VII Congress of the National Group of Bioengineering (GNB)
9 - 11 June 2021 | Organized by University of Trieste

Day 01 - June, 9

Day 01 - June, 9 | 10:30 - 12:30
Podium session
Theme 1: Informatics and electronics

Chair: Mario Cesarelli, *Università di Napoli*
Giovanni D'Addio, *Istituti Clinici Scientifici Maugeri Spa*

10:30 A Stochastic Language Model of Italian Applied to Functional MRI during Narrative Listening | *Andrea Gerardo Russo, Maria De Martino, Azzurra Mancuso, Francesco Di Salle, Alessandro Laudanna and Fabrizio Esposito*

10:45 Automated Detection and Counting of Acne Lesions for Evaluation of Acne Severity | *Antonella Melina, Pietro Salvagnini, Carlo Cosentino, Francesco Amato and Andrea Cherubini*

11:00 Radiomics-based prediction of head and neck cancer recurrence: a multi-centric MRI study | *Marco Bologna, Valentina Corino, Giuseppina Calareso, Salvatore Alfieri, Rebecca Romanò, Laura Locati, Lisa Licitra and Luca Mainardi*

11:15 Resting State Networks spatio-spectral fingerprints: the Default Mode Network case study | *Ilaria Mazzonetto, Ettore Ambrosini, Antonino Vallesi and Alessandra Bertoldo*

11:30 Comparison of different CNNs for breast tumor classification from ultrasound images | *Jorge Lazo, Elena De Momi and Sara Moccia*

11:45 3D Printing open source non-critical spare parts of medical devices: the oxygen concentrator as a case study | *Licia Di Pietro, Carmelo De Maria, Giuseppe Gallone and Arti Devi Ahluwalia*

12:00 Does a medical device nomenclature suitable for all purposes exist? Twenty years of Italian experience with the CND and its adoption in EUDAMED at European level | *Michela Franzò, Federico D'Agostino, Catello Chierchia, Katiuscia Cucchiara, Eugenio Carrani, Letizia Sampaolo, Elisabetta Stella, Marina Torre and Mauro Asaro*

12:15 Predicting the Onset of Chronic Obstructive Pulmonary Disease in the English Longitudinal Study of Ageing | *Martina Vettoretti, Andrea Facchinetti and Barbara Di Camillo*

Day 01 - June, 9 | 14:30 - 16:30
4-Min Poster presentation
Theme 1: Informatics and electronics

Virtual Room 1

Chair: Giuseppe Baselli, *Politecnico di Milano*

14:30 A graphical user interface for nanoparticle dosimetry in cell cultures | *Pietro Vagaggini, Daniele Poli, Ermes Botte and Arti Ahluwalia*

14:35 A 3D CNN for preterm-infants' movement detection in NICUs from depth streams | *Lucia Migliorelli, Sara Moccia, Giuseppe Pio Cannata, Alessia Galli, Ilaria Ercoli, Luigi Mandolini, Virgilio Carnielli and Emanuele Frontoni*

14:40 Single-subject analysis of the variability of the latency of heart sounds over 25-day period | *Noemi Giordano and Marco Knaflitz*

14:45 A Machine Learning Approach for Muscle Activity Detection | *Marco Ghislieri, Elisa Pavanelli, Samanta Rosati, Gabriella Balestra, Marco Knaflitz and Valentina Agostini*

14:50 Detection of the N2/N2pc event-related potential (ERP) components buried in the EEG using phase angle distribution across sweeps | *Francesca Marturano, Sabrina Brigadoi, Mattia Doro, Roberto Dell'Acqua and Giovanni Sparacino*

14:55 Automatic estimation of nerve tortuosity in corneal images | *Alessia Colonna, Fabio Scarpa and Alfredo Ruggeri*

15:00 Detecting the neural processes of lie generation with low-cost EEG: a preliminary study | *Davide Garofalo, Francesco David Nota, Fabrizio Zoleo, Francesco Bardozzo, Mattia Delli Priscoli, Roberto Tagliaferri and Fabrizio Esposito*

15:05 A novel in silico model for predicting cellular patterning: application to brain organoids | *Ermes Botte, Chiara Magliaro, Francesco Biagini and Arti Ahluwalia*

15:10 Model-based assessment of incretin effect from OGTT data in healthy subjects | *Micaela Morettini, Elisea Creato, Jessica Di Monte, Ludovica Ilari and Laura Burattini*

