



**EMBC**  
2015  
MILANO

August 25-29th 2015  
Milano, Italy

*Program at a glance*

**37th Annual International Conference  
of the IEEE Engineering  
in Medicine and Biology Society**



# Wednesday August 26, 2015

## 08:30 - 10:00 Oral sessions

Room	Title
Amber 1	1.1 Biomedical Simulation Involving Signal Processing I
Amber 2	1.2 Empirical Mode Decomposition
Space 1	1.3 Biomedical Signal Classification V: Sleep Studies
Space 2	1.4 Signal Processing in Physiological Systems IV: Cardiovascular Signals
Amber 3	2.1 Novel Ultrasound Imaging Method I
Amber 4	2.2 Pediatric and Fetal Imaging (Invited)
Space 3	2.3 MR DTI and DSI
Brown 2	4.1 Models of Cardiac Electrophysiology and Mechanics
Space4	3.1 Novel Applications of Wearable Sensor Technology with Live Demonstrations (Invited)
Suite 5	5.1 Therapeutic Intravascular Devices I
Suite 6	5.2 Complexity in Cardiovascular Signals

# Wednesday August 26, 2015

## 08:30 - 10:00 Oral sessions

Room	Title
Brown 3	6.1 Brain-Computer/Machine Interface I (Invited)
Amber 7	6.2 Noninvasive Brain Stimulation: Modeling, Techniques and Mechanisms (Invited)
Amber 8	6.3 Motor Learning, Neural Control, and Neuromuscular Systems I
White 2	7.1 Advanced Technologies for Cell and Tissue Engineering (Invited)
Brown 1	8.1 Computer-Assisted Surgery
White 1	9.1 Cardiovascular Assessment and Diagnostic Technologies
Suite 8	9.2 Clinical Engineering I
Amber 5	10.1 Telemedicine
Amber 6	10.2 Computer-Aided Decision Making

# Wednesday August 26, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	1.41 Biomedical Signal Classification in Motion Studies and Brain Computer Interfaces
Gold Room	1.42 Biomedical Signal Classification in Cardiovascular and Respiratory Application
Gold Room	1.43 Biomedical Signal Classification in Central Nervous System Studies
Gold Room	2.31 EEG, MEG and EIT II
Gold Room	2.32 Image Analysis
Gold Room	2.33 Image Classification and Feature Extraction II
Gold Room	3.17 Implantable Sensors II
Gold Room	3.18 Physiological Monitoring II
Gold Room	3.19 Micro and Nano-Technology
Gold Room	4.12 Biomechanics Modeling
Gold Room	4.13 Synthetic Biology
Gold Room	5.10 Blood Flow Models
Gold Room	5.11 Arterial Pressure

# Wednesday August 26, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	6.29 Neural Interfaces II
Gold Room	6.30 Brain-Computer/Machine Interface V
Gold Room	6.31 Motor Neuroprostheses II
Gold Room	8.13 Human Machine Interfaces and Robotics Applications
Gold Room	8.14 Haptic Interfaces
Gold Room	8.15 Design and Development of Robots for Human-Robot Interaction
Gold Room	9.11 Clinical Engineering II
Gold Room	9.12 Physiological Sensors and Monitoring
Gold Room	9.13 Thermal Therapeutic and Diagnostic Systems
Gold Room	9.14 Design, Development and Standards of Medical Devices II
Gold Room	9.15 Drug Delivery and Other Therapeutic Systems
Gold Room	10.11 Health Information Systems

# Wednesday August 26, 2015

## 11:30 - 13:00 Oral Sessions

Room	Title
Amber 1	1.5 Nonstationary Processing of Biomedical Signals
Amber 2	1.6 Signal Processing in Physiological Systems II: Neural Signals
Space 1	1.7 Biomedical Signal Classification I: BCI Application
Space 2	1.8 Disentangling Patho-Physiological Mechanisms from Multivariate Cardiovascular Variability Series (Invited)
Amber 3	2.4 Novel Ultrasound Imaging Method II
Amber 4	2.5 MR Novel Hardware and Methods
Space 3	2.6 fMRI and Brain Connectivity
Space 4	3.2 Body Sensor Networks
Brown 2	4.2 Multiscale Modeling
Suite 6	5.3 Respiratory Engineering I
Brown 3	6.4 Brain-Computer/Machine Interface II
Amber 7	6.5 Sensory Neuroprostheses I
Amber 8	6.6 Motor Neuroprostheses I

# Wednesday August 26, 2015

## 11:30 - 13:00 Oral Sessions

Room	Title
White 2	7.2 Biomimetic and Injectable Systems in Regenerative Medicine (Invited)
Brown 1	8.2 Motor Control Strategies in Complex Tasks (Invited)
White 1	9.3 Design, Development and Standards of Medical Devices I (Invited)
Amber 5	10.3 Emerging IT for Efficient/Low-Cost Healthcare Delivery
Amber 6	10.4 Personalised Health

## 13:45 - 15:20 Keynote Speakers

Room	Title
Silver Room	<b>Richard Frackowiak</b> "Human Brain Project – the challenge for medicine" and <b>Kamil Ugurbil</b> "The Challenge of Understanding Human Brain Function: The Role of imaging in the BRAIN Project"

# Wednesday August 26, 2015

## 15:30 - 17:00 Oral Sessions

Room	Title
Amber 1	1.9 Signal Processing for Artifact Removal
Amber 2	1.10 Time-Scale Analysis of Biosignals and Wavelets
Space 1	1.11 Connectivity Measurements
Space 2	1.12 Time-Frequency Analysis of Biosignals II: Cardiorespiratory
Amber 3	2.7 Image Registration
Amber 4	2.8 Image Segmentation I
Space 3	2.9 PET and SPECT Imaging
Suite 6	2.M1 Frontiers in Phase Contrast X-Ray Imaging for Biomedical Applications (Minisymposium)
Space 4	3.3 Wearable Systems I
Brown 2	4.3 Cardiovascular System Modeling
Amber 6	5.4 Baroreflex/Autonomic Nervous System
Brown 3	6.7 Brain-Computer/Machine Interface III
Amber 7	6.8 Neural Stimulation I
Amber 8	6.9 EMG Processing and Applications



# Wednesday August 26, 2015

## 15:30 - 17:00 Oral Sessions

Room	Title
White 2	7.3 Automated Biological Laboratories (Invited)
Brown 1	8.3 Mechanobiology (Invited)
White 1	9.4 Stimulation and Monitoring Technologies
Amber 5	10.5 Body Sensor Networks for Personal Health
Suite 5	10.6 Innovative Methods and IT-Tools to Support Diagnosis and Management of Type 2 Diabetes Mellitus (Invited Sesssione)
Silver Room	6.M3 Grand Challenges in Brain Research in Europe and in USA (Mini symposium)

## 17:15 - 18:15 Welcome Ceremony

Room	Title
Silver Room	<b>Welcome Ceremony</b>

# Wednesday August 26, 2015

## 18:15 - 19:00 Keynote Speaker

Room	Title
Silver Room	<b>Domenico Laurenza</b> "Machines and microcosms. Leonardo on the human body"

## 19:00 - 21:00 Welcome Reception

Room	Title
Hall B, North Wing	<b>Welcome reception</b>

# Thursday August 27, 2015

## 08:30 - 10:00 Oral Sessions

Room	Title
Amber 1	1.13 Data Mining for Cardiovascular Signals
Amber 2	1.14 Signal Processing in Physiological Systems VII: Metabolic System and Diabetes

# Thursday August 27, 2015

## 08:30 - 10:00 Oral Sessions

Room	Title
Space 1	1.15 Neural Networks
Space 2	1.16 Signal Processing in Physiological Systems III: Functional Neuroimaging
Amber 3	2.10 Multi Modality Imaging
Amber 4	2.11 Image Segmentation II
Space 3	2.12 Image Analysis in Cancer Imaging
Space 4	3.4 Implantable Sensors I
Brown 2	4.4 Models of Neural Systems and Stimulation
Brown 3	6.10 Brain-Computer/Machine Interface IV
Amber 7	6.11 Rehabilitation I
Amber 8	6.12 Brain Physiology and Modeling I
White 2	7.4 Cell and Molecular Biotechnology I
Amber 5	8.4 Modeling and Simulation in Musculoskeletal Biomechanics
Amber 6	8.5 Power Prosthetics - Upper Limb
White 1	9.5 Tissue-Heating Therapeutic Technologies
Suite 5	10.7 Knowledge Discovery and Management

# Thursday August 27, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	1.44 Biomedical Simulation Involving Signal Processing II
Gold Room	1.45 Adaptive, Multivariate and Neural Network Approaches
Gold Room	1.46 Connectivity, Causality and Phase Locking in Biomedical Signals
Gold Room	2.34 Image Registration II
Gold Room	2.35 Image Segmentation, Compression and Enhancement
Gold Room	3.20 Wearable Systems II
Gold Room	3.21 Bioelectric Sensors and Sensor Systems
Gold Room	3.22 Microfluidic Techniques, Methods and Systems II
Gold Room	4.14 Algorithms and Techniques for Systems Modeling
Gold Room	5.12 Therapeutic Intravascular Devices II
Gold Room	5.13 Heart Rate Variability
Gold Room	6.32 Sensory Neuroprostheses II

# Thursday August 27, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	6.33 Neural Stimulation II
Gold Room	6.34 Motor Learning, Neural Control, and Neuromuscular Systems II
Gold Room	7.5 Cell and Molecular Biotechnology II
Gold Room	7.6 Novel Biomaterials Technologies
Gold Room	7.7 Tissue Engineering
Gold Room	8.16 Rehabilitation and Assitive Technologies
Gold Room	8.17 Biomimetic Robotics
Gold Room	8.18 Image Guided Surgery
Gold Room	11.2 BME and Global Health
Gold Room	11.3 Instruction and Learning
Gold Room	11.4 Novel Approaches to Biomedical Engineering Education
Gold Room	12.5 Gerontechnology
Gold Room	12.6 Technologies for Detecting, Managing and Preventing Falls II

# Thursday August 27, 2015

## 11:30 - 12:30 Keynote Speakers

Room	Title
Brown 3	<b>Claudio Cobelli</b> "Artificial Pancreas: Models, Signals and Control"
Space 1 & 2	<b>Viola Vogel</b> "Mechanical Aspects in the Fight of Immune Cells with Bacterial Infections"
Silver Room	<b>Serge Bernasconi</b> "The new requirements to fully leverage the full value of the Medical Device industry for patients, Health Care Professionals and Health Care Systems"

## 12:45 - 14:15 Minisymposia

Room	Title
Amber 1	1.M1 Graph Analysis of Functional Brain Networks: Theory, Applications and Issues
Amber 2	2.M2 Neuroimaging in Psychiatry
Amber 3	3.M1 Biomedical Technology in Space: Results from the Futura Mission of the Italian Space Agency

# Thursday August 27, 2015

## 12:45 - 14:15 Minisymposia

Room	Title
Amber 8	4.M1 Methods, Technologies, and Scientific Principles of Translational Bioinformatics
Amber 4	5.M1 Latest Development of Cardiovascular Electroceuticals
Brown 1	5.M5 Systems Physiology and Signal Analysis in Natural Sleep and Sleep Disorders I
Amber 5	6.M1 Myoelectric Computer Interfaces in Neurophysiology and Rehabilitation
Amber 6	7.M1 Bio-Instructive Scaffolds for Musculoskeletal Regenerative Medicine
Amber 7	8.M1 Bio-Hybrid Systems: Enabling Technologies for Quasi-Living Robots
White 2	9.M1 Devices and Circuits for Man-Machine Interfaces
Brown 2	10.M1 Big Data for Understanding and Modelling of Health Behaviors

# Thursday August 27, 2015

## 14:30 - 16:00 Oral Sessions

Room	Title
Amber 1	1.17 Causality and Coherence Analysis
Amber 2	1.18 Adaptive and Kalman Filtering
Space 1	1.19 Biosignal Monitoring and Processing for Ubiquitous Health Care (Invited)
Space 2	1.20 Information Dynamics in Networks of Biomedical Signals (Invited)
Amber 3	2.13 Elastography
Amber 4	2.14 Image Segmentation III
Space 3	2.15 EEG, MEG and EIT I
Space 4	3.5 RF Technologies for Medical Implants I
White 2	4.5 Biomolecular System Dynamics
Brown 1	5.M6 Systems Physiology and Signal Analysis in Natural Sleep and Sleep Disorders II (Minisymposium)
Brown 3	6.13 Neural Signal Processing I
Amber 7	6.14 Rehabilitation II
Amber 8	6.15 Brain Physiology and Modeling II
Amber 5	8.6 Wearable Robotic Systems: Orthotics



# Thursday August 27, 2015

## **14:30 - 16:00 Oral Sessions**

Room	Title
Amber 6	8.7 Joint Biomechanics : Spine
Brown 2	9.6 Wearable and Portable Devices
Suite 6	11.1 Innovations in Biomedical Engineering Education (Invited)

## **16:00 - 17:30 Poster Sessions**

Room	Title
Gold Room	1.47 Independent Component Analysis and Empirical Mode Decomposition
Gold Room	1.48 Nonlinear and Nonstationary Analysis of Biosignals
Gold Room	2.36 Image Visualization and Rendering
Gold Room	2.37 IR and Near IR Imaging and Spectroscopy
Gold Room	2.38 MR Neuroimaging II
Gold Room	2.39 Retinal and Ophthalmic Imaging III
Gold Room	3.23 New Sensing Techniques II

# Thursday August 27, 2015

## 16:00 - 17:30 Poster Sessions

Room	Title
Gold Room	3.24 Sensors and Systems
Gold Room	4.15 Clinical Applications of Modeling
Gold Room	5.14 Cardiac Electrophysiology II
Gold Room	5.15 Respiratory Engineering and Sleep Apnea
Gold Room	6.35 Rehabilitation IV
Gold Room	6.36 Brain Physiology and Modeling III
Gold Room	6.37 Neural Signal Processing III
Gold Room	8.19 Prosthetics and Orthotics
Gold Room	8.20 Modeling in Biorobotics
Gold Room	8.21 Surgical Robotics II
Gold Room	9.16 Brain Monitoring Technologies
Gold Room	9.17 Simulation and Training
Gold Room	10.12 Wireless/Ubiquitous Technologies and Systems
Gold Room	10.13 Technology and Services for Assisted-Living
Gold Room	10.14 Smart Home Technology

# Thursday August 27, 2015

## **16:00 - 17:30 Poster Sessions**

Room	Title
Gold Room	12.7 Assistive Technology for the Ageing Population II
Gold Room	12.8 Technologies for Active Aging

## **17:30 - 19:00 Oral Sessions**

Room	Title
Amber 1	1.21 Signal Processing in Physiological Systems VIII: Movement
Amber 2	1.22 Signal Processing in Physiological Systems V: Arrhythmias Detection
Space 1	1.23 Brain Connectivity: Methodological Advancements and Future Challenges (Invited)
Space 2	1.24 Time-Frequency Analysis of Biosignals III
Amber 3	2.16 Imaging in Radiation Therapy (Invited)
Amber 4	2.17 Retinal and Ophthalmic Imaging I
Space 3	2.18 MR Neuroimaging

# Thursday August 27, 2015

## 17:30 - 19:00 Oral Sessions

Room	Title
Space 4	3.6 RF Technologies for Medical Implants II (Invited)
White 2	4.6 Cell Modeling
Amber 7	5.5 Advanced Engineering Methods for Respiratory Medicine (Invited)
Brown 1	5.M7 Systems Physiology and Signal Analysis in Natural Sleep and Sleep Disorders III (Minisymposium)
Brown 3	6.16 Neural Signal Processing II
Amber 8	6.17 Engineering Approaches to Understanding Orofacial Functions (Invited)
Amber 5	8.8 Surgical Robotics I
Amber 6	8.9 Mechanics of Locomotion and Balance I
Brown 2	9.7 Physiological Monitoring Devices
Suite 8	12.1 Innovations to Support Elderly in a Multi-Residential Setting (Invited)

# Friday August 28, 2015

## **08:30 - 10:00 Oral Sessions**

Room	Title
Amber 1	1.25 Signal Processing in Physiological Systems I: Speech
Amber 2	1.26 Biomedical Signal Classification VII: Epilepsy Studies
Space 1	1.27 Biomedical Signal Classification II: Cardiovascular Applications
Space 2	1.28 Signal Processing in Physiological Systems VI: Fetal and Neonatal
Amber 3	2.19 X-Ray Imaging I
Amber 4	2.20 Retinal and Ophthalmic Imaging II
Space 3	2.21 Optical Imaging
Space 4	3.7 Microfluidic Techniques, Methods and Systems I
White 2	4.7 Medical Device Modeling
Amber 5	5.6 Cardiac Electrophysiology I
Amber 6	5.7 Ubiquitous Blood Pressure and Heart Rate Monitoring
Brown 3	6.18 Local Field Potentials in Movement Disorders (Invited)

# Friday August 28, 2015

## **08:30 - 10:00 Oral Sessions**

Room	Title
Amber 7	6.19 Rehabilitation III
Amber 8	6.20 Brain Functional Imaging II
Brown 1	8.10 New Technologies and Methodologies in Human Movement Analysis I
Suite 5	8.11 Tactile Displays and Perception
Brown 2	9.8 Medical Systems Design and Development

## **10:00 - 11:30 Poster Sessions**

Room	Title
Gold Room	1.49 Signal Processing in Physiological Systems I
Gold Room	1.50 Signal Processing in Physiological Systems II
Gold Room	1.51 Time-Frequency and Time-Scale Analysis of Biosignals
Gold Room	2.40 Optical Imaging and Image Analysis

# Friday August 28, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	Optical Imaging and Image Analysis
Gold Room	2.41 Ultrasound Imaging
Gold Room	2.42 X-Ray Imaging II
Gold Room	3.25 Optical and Photonic Sensors and Systems II
Gold Room	3.26 Physiological Monitoring III
Gold Room	4.16 Analysis of High-Throughput Systems Biology Data
Gold Room	4.17 Modeling Molecular/Cellular Pathways and Networks
Gold Room	5.16 Cardiac Mechanics
Gold Room	5.17 Cardiovascular Modeling and Signal Processing
Gold Room	6.38 Neurological Disorders II
Gold Room	6.39 Brain Functional Imaging III
Gold Room	6.40 Human Performance II
Gold Room	8.22 New Technologies and Methodologies in Human Movement Analysis II

# Friday August 28, 2015

## **10:00 - 11:30 Poster Sessions**

Room	Title
Gold Room	8.23 Joint Biomechanics
Gold Room	8.24 Mechanics of Locomotion and Balance II
Gold Room	9.18 Surgery and Robotics
Gold Room	9.19 Cancer Therapies: Radiation, Photodynamic Therapies and Electric Fields
Gold Room	9.20 Stimulation Technologies
Gold Room	10.15 Personal Health Systems
Gold Room	10.16 Data Mining
Gold Room	10.17 Ehealth

## **11:30 - 12:30 Keynote Speakers**

Room	Title
Space 1 & 2	<b>Peter Wintlev-Jensen</b> "EU strategy on ICT for Ageing well"
Silver Room	<b>Andrew D. McCulloch</b> "Multi-Scale Image-Based Modeling of the Failing Heart: From Cell to Patient"



# Friday August 28, 2015

## 12:45 - 14:15 Minisymposia

Room	Title
Brown1	5.M2 Cuff-Less Blood Pressure Monitoring Via Pulse Transit Time I: Standardization, Theory and Clinical Significance
Amber 6	6.M2 Latest Advances in Neuroimaging of the Central Autonomic Network: Combining Autonomic Dynamics and Brain Imaging Data
White 2	9.M2 Continuous-Flow Biochips: Technology, Testing and Design for Fault-Tolerance and Reliability
Amber 4	10.M3 Mhealth Review: Cross-Disciplinary Technologies, Deployments and Future Trends
Amber 2	12.M1 Optimizing Point of Care Engagement I
Amber 5	12.M3 Smart, Sustainable and Inclusive Health in a Smart City
Brown 2	12.M4 Current Trends in Fall Prediction and Prevention Technologies

# Friday August 28, 2015

## **12:45 - 14:15 Special Sessions**

Room	Title
Suite 7	SS4 Neuronal Probes for Investigating Brain Circuits: Scopes and Challenges
Amber 8	SS5 Learning How to Learn
Suite 7	SS6 Creating an Ethical Mindset through Professional Development

## **14:30 - 16:00 Oral Sessions**

Room	Title
Amber 1	1.29 Tensor Methods for Biomedical Signal and Data Analysis (Invited)
Amber 2	1.30 Pattern Recognition Methods and Data Mining for Biosignals
Space 1	1.31 Biomedical Signal Classification: III: EEG Signal Analysis
Space 2	1.32 Biomedical Signal Classification IV: Myoelectric Signal Analysis
Amber 3	2.22 Image Reconstruction
Amber 4	2.23 Emerging Imaging Method
Space 3	2.24 Cardiac Imaging and Image Analysis
Amber 5	3.8 Label Free Live Cell Monitoring (Invited)

# Friday August 28, 2015

## 14:30 - 16:00 Oral Sessions

Room	Title
Amber 6	3.9 Advanced Bioelectronic Interfaces (Invited)
Suite 5	3.10 Signal Treatment and Feature Extraction from Ballistocardiogram and Seismocardiogram (Invited)
White 2	4.8 Bringing Big Data to Its Knees - III; Advances in Storing, Mining and Visualising Big Bio-Medical Data in the Post-Genomic Era: Medical Decision-Making (Invited)
Brown 1	5.M3 Cuff-Less Blood Pressure Monitoring Via Pulse Transit Time II Recent Advances on Systems (Minisymposium)
Brown 3	6.21 Neurological Disorders I
Amber 7	6.22 Neural Interfaces I
Amber 8	6.23 Biomimetic and Biofeedback Approaches for Myoelectric Control (Invited)
White 1	9.9 Stimulation and Implantable Technologies
Suite 8	9.10 Interventional Technologies
Space 4	10.8 Mobile Health
Brown 2	12.2 Technologies for Detecting, Managing and Preventing Falls I

# Friday August 28, 2015

## 16:00 - 17:30 Poster Sessions

Room	Title
Gold Room	1.LB1 Biomedical Signal Processing
Gold Room	2.LB1 Biomedical Imaging and Image Processing
Gold Room	3.LB1 Bioinstrumentation, Biosensors and Bio-Micro/Nano Technologies
Gold Room	6.LB2 Neural and Rehabilitation Engineering
Gold Room	9.LB1 Therapeutic and Diagnostic Systems, Devices and Technologies; Clinical Engineering
Gold Room	10.LB1 Healthcare Information Systems; Telemedicine
Gold Room	11.LB1 Biomedical Engineering Education and Society
Gold Room	12.LB1 Technologies for Active Ageing and Wellbeing
Gold Room	Undergraduate Student Posters

# Friday August 28, 2015

## 17:30 - 19:00 Oral Sessions

Room	Title
Amber 1	1.33 Nonlinear Analysis of EEG and MEG Signals
Amber 2	1.34 Independent Component Analysis
Space 1	1.35 Biomedical Signal Classification VI: Sleep Apnea Studies
Space 2	1.36 Nonlinear Analysis of Cardiovascular Signals
Amber 3	2.25 Image Classification and Feature Extraction I
Amber 4	2.26 Sparsity-Based Imaging and Analysis
Space 3	2.27 Large Data in Image Analysis
Amber 5	3.11 Bioelectric Sensing Methods
Amber 6	3.12 Bioelectric Sensors
Suite 5	3.13 Physiological Monitoring I
White 2	4.9 Bringing Big Data to Its Knees - III; Advances in Storing, Mining and Visualising Big Bio-Medical Data in the Post-Genomic Era: Data-Driven Modeling (Invited)

# Friday August 28, 2015

## 17:30 - 19:00 Oral Sessions

Room	Title
Brown 2	5.8 Microcirculation: New Methods for Gathering Information about Peripheral Blood Flow (Invited)
Brown 3	6.24 New Technological Platforms to Study Children Development (Invited)
Amber 7	6.25 Brain Functional Imaging I
Amber 8	6.26 Human Performance I
Space 4	10.9 Wearable and Mobile Technologies for Active Living and Healthy Ageing: From Concerns and Pilots to Best Practice and Evidence (Invited)
White 1	12.3 Technologies for Promoting Health and Wellbeing

# Saturday August 29, 2015

## 08:30 - 10:00 Oral Sessions

Room	Title
Amber 1	1.37 Parametric Filtering and Estimation
Amber 2	1.38 Entropy Measurements
Space 1	1.39 Signal Processing for Wearable Systems
Space 2	1.40 Time-Frequency Analysis of Biosignals I: Electroencephalography
Amber 3	2.28 X-Ray and CT Imaging: Applications
Amber 4	2.29 MR Analysis and Quantification
Space 3	2.30 Optical Image Analysis
Amber5	3.14 Optical and Photonic Sensors and Systems I
Amber 6	3.15 Bio-Sensing Techniques
Suite 5	3.16 New Sensing Techniques I
White 2	4.10 Models of Physiological Systems
Suite 8	4.11 Bringing Big Data to Its Knees - III; Advances in Storing, Mining and Visualising Big Bio-Medical Data in the Post-Genomic Era: Algorithms and Computational Tools (Invited)

# Saturday August 29, 2015

## 08:30 - 10:00 Oral Sessions

Room	Title
Brown 2	5.9 Cardio-Respiratory Regulation Modeling (Invited)
Brown 3	6.27 Neural Engineering and Neuro-Psychiatric Disorders: Integrated Algorithmic and Hardware Design of a Closed-Loop Brain Stimulation System (Invited)
Amber 7	6.28 Human Performance - Cognition
Brown 1	8.12 New Technologies and Methodologies in Medical Robotics and Biomechanics
Space 4	10.10 Decision Support Methods and Systems
White 1	12.4 Assistive Technology for the Ageing Population I



# Saturday August 29, 2015

## 10:00 - 11:30 Poster Sessions

Room	Title
Gold Room	1.LB2 Biomedical Signal Processing
Gold Room	2.LB2 Biomedical Imaging and Image Processing
Gold Room	3.LB2 Bioinstrumentation, Biosensors and Bio-Micro/Nano Technologies
Gold Room	4.LB1 Bioinformatics and Computational Biology; Systems Biology; Modeling Methodologies
Gold Room	5.LB1 Cardiovascular and Respiratory Systems Engineering
Gold Room	6.LB1 Neural and Rehabilitation Engineering
Gold Room	7.LB1 Cellular and Tissue Engineering and Biomaterials
Gold Room	8.LB1 Biomechanics and Robotics

# Saturday August 29, 2015

## 11:30 - 12:30 Keynote Speakers

Room	Title
Space 1 & 2	<b>Paolo Dario</b> "Bionics Engineering: Achievements and Challenges"
Silver Room	<b>Elisabeth Worthey</b> "Transformation of Big Data into Clinically Actionable Knowledge: Supporting the Personalized Medicine revolution"

## 12:45 - 14:15 Minisymposia

Room	Title
Amber 1	2.M3 Functional Near Infrared Spectroscopy: Engineering Challenges and Translation to the Clinic
Amber 3	2.M4 Photoacoustic Imaging: Systems, Agents, and Applications
Amber 6	4.M2 Machine Learning and Simulation of Dynamic Patterns of Biological Systems at Multiscale: Protein Structures, Stochastic Networks, and Tissue Pattern Formation

# Saturday August 29, 2015

## 12:45 - 14:15 Minisymposia

Room	Title
Amber 4	5.M4 Mechanical Circulatory Support: Flow, Cells and Devices
Brown 2	10.M2 Turning Big Data into Meaningful Data
Amber 5	10.M4 New Directions in Metabolic Measurement Technologies and Behavior Support
Amber 7	11.M1 Advances in Diabetes Management and Social Impact
Amber 2	12.M2 Optimizing Point of Care Engagement II

## 12:45 - 14:15 Minisymposia

Room	Title
Brown 1	SS1 Accelerating Biomedical Technologies through Open Standards Development
Suite 8	SS2 Historical Context for the Present & Future of Biomedical Engineering
White 2	SS3 Biomedical Engineering in South Africa (Honoring the Memory of Prof. Cornie Scheffer)

# Student, WiE and EMB-S Activities

## *Wednesday, 26 August*

	Title	Room
08:30-10:00	Student Paper Competition I	Suite 7
11:30-13:00	Student Paper Competition II	Suite 7
11:30-13:00	The Network Effect - How Networks Really Work	Suite 8
12:30- 14:30	Lunch with Leaders I	Panorama Lounge
15:30-17:00	Student Paper Competition III	Suite 7
15:30-17:00	The Network Effect - How Networks Really Work	Suite 8

# Student, WiE and EMB-S Activities

## Thursday, 27 August

	Title	Room
08:30-10:00	PowerPoint/Poster Clinic Workshop: Tips on Effective Presentation Design and Delivery	Brown 1
12:30-14:30	Lunch with Leaders II	Panorama Lounge
14:30-16:00	The Role of Engineering and Medicine in Life Science Technologies	Suite 8
14:30-16:00	Workshop on Technical Activities Volunteer Training I	Suite 5
17:30-19:00	Workshop on Technical Activities Volunteer Training II	Suite 5

# Student and EMB Society Activities

## Friday, 28 August

	Title	Room
08:30-10:00	Technical Writing Workshop: Getting Published in Biomedical Engineering Journals	White 1
12:30-14:30	Lunch with Leaders III	Panorama Lounge
12:45-14:15	WIE Luncheon & Minisymposium	Suite 9
12:45-14:15	Introduction to EMBS Summer Schools	White 1
12:45-14:15	Special Session: Learning How to Learn	Amber 8
16:00-17:30	Meet the Editors of EMBS Publications	White 1
17:30-19:00	EMBS Chapter and Club Development Open to the EMBS membership-at-large	Brown 1

## Student and EMB Society Activities

### *Friday, 28 August*

	Title	Room
19:00-21:00	IEEE EMBS Young Professionals & Student Networking Reception	Panorama Lounge

### *Saturday, 29 August*

	Title	Room
08:30-10:00	Applying for, Negotiating & Embracing Your First BME Position (Academia, Private Sector, and Government)	Amber 8

# Conference Themes:

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- Biomedical Signal Processing
- Biomedical Imaging and Image Processing
- Bioinstrumentation, Biosensors and Bio-Micro/Nano Technologies
- Bioinformatics and Computational Biology, Systems Biology & Modeling Methodologies
- Cardiovascular and Respiratory Systems Engineering
- Neural and Rehabilitation Engineering
- Cellular and Tissue Engineering and Biomaterials
- Biomechanics and Robotics
- Therapeutic and Diagnostic Systems, Devices and Technologies & Clinical Engineering
- Healthcare Information Systems & Telemedicine
- Biomedical Engineering Education
- Technologies for Active Ageing and Wellbeing