Rauf* (University of Kiel); Muthalib, Mark (Queensland University of Technology); Perrey, Stéphane (University of Montpellier 1); Galka, Andreas (Kiel University); Granert, Oliver (University of Kiel); Wolff, Stephan (University of Kiel); Gunther, Deuschl (Department of Neurology); Jan, Raethjen (Department of Neurology); Heute, Ulrich (University of Kiel); Muthuraman, Muthuraman (Christian Albrechts University)

17:15-17:30
DWI Based Thermometry: The Effects of B-Values, Resolutions, Signal-To-Noise Ratio, and Magnet Strength ................................................................. 2291-2293
Sakai, Koji* (Kyoto University); Sakamoto, Ryo (Kyoto University); Okada, Tomohisa (Kyoto University Graduate School of Medicine); Sugimoto, Naozo (Kyoto University); Togashi, Kaori (Kyoto University Graduate School of Medicine, Kyoto, Japan.)

17:30-17:45
Spherical Finite Rate of Innovation Theory for the Recovery of Fiber Orientations ................................................................. 2294-2297
Deslauriers-Gauthier, Samuel* (Nanyang Technological University); Marziliano, Pina (Nanyang Technological University)

17:45-18:00
Diffusion Kurtosis Imaging with Tract-Based Spatial Statistics Reveals White Matter Alterations in Preschool Children ................................................................. 2298-2301
Li, Xianjun (Xi'an Jiaotong University); Gao, Jie (Xi'an Jiaotong University); Hou, Xin (Xi'an Jiaotong University); Chan, Kevin C. (University of Pittsburgh); Ding, Abby Y. (The University of Hong Kong); Sun, Qinli (Department of Radiology, the First Affiliated Hospital of Medical College of Xi'an Jiaotong University); Wan, Mengxi (Xi'an Jiaotong University); Wu, Ed X. (The University of Hong Kong); Yang, Jian* (Xi'an Jiaotong University)

2.2.6 Advanced Ultrasound Imaging and Evaluation (Oral Session)
Chair: Yen, Jesse (Univ. of Southern California)
Co-Chair: Nguyen, Nghia (Univ. of Illinois Urbana-Champaign)

16:30-16:45
Acquisition Information Spectrum for Evaluating Sonographic Quality ................................................................. 2302-2305
Insana, Michael F.* (University of Illinois); Nguyen, Nghia (University of Illinois Urbana-Champaign); Abbey, Craig (University of California Santa Barbara)

16:45-17:00
An Ideal Observer Approach to Mechanical Limits in B-Mode Ultrasound Imaging ................................................................. 2306-2309
Abbey, Craig* (University of California Santa Barbara); Nguyen, Nghia (University of Illinois Urbana-Champaign); O'Brien, Jr., William D. (University of Illinois); Insana, Michael F. (University of Illinois)
17:00-17:15 WeE05.3
Monitoring Cerebral Hemodynamics with Transcranial Doppler Ultrasound During Cognitive and Exercise Testing in Adults Following Unilateral Stroke
Watt, Brian (University of Nebraska); Burnfield, Judith (Madonna Rehabilitation Hospital); Truempr, Edward (Children’s Hospital and Medical Center); Buster, Thad (Madonna Rehabilitation Hospital); Bashford, Greg* (University of Nebraska-Lincoln)

17:15-17:30 WeE05.4
Source Effects in SWIPE: Shear-Wave-Assisted Ultrasound Imaging
McAleavey, Stephen* (University of Rochester)

17:30-17:45 WeE05.5
Volumetric Ultrasound and Computer-Assisted Analysis at the Point-Of-Care: A Musculoskeletal Exemplar
Mills, David* (GE Global Research); Cao, Kunlin (GE Global Research); Thiele, Ralf (University of Rochester Medical Center); Patwardhan, Kedar (GE Global Research)

17:45-18:00 WeE05.6
Scola, Mallory (The University of North Carolina at Chapel Hill); Baggesen, Leslie (The University of North Carolina at Chapel Hill); Gallippi, Caterina* (The University of North Carolina at Chapel Hill)

16:30-18:00 Sapphire M 2.7.5 Image Segmentation I (Oral Session)
Chair: Dillenseger, Jean-Louis (Univ. de Rennes 1)
Co-Chair: Alirezaie, Javad (Ryerson Univ. Univ. of Waterloo)

16:30-16:45 WeE06.1
Fully Automatic 3D Segmentation of Iceball for Image-Guided Cryoablation
Liu, Xinyang* (Harvard Medical School and Brigham and Women’s Hospital); Tuncali, Kemal (Brigham and Women’s Hospital); Wells, William (Harvard Medical School); Morrison, Paul (Brigham and Women’s Hospital); Zientara, Gary P. (Harvard Medical School and Brigham and Women’s Hospital)

16:45-17:00 WeE06.2
Semi-Automatic Vessel Tracking and Segmentation Using Epicardial Ultrasound in Bypass Surgery
Jørgensen, Alex Skovsbo* (Aalborg University); Schmidt, Samuel Emil (Aalborg University); Staalsen, Niels-Henrik (Aalborg Hospital); Østergaard, Lasse Riis (Aalborg University)

17:00-17:15 WeE06.3
Spectral Clustering of Shape and Probability Prior Models for Automatic Prostate Segmentation in Ultrasound Images
Ghose, Soumya* (Université de Bourgogne); Mitra, Jhimli (Université de Bourgogne); Oliver, Arnau (University of Girona); Marti, Robert (University of Girona); Lledó, Xavier (University of Girona); Freixenet, Jordi (University of Girona); Vilanova, Joan Carles (University of Girona); Comet, Josep (Hospital Dr. Josep Trueta); Sildibé, Désiré (Université de Bourgogne); Merlaudeau, Fabrice (Université de Bourgogne)

17:15-17:30 WeE06.4
Unsupervised Tumour Segmentation in PET Based on Local and Global Intensity Fitting Active Surfaces and Alpha Matting
Ziming, Zeng* (Aberystwyth University); Shepherd, Tony (Turku University Hospital); Zwiggeelaar, Reyer (Aberystwyth University)

17:30-17:45 WeE06.5
Aorta Segmentation with a 3D Level Set Approach and Quantification of Aortic Calcifications in Non-Contrast Chest CT
Kurugol, Sila* (Brigham and Women’s Hospital and Harvard Medical School); San Jose Estepar, Raul (Brigham Women’s Hospital and Harvard Medical School); Ross, James (Brigham Women’s Hospital and Harvard Medical School); Washko, George R. (Brigham Women’s Hospital and Harvard Medical School)
17:45-18:00
Extraction of Liver Vessel Centerlines under Guidance of Patient-Specific Models

HUANG, (Edward) XISHI* (Hospital for Sick Children)

WeE07: 16:30-18:00
3.1.4 Optical and Mechanical Sensors and Systems (Oral Session)
Chair: McShane, Mike (Texas A&M Univ.)
Co-Chair: Candler, Robert (Univ. of California, Los Angeles)

16:30-16:45
High-Throughput Spectral System for Interrogation of Dermally-Implanted Luminescent Sensors

Long, Ruiqi (Texas A&M University); McShane, Mike* (Texas A&M University)

16:45-17:00
Fabrication of a Thin-Film Capacitive Force Sensor Array for Tactile Feedback in Robotic Surgery

Paydar, Omeed* (University of California, Los Angeles); Wottawa, Christopher (UCLA); Fan, Richard (UCLA);
Dutson, Erik P. (UCLA); Grundfest, Warren S. (UCLA); Culjat, Martin O. (UCLA);
Candler, Robert (University of California, Los Angeles)

17:00-17:15
Determination of Vessel Wall Dynamics by Optical Microsensors

Ruh, Dominic* (University of Freiburg); Sherman, Stanislav (University of Freiburg); Theodor, Michael (University of Freiburg); Ruhhammer, Johannes (University of Freiburg); Foerster, Katharina (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Heilmann, Claudia (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Beyersdorf, Friedhelm (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Zappe, Hans (University of Freiburg, Department of Microsystems Engineering, Laboratory for Micro-optics); Seifert, Andreas (University of Freiburg)

17:15-17:30
Investigating Nanoparticle-Substrate Interaction in LSPR Biosensing Using the Image-Charge Theory

Mortazavi, Daryoush* (Deakin University); Kouzani, Abbas Z. (Deakin University); Kaynak, Akif (Deakin University)

17:30-17:45
Development of Real-Time Muscle Stiffness Sensor Based on Resonance Frequency for Physical Human Robot Interactions

Han, Hyonyoung (KAIST); Han, Heeseop (KAIST); Kim, Jung* (Korea Advanced Institute of Science and Technology)

17:45-18:00
Noncontact Respiratory Measurement of Volume Change Using Depth Camera

Yu, Meng-Chieh* (National Taiwan University); Liou, JiaLin (National Taiwan University); Kuo, Shuenn-Wen (National Taiwan University Hospital); Lee, Ming-Sul (National Taiwan University); Hung, Yi-Ping (National Taiwan University)

WeE08: 16:30-18:00
3.4.2 Physiological Monitoring I (Oral Session)
Chair: Jabbari, Esmaeil (Univ. of South Carolina)
Co-Chair: Bragos, Ramon (Tech. Univ. of Catalonia (UPC))

16:30-16:45
Non-Contact Doppler Radar Monitoring of Cardiorespiratory Motion for Siberian Sturgeon

Hafner, Noah* (University of Hawaii); Lubecke, Victor (University of Hawaii Manoa)

16:45-17:00
Automated Hand-Forearm Ergometer Data Collection System

Gude, Dana* (Kansas State University); Broxterman, Ryan (Kansas State University); Ade, Carl (Kansas State University); Barstow, Thomas (Kansas State University); Nelson, Thomas Anthony (Kansas State University); Song, Wen (Kansas State University); Warren, Steve (Kansas State University)
<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
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<td>17:00-17:15</td>
<td>WeE08.3</td>
<td>Heartbeat Detection from a Hydraulic Bed Sensor Using a Clustering Approach</td>
<td>Rosales, Licet* (University of Missouri); Skubic, Marjorie (University of Missouri); Heise, David (Lincoln University); Devaney, Michael (University of Missouri); Schaumburg, Mark (University of Missouri)</td>
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<td>17:15-17:30</td>
<td>WeE08.4</td>
<td>A Portable System for Recording Neural Activity in Indoor and Outdoor Environments</td>
<td>Baluch, Farhan* (University of Southern California); Itti, Laurent (USC)</td>
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<td>17:30-17:45</td>
<td>WeE08.5</td>
<td>A Low-Cost, Reliable, High-Throughput System for Rodent Behavioral Phenotyping in a Home Cage</td>
<td>Parkison, Steven* (University of Nebraska – Lincoln); Carlson, Jay (University of Nebraska-Lincoln); Chaudoin, Tammy (University of Nebraska Medical Center); Hoke, Traci (University of Nebraska Medical Center); Schenk, A. Katrin (Randolf College); Goulding, Evan (Northwestern University); Pérez, Lance (University of Nebraska-Lincoln); Bonasera, Stephen (University of Nebraska Medical Center)</td>
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<td>16:30-16:45</td>
<td>WeE09.1</td>
<td>Sample Concentration and Purification for Point-Of-Care Diagnostics</td>
<td>Ho, Nga* (Boston University); Fan, Andy (Boston University); Klapperich, Catherine M. (Boston University); Cabodi, Mario (Boston University)</td>
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<td>16:45-17:00</td>
<td>WeE09.2</td>
<td>Achieving Appropriate Design for Developing World Health Care: The Case of a Low-Cost Autoclave for Primary Health Clinics</td>
<td>Cho, Hallie Sue* (MIT); Tao, Gregory (MIT)</td>
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<td>17:00-17:15</td>
<td>WeE09.3</td>
<td>Biophotogrammetry Model of Respiratory Motion Analysis Applied to Children</td>
<td>Ripka, Wagner L. (UTFPR - Federal Technological University of Paraná); Ricieri, Denise da Vinha (UFPR - Federal University of Paraná); Ulbricht, Leandra* (UTFPR - Federal University of Technology - Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Stadnik, Adriana Maria Wan (UTFPR - Federal Technological University of Paraná); Romanelli, Eduardo F. R. (UTFPR - Federal University of Technology - Paraná)</td>
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<td>17:15-17:30</td>
<td>WeE09.4</td>
<td>A mathematical model to predict the optimal test line location and sample volume for lateral flow immunoassays</td>
<td>M.S, Ragavendar* (Siemens Corporate Research &amp; Technology); Chopra, Anmol. M (Indian Institute of Technology, Kharagpur)</td>
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<td>17:30-17:45</td>
<td>WeE09.5</td>
<td>A New Automated Cell Isolation System for Flow Cytometry: Cell Isolation Unit and Staining Reagent Kit</td>
<td>Suzuki, Akane* (Nihon Kohden corporation); Shiyama, Takahiro (Nihon Kohden Corporation); Kubo, Hirotsugu (Nihon Kohden Corporation); Fukushima, Yuta (Tokyo University of Technology); Naemura, Kiyoshi (Tokyo University of Technology); Hinata, Nae (Tokyo University of Technology); Kanda, Hiroaki (Cancer Institute Hospital); Yamamori, Shinji (Nihon Kohden Corporation); Takeda, Sunao (Tokyo University of Technology); Yamaguchi, Toshiharu (Cancer Institute Hospital); Ishikawa, Yuichi (Cancer Institute Hospital); Kato, You (Tokyo University of Technology)</td>
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Barbara (University of Rome 'Tor Vergata'); Nielsen, Christine J. F. (Aarhus University); Fiorani, Paola
(University of Rome 'Tor Vergata'); Frohlich, Rikke F. (Aarhus University); Andersen, Félicie F. (Aarhus
University); Desideri, Alessandro (University of Rome 'Tor Vergata'); Stougaard, Magnus (Aarhus University
Hospital); Petersen, Eskild (Aarhus University Hospital Skejby); Knudsen, Birgitta R. (Aarhus University)

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Co-Chair: Wang, Andrew (Univ. of North Carolina at Chapel Hill)

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School of Medicine, St. Louis)

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Injectable Macroporous Microparticles for Soft Tissue Augmentation ............................................ 2428-2431
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**Design Challenges for Camera Oximetry on a Mobile Phone**  
Karlen, Walter* (UBC); Lim, Joanne (British Columbia Children’s Hospital); Ansermino, J. Mark (British Columbia’s Children’s Hospital); Dumont, Guy (University of British Columbia); Scheffer, Cornie (Stellenbosch University)  
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Gradl, Stefan (University of Erlangen-Nuremberg); Kugler, Patrick (University of Erlangen-Nuremberg); Lohmüller, Clemens (University Hospital Erlangen); Eskofier, Bjoern M* (University of Erlangen-Nuremberg)  
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Venugopalan, Janani (Georgia Institute of Technology); Cheng, Chihwen (Georgia Institute of Technology); Stokes, Todd (Georgia Institute of Technology); Wang, May D.* (Georgia Tech and Emory University)  
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**Evaluating the Usability of a Virtual Reality-Based Android Application in Managing the Pain Experience of Wheelchair Users**  
Spyridonis, Fotios (Brunel University); Grønli, Tor-Morten* (Norwegian School of Information Technology); Hansen, Jarle (Brunel University); Ghinea, Gheorghita (Brunel University)  
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