15:15 Electrocardiographic Alternans in Hemodialysis: A Case Report | *Ilaria Marcantoni, Jessica Di Monte, Chiara Leoni, Zahara Mansour, Agnese Sbrollini, Micaela Morettini and Laura Burattini*

15:20 Novel recurrence features for prefall and fall detection in backward and forward fall types | *Amnah Nasim, David Chukwudi Nchekwube, Elnaz Khorasani, Nina E Van der Maaden, Micaela Morettini and Laura Burattini*

15:25 Boosting automated palynology via microfluidics and machine learning | *Michele D'orazio, Riccardo Reale, Adele De Ninno, Maria Antonia Brighetti, Arianna Mencattini, Luca Businaro, Eugenio Martinelli, Paolo Bisegna, Alessandro Travaglini and Federica Caselli*

15:30 Personalized Linear Data-Driven Algorithms for Real-Time Glucose Forecasting in Type 1 Diabetes | *Francesco Prendin, Simone Del Favero, Giovanni Sparacino and Andrea Facchinetti*

15:35 Sensitivity to carb-counting error in T1D management | *Chiara Roversi, Martina Vettoretti, Simone Del Favero, Andrea Facchinetti and Giovanni Sparacino*

15:40 Filtering techniques for whole body vibration artefact removal from low-SNR sEMG signals | *Simone Ranaldi, Carmen D'Anna, Fabio Botta, Andrea Scorza, Andrea Rossi, Calogero Foti, Stefano Faraci, Salvatore Andrea Sciuto, Maurizio Schmid and Silvia Conforto*

15:45 Mapping the sEMG distribution over the forearm for grip myotonia characterization: methodological aspects | *Enrica Tricomi, Alberto Botter, Peppino Tropea, Giacinto Luigi Cerone, Elda Judica, Barbara Fossati, Massimo Corbo and Marco Gazzoni*

15:50 Poincaré Image-Based Atrial Fibrillation Detection for Photoplethysmography Signals | *Guadalupe García Isla, Valetina Corino and Luca Mainardi*

15:55 Smoking effect on the circadian rhythm of blood pressure in hypertensive subjects | *Giulia Silveri, Lorenzo Pascazio, Aleksandar Miladinovic, Milos Ajcevic and Agostino Accardo*

16:00 Modelling the Meal Variability of Individuals with Type 1 Diabetes under Free-Living Conditions | *Nunzio Camerlingo, Martina Vettoretti, Simone Del Favero, Andrea Facchinetti, Giorgio Maria Di Nunzio and Giovanni Sparacino*

16:05 Performance of Dual-Augmented Lagrangian Method and Common Spatial Patterns applied in classification of Motor-Imagery BCI | *Aleksandar Miladinovic, Milos Ajcevic, Giulia Silveri and Agostino Accardo*

16:10 CT-based FFR: paving the way to future hearts | *Clarissa Bargellini, Quan Long and Tarun Mittal*

Day 01 - June, 9 | 14:30 - 16:30
4-Min Poster presentation
Theme 1: Informatics and electronics

Virtual Room 2

Chair: Maria Gabriella Signorini, *Politecnico di Milano*

14:30 Human Activity Recognition through Wearable Sensors: a Deep Learning Approach | *Daniele Fortunato, Marco Ghislieri, Samanta Rosati, Gabriella Balestra, Marco Knaflitz and Valentina Agostini*

14:35 Unobtrusive monitoring of stress indicators: a preliminary evaluation at rest | *Veronica Chiara Zuccalà, Riccardo Favilla and Giuseppe Coppini*

14:40 No-reference evaluation of the reconstructed images in single-shot K-Edge Subtraction X-ray Computed Tomography | *Giulia Saccomano, Vittorio Di Trapani, Pasquale Delogu and Francesco Brun*

14:45 Detecting low-to-moderate isometric muscle activity through a generalized CWT-based technique | *Tiwana Varrecchia, Carmen D'Anna, Daniele Bibbo, Maurizio Schmid and Silvia Conforto*

14:50 Deep learning for improving in room imaging in radiotherapy: CBCT to synthetic CT conversion | *Paolo Zaffino, Roberta Raso, Maria Chiara Angiocchi, Monica Merola, Sergio Canino, Matteo Nonnis, Antonella Bavasso, Caterina Mezzotero, Rosa Antonella Anoja, Elvira Mazzei and Maria Francesca Spadea*

14:55 Geometric alterations of capillary network in hypertension: preliminary results | *Virginia Altamore, Francesco Giardini, Camilla Olianti, Irene Costantini, Leonardo Sacconi and Leonardo Bocchi*

15:00 Linear Regression Models to Improve the Estimation of Insulin Boluses in Type 1 Diabetes Therapy | *Giulia Noaro, Giacomo Cappon, Simone Del Favero, Giovanni Sparacino and Andrea Facchinetti*

15:05 A Heuristic-Sliding-Window-based RRT Path Planning for Endovascular Catheterization | *Zhen Li, Alice Segato, Alberto Favaro, Jenny Dankelman and Elena De Momi*

15:10 Correlation between hyper-acute EEG alterations and 7-Day NIHSS score in thrombolysis treated ischemic stroke patients | *Milos Ajcevic, Giovanni Furlanis, Aleksandar Miladinovic, Lara Stragapede, Giulia Silveri, Paola Caruso, Marcello Naccarato, Paolo Manganotti and Agostino Accardo*

15:15 Assessment of Indoor Exposure Scenario by an 8x8 Planar Array Antenna at 3.7 GHz | *Marta Bonato, Laura Dossi, Emma Chiaramello, Serena Fiocchi, Silvia Gallucci, Gabriella Tognola, Paolo Ravazzani and Marta Parazzini*

15:20 Human exposure to electromagnetic fields generated in smart vehicle communications | *Gabriella Tognola, Silvia Gallucci, Marta Bonato, Serena Fiocchi, Emma Chiaramello, Laura Dossi, Marta Parazzini and Paolo Ravazzani*

15:25 Comparison of Parametric Linear Techniques for Glucose Prediction in Type-1 Diabetes | *Simone Faccioli, Andrea Facchinetti, Giovanni Sparacino and Simone Del Favero*

15:30 A markerless gait analysis protocol based on a single RGB-Depth camera: sensitivity to background changes | *Diletta Balta, Massimo Salvi, Filippo Molinari, Giulio Figari, Gabriele Paolini, Ugo Della Croce and Andrea Cereatti*

15:35 Quantification and reduction of crosstalk in surface electromyogram by inverse modelling | *Luca Mesin*

15:40 Combining autoencoder and artificial neural network for classifying colorectal cancer stages | *Antonio Brunetti, Maria Pia Caputo, Tommaso Maria Marvulli, Giacomo Donato Cascarano, Nicola Altini, Simona De Summa and Vitoantonio Bevilacqua*

15:45 Correlation analysis of PRSA-based parameters during labor: a simulation study | *Moira Barbieri, Tamara Stampalija, Massimo Walter Rivolta and Roberto Sassi*

15:50 Connectivity in Parkinson's disease patients with cognitive impairment: a simultaneous PET/MRI study | *Erica Silvestri, Angelo Antonini, Marco Castellaro, Roberta Biundo, Diego Cecchin and Alessandra Bertoldo*

15:55 Improving the assessment of vascular complexity in peripheral artery occlusive disease | *Pierangela Bruno, Paolo Zaffino, Francesco Calimeri, Salvatore Scaramuzzino, Ciro Indolfi, Salvatore De Rosa and Maria Francesca Spadea*

16:00 Modeling Intraperitoneal Insulin Kinetics in Patients with Type 1 Diabetes | *Filippo Moret, Michele Schiavon, Claudio Cobelli and Chiara Dalla Man*

16:05 Development of an Insulin-Naïve Type 2 Diabetes Simulator for Testing Basal Insulin Therapy Initiation | *Roberto Visentin, Michele Schiavon and Chiara Dalla Man*

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Day 02 - June, 10

Day 02 - June, 10 | 10:30 - 12:30
Podium session
Theme 2: Clinical Biomechanics

Chair: Alberto Audenino, *Politecnico di Torino*
Francesco Migliavacca, *Politecnico di Milano*

10:30 Advanced Firmware and Hardware for Multiscale and Multimaterial Bioprinting | *Amedeo Franco Bonatti, Gabriele Maria Fortunato, Anna Lapomarda, Aurora De Acutis, Carmelo De Maria, Chiara Vitale Brovarone and Giovanni Vozzi*

10:45 Are your cells alive? | *Adele De Ninno, Riccardo Reale, Alessandro Giovinazzo, Francesca Romana Bertani, Luca Businaro, Paolo Bisegna, Claudia Matteucci and Federica Caselli*

11:00 Development of a compliance-matching biohybrid vascular graft through an integrated approach | *Elia Pederzani, Alessandro Caimi, Marco Pezzotta, Alice Caldiroli, Mattia Lupacchini, Matteo Tironi, Fabio Sangalli, Marina Figliuzzi, Nadia Azzollini, Sonia Fiori, Francesco G. Greco, Emiliano Votta, Gianfranco B. Fiore, Andrea Remuzzi, Stefania A. Riboldi, Monica Soncini and Alberto Redaelli*

11:15 Cardiac fluid dynamics of patient-specific geometries in Pre and Post Mitral Valve Repair by Direct Numerical Simulation | *Dario Collia and Gianni Pedrizzetti*

11:30 Biomechanical implications of leg bending in popliteal stenting | *Michele Conti, Alice Finotello, Anna Ferrarini, Giancarlo Salsano, Auricchio, Palombo, Spinella and Pane*

11:45 Computational investigation of the male lower urinary tract in health and disease | *Chiara Giulia Fontanella, Ilaria Toniolo, Alessandro Arduino, Joseph Vannel Fotso Fogang, Arturo Natali and Emanuele Luigi Carniel*

12:00 Eulerian-based wall shear stress topological skeleton analysis and near-wall transport in aortic flow | *Giuseppe De Nisco, Valentina Mazzi, Karol Calò, Raffaele Ponzini, Giovanna Rizzo, David A. Steinman, Diego Gallo and Umberto Morbiducci*

12:15 3D nichoid substrates affect mesenchymal stem cell morphology and euchromatin organization | *Emanuela Jacchetti, Emanuele Colombo, Tommaso Zandrini, Roberto Osellame, Giulio Cerullo, Davide Mazza and Manuela Raimondi*

Day 02 - June, 10 | 14:30 - 16:30
4-Min Poster presentation
Theme 2: Clinical Biomechanics

Virtual Room 1

Chair: Luca Cristofolini, *Università di Bologna*

14:30 Hybrid membranes for blood-contacting surfaces: preliminary characterization | *Martina Todesco, Giorgia Merigliano, Valentina Candela, Laura Iop, Tiziana Palmosi, Gino Gerosa and Andrea Bagno*

14:35 Mechanical properties of oxidized polyvinyl alcohol hydrogel scaffolds for tissue engineering | *Silvia Todros, Silvia Barbon, Martina Favaron, Elena Stocco, Daniele Dalzoppo, Rafael Boscolo-Berto, Veronica Macchi, Claudio Grandi, Andrea Porzionato, Raffaele De Caro and Piero Pavan*

14:40 Biofabrication and characterization of a biphasic construct to study osteochondral tissue in vitro | *Irene Chiesa, Carmelo De Maria, Anna Lapomarda, Gabriele Maria Fortunato, Francesca Montemurro, Roberto Di Gesù, Rocky S Tuan, Giovanni Vozzi and Riccardo Gottardi*

14:45 Electrospun ultrathin scaffold for Bruch's membrane regeneration in retinal tissue engineering | *Beatrice Belgio, Gabriele Dubini, Federica Boschetti and Sara Mantero*

14:50 Tensile properties of porcine retina | *Beatrice Belgio, Sara Ragazzini, Paolo Arpa, Vito De Molfetta, Sara Mantero and Federica Boschetti*

14:55 Surface coated chitosan microbeads for the sustained release of drugs | *Pietro Arnaldi, Orietta Monticelli and Laura Pastorino*

15:00 Impact of the shear stress on cultured human gut microbiota | *Francesco Biagini, Marco Calvigioni, Ermes Botte, Alessandra Vecchione, Carmelo De Maria, Francesca Montemurro, Chiara Magliaro, Francesco Celandroni, Emilia Ghelardi and Giovanni Vozzi*

15:05 Pectin-based biomaterial ink for Green Tissue Engineering applications | *Anna Lapomarda, Aurora De Acutis, Irene Chiesa, Gabriele Maria Fortunato, Francesca Montemurro, Carmelo De Maria, Monica Mattioli Belmonte, Riccardo Gottardi and Giovanni Vozzi*

15:10 Polymeric microchambers arrays for cargo protection | *Stefania Boi, Valeriya Kudryavtseva, Jiaxin Zhang, Andrey Udalov, Evgeniy Shesterikov, Sergei Tverdokhlebov, Laura Pastorino and Gleb Sukhorukov*

15:15 A hydrogel channel-based system to model the blood flow dynamic stimuli | *Chiara Vitale, Arianna Fedi, Gabriele Varani, Alessandra Marrella, Marco Fato and Silvia Scaglione*

15:20 Rapid and affordable prototyping of bioinspired microfluidic networks for Tissue Engineering | *Guglielmo Pacetta, Aurora De Acutis, Francesca Montemurro, Carmelo De Maria and Giovanni Vozzi*

15:25 Bioactive silica-based glass nanoparticles containing boron and copper | *Elisa Piatti, Marta Miola and Enrica Vernè*

15:30 Thermosensitive hydrogels for the encapsulation of primary and human derived neuronal cells | *Donatella Di Lisa, Elena Dellacasa, Lorenzo Muzzi, Alberto Lagazzo, Monica Frega, Sergio Martinoia and Laura Pastorino*

15:35 Design and validation of a novel low cost-bicompartmental platform for cell and tissue cultures | *Lorenzo Coppadoro, Chiara Foglieni, Gianfranco Fiore and Monica Soncini*

15:40 Versatile perfusion and electrical stimulation bioreactor for bone tissue engineering | *Diana Massai, Stefano Gabetti, Giovanni Putame, Ileana Armando, Elisa Fiume, Alessandro Sanginario, Dario Carbonaro, Francesco Baino, Alberto Audenino, Enrica Vernè and Cristina Bignardi*

15:45 Gellan gum-based hydrogels as injectable materials for cartilage tissue engineering | *Laura Riacci, Lorenzo Vannozzi, Lorena Garcia Hevia and Leonardo Ricotti*

15:50 Bioprinting structured active intestinal spheroids with three-dimensional peristaltic movement | *Ludovica Cacopardo, Nicole Guazzelli, Cristiana Giordano, Monica Magnardini, Joana Costa, Vincenzo Piemonte and Arti Ahluwalia*

15:55 Thrombogenicity of cardiovascular devices: mutual and relative effect of biomaterial and shear stress | *Silvia Bozzi, Federica Vercellino, Filippo Consolo, Yana Roka Moiia, Tatiana Mencarini, Marvin Slepian and Alberto Redaelli*

16:00 The influence of turbulence modelling on thrombosis in cardiovascular devices | *Giuseppe Passoni, Silvia Bozzi, Alberto Redaelli and Davide Dominissini*

Day 02 - June, 10 | 14:30 - 16:30
4-Min Poster presentation
Theme 2: Clinical Biomechanics

Virtual Room 2

Chair: Umberto Morbiducci, *Politecnico di Torino*

14:30 Abdominal visceral and subcutaneous adipose tissues in obese patients: mechanical behaviour | *Chiara Giulia Fontanella, Mirto Foletto, Livio Corain and **Emanuele Luigi Carniel***

14:35 Computational tools for the evaluation of surgical parameters after LSG | ***Ilaria Toniolo**, Chiara Giulia Fontanella, Mirto Foletto and Emanuele Luigi Carniel*

14:40 A novel step counting algorithm using a head-mounted sensor | *Alessia Cristiano, Alberto Sanna and Diana Trojaniello*

14:45 Single cell fluid dynamics: a VOF model of a red blood cell vs a leukocyte | *Monica Piergiovanni, **Elena Bianchi**, Paola De Stefano and Gabriele Dubini*

14:50 Investigating Cell 'Visco-Transduction' in Engineered Viscoelastic Hydrogels | *Ludovica Cacopardo, **Nicole Guazzelli**, Simona Piaggi, Alessandro Corti and Arti Ahluwalia*

14:55 Balance control after tripping: Margin of Stability and Limb Support Quotient | *Alberto Finazzi, Adele Panarese Macrì, Paolo Gallina, Silvestro Micera and **Vito Monaco***

15:00 SensRing, a wearable ring-shaped device for measuring kinematics in reach-to-grasp tasks | ***Guenda Galperti**, Erika Rovini, Laura Fiorini, Gianmaria Mancioppi, Radia Zeghari, Auriane Gros, Valeria Manera and Filippo Cavallo*

15:05 Strategies to speed up the standardized bone plates mechanical testing for regulatory purposes | ***Mara Terzini**, Gianpaolo Serino, Andrea Tancredi Lugas, Giancarlo Dichio, Piero Costa and Alberto L. Audenino*

15:10 DXA-based Finite Element models to improve hip fracture risk prediction: a comparison with CT-based models | ***Alessandra Aldieri**, Mara Terzini, Cristina Bignardi and Alberto Audenino*

15:15 A Multibody Model for Ligament Balancing Assessment in Total Knee Arthroplasty | ***Giovanni Putame**, Mara Terzini, Simone Borrelli, Cristina Bignardi and Alberto Audenino*

15:20 Influence of cartilage thickness on Human Femur Neck: a 3D Stress-Strain Analysis | ***Andrada Pica**, Fabiano Bini, Andrea Marinozzi and Franco Marinozzi*

15:25 Image processing for rheological characterization of blood under flow | ***Giuseppe D'Avenio**, Patrizia Caprari, Carla Daniele and Mauro Grigioni*

15:30 Fontan Computational Hemodynamics: Impact of Inlet Velocity Profile Features with Implications on Clinically Relevant Parameters | ***Maurizio Lodi Rizzini**, Paola Tasso, Diego Gallo, Giuseppe D'Avenio, Antonio Amodeo, Umberto Morbiducci and Mauro Grigioni*

15:35 From Mocap data to inertial data through a biomechanical model to classify countermeasure exercises performed on ISS | ***Martina Ravizza**, Alessandra Pedrocchi, John DeWitt and Giancarlo Ferrigno*

15:40 Transcatheter Aortic Valve with Embolic Filter: Experiments and Simulations | ***Dario Carbonaro**, Claudio Chiastra, Umberto Morbiducci and Alberto Audenino*

15:45 Use of an optimized automatic procedure for measuring the hydraulic permeability of articular cartilage | *Naomi Giuliani, Arianna B Lovati, Marco Ferroni, Laura Ferrari, Laura Mangiavini, Giuseppe M Peretti and **Federica Boschetti***

15:50 The eccentric phase of countermovement jump: comparing motion capture and inertial sensors | ***Luigi Truppa**, Michelangelo Guaitolini, Carlo Castagna and Andrea Mannini*

15:55 Development of a novel bioreactor for the generation of controlled hydrodynamic stimuli on vascular planar tissue samples | ***Elia Pederzani**, Lorenzo Pietro Coppadoro, Aldo Josè Suria Roldan, Chiara Foglieni, Monica Soncini and Gianfranco Beniamino Fiore*

16:00 Application of deer hearts for ex-vivo modelling of mitral valve pathology - preliminary results | ***Michal Jaworek**, Edoardo Maroncelli, Federico Lucherini, Guido Gelpi, Claudia Romagnoni, Rubina Rosa, Cristina Manenti, Carlo Antona, Gianfranco Beniamino Fiore and Riccardo Vismara*

16:05 Internal fixation of femur fractures: a new wireless electromechanical dynamization system | ***Giancarlo Dichio**, Giovanni Putame, Mara Terzini, Sergio Cannata, Piero Costa, Eros Gian Alessandro Pasero and Alberto Audenino*

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Day 03 - June, 11

Day 03 - June, 11 | 10:30 - 12:30
Podium session
Theme 3: Applied Bioengineering

Chair: Cecilia Laschi, *Scuola Superiore Sant'Anna di Pisa*

10:30 Estimation of the base of support during gait with an unobtrusive wearable system | *Rachele Rossanigo, Stefano Bertuletti, Marco Caruso, Marco Knaflitz, Ugo Della Croce and Andrea Cereatti*

10:45 Somatotopical feedback restoration in the lower limb through TENS: a feasibility study | *Andrea Demofonti, Alessia Scarpelli, Valentina Iannelli, Anna Lisa Ciancio, Francesca Cordella and Loredana Zollo*

11:00 A Dual-Branched Convolutional Neural Network for P300 detection and feature interpretation | *Davide Borra, Silvia Fantozzi and Elisa Magosso*

11:15 A neuromorphic haptic feedback for lower limb sensory substitution | *Jessica D'Abbraccio, Sahana Prasanna, Ilaria Cesini, Filippo Dell'Agnello, Simona Crea, Nicola Vitiello, Alberto Mazzoni and Calogero Maria Oddo*

11:30 An Innovative High-Fidelity Neonatal Pneumothorax Simulator | *Sabina Maglio, Selene Tognarelli, Arianna Menciassi*

11:45 An innovative High-Fidelity simulator of cervical changes during labour | *Carlotta Luchini, Selene Tognarelli, Arianna Menciassi*

12:00 Preliminary Design and Validation of an Implantable Artificial Bladder | *Stefano Pane, Veronica Iacovacci, Tommaso Mazzocchi, Arianna Menciassi, Leonardo Ricotti*

12:15 A new motor-driven smart prosthetic socket | *Linda Paternò, Claudio Quaglia, Michele Ibrahimi, Emanuele Gruppioni, Leonardo Ricotti, Arianna Menciassi*

Day 03 - June, 11 | 14:30 - 16:30
4-Min Poster presentation
Theme 3: Applied Bioengineering

Virtual Room 1

Chair: Eugenio Guglielmelli, *Università "Campus Bio-Medico" di Roma*
Loredana Zollo, *Università "Campus Bio-Medico" di Roma*

14:30   Ultrasonic neural stimulation of zebrafish larvae reveals region-specific calcium imaging activation patterns | *Nicolò Meneghetti, Francesca Dedola, Vladislav Gavryusev, Giuseppe Sancataldo, Lapo Turrini, Giuseppe de Vito, Francesco Vanzi, Jacopo Carpaneto, Annarita Cutrone, Francesco Saverio Pavone, Alberto Mazzoni and Silvestro Micera*

14:35   Muscle forces and activations in Parkinson's disease: a model-based approach | *Marco Romanato, Daniele Volpe, Massimo Sartori and Zimi Sawacha*

14:40   A neural electrode for closed-loop vagus nerve recording and stimulation to control autonomic reflexes | *Alice Giannotti, Ivo Strauss and Silvestro Micera*

14:45   Assessing Transfer Entropy as a functional connectivity measure via a Neural Mass Model | *Giulia Ricci, Elisa Magosso and Mauro Ursino*

14:50   A Dataset of DMPs for robot motion planning | *Christian Tamantini, Clemente Lauretti, Francesca Cordella and Loredana Zollo*

14:55   MVAR estimation of source-level EEG connectivity in Parkinson's disease | *Emanuela Formaggio, Maria Rubega, Jessica Rupil, Stefano Masiero, Alessandra Del Felice and Gianna Maria Toffolo*

15:00   The suitability of Gait Variable Scores for Myotonic Dystrophy types classification | *Margherita Lofrumento, Elda Judica, Barbara Fossati, Massimo Corbo and Peppino Tropea*

15:05   Neuroimaging biomarkers toward an optimized and personalized AOT | *Marco Ottaviani, Paola Romano, Sanaz Pournajaf, Michela Goffredo, Fabiano Bini, Franco Marinozzi, Marco Franceschini and Francesco Infarinato*

15:10   Clinical and technology-based assessment of an innovative integrated rehabilitation programme for persons affected by Parkinson's disease | *Gian Pietro Salvi, Annamaria Quarenghi, Eleonora Sigismondi, Emanuele Mion, Marcello Simonini and Stefano Mazzoleni*

15:15   Comparison of the performances of six magneto-inertial sensor fusion filters for orientation estimation in movement analysis | *Marco Caruso, Daniel Laidig, Angelo Maria Sabatini, Marco Knaflitz, Ugo Della Croce, Thomas Seel and Andrea Cereatti*

15:20   A novel multi-sensor system for gait assessment in real-world conditions: preliminary results | *Francesca Salis, Stefano Bertuletti, Marco Caruso, Tecla Bonci, Kirsty Scott, Rachele Rossanigo, Ugo Della Croce, Claudia Mazzà and Andrea Cereatti*

15:25   A simulation study on safety and efficacy of tFUS | *Mattia Stefano, Alessia Scarpelli, Francesca Cordella and Loredana Zollo*

15:30   Falls and prostheses in patients with transfemoral amputation | *Pierpaolo Palumbo, Serena Moscato, Francesca Caterini, Antonella Miccio, Luca Casagli, Angelo Davalli, Pericle Randi and Lorenzo Chiari*

15:35   Integration of 3D Action Observation Therapy and Rehabilitation Exercises in Mixed Reality: A Feasibility Study on Post-Stroke Patients | *Stefano Elio Lenzi, Paolo Mosna, Stefano Lazzarini, Massimiliano Gobbo, Monica Angelini, Riccardo Buraschi, Stefano Negrini, Maddalena Fabbri Destro, Pietro Avanzini, Giacomo Rizzolatti and Nicola Francesco Lopomo*

15:40   Biomarkers of Impulse Control Disorder in firing patterns of parkinsonian subthalamic nucleus | *Federico Micheli, Matteo Vissani, Guido Pecchioli, Federica Terenzi, Silvia Ramat and Alberto Mazzoni*

15:45   Stretchable polymer-based biopotential electrodes for unobtrusive EMG detection | *Andrea Spanu, Annalisa Bonfiglio and Danilo Pani*

15:50   DoMoMEA: a home neuromotor telerehabilitation system for stroke patients | *Andrea Zedda, Elisa Gusai, Marco Caruso, Stefano Bertuletti, Salvatore Spanu, Giulia Baldazzi, Krizia Masciavé, Andrea Pibiri, Marco Monticone, Andrea Cereatti, Luigi Raffo and Danilo Pani*

Day 03 - June, 11 | 14:30 - 16:30
4-Min Poster presentation
Theme 3: Applied Bioengineering

Virtual Room 2

Chair: Leonardo Ricotti, *Scuola Superiore Sant'Anna di Pisa*

14:30 Play-Draw-Write: usability and acceptance of a tablet app for the early screening of handwriting difficulties in kindergartners | *Linda Greta Dui, Francesca Lunardini, Cristiano Termine, Matteo Matteucci and Simona Ferrante*

14:35 Portable Normothermic Perfusion System for Laboratory test of Microwave Devices | *Mattia Dimitri, Fabio Staderini, Sara Aquino, Lucrezia Mazzantini, Ilaria Gadducci, Fabio Cianchi, Guido Biffi Gentili and Andrea Corvi*

14:40 Design of novel ventricular chambers: comparison of three different models | *Valentina Candela, Martina Todesco, Giovanni Meneghetti, Gino Gerosa , Andrea Bagno*

14:45 Design and development of an origami-based pump for soft robotics wearable applications | *Giorgio Bondì, Debora Zrinscak, Matteo Cianchetti*

14:50 Development of a capnometer for extracorporeal life support devices: compensation of the temperature effect on the mid-IR LED | *Michele Bellancini, Laura Cercenelli, Stefano Severi , Emanuela Marcelli*

14:55 Unassisted in-vitro simulation of superior cavo pulmonary shunt for evaluation of pathophysiological issue | *Francesco De Gaetano, Massimo Griselli , Maria Laura Costantino*

15:00 A patient-specific approach for the IDH risk evaluation in the early stage of Haemodialysis | *Giustina Casagrande, Maria Laura Costantino*

15:05 Evaluation of robotic endoscopic neurosurgery through kinematic analysis of surgical gesture | *Salih Ertug Ovur, Elena De Momi, Enrico Karim Siena, Amy Wynn, Leandro Lucangeli, Alessandro De Benedictis, Carlo Efisio Marras, Giancarlo Ferrigno , Valentina Camomilla*

15:10 Stereo-PIV study of the flow across an axial pump for circulatory support | *Giuseppe D'Avenio, Umberto Morbiducci, Costantino Del Gaudio, Mauro Grigioni*

15:15 An Augmented-Reality App to communicate through the eye-gaze | *Mirko Rossi, Giuseppe D'Avenio, Febo Cincotti and Mauro Grigioni*

15:20 An application of DMAIC methodology for reducing voluntary departures from an Emergency Department | *Giovanni Improta, Maria Romano, Carlo Ricciardi, Carlo Cosentino and Francesco Amato*

15:25 Preventive Healthcare through Air Pollution Exposure Modeling: the example of PULSE in Pavia | *Daniele Pala, Luigi Zurlo, Marica Franzini, Riccardo Bellazzi, Vittorio Casella, Domenico Vito and Cristiana Larizza*

15:30 Harmonisation of medical devices classification systems: development of a generalised approach starting from hip prostheses. A first example of an international and standardised nomenclature to be integrated within the European Medical Device Nomenclature | *Michela Franzò, Eugenio Carrani, Mauro Asaro, Edward Caton, John keith Tucker, Richard Armstrong, Elaine Young, Letizia Sampaolo, Fabiano Bini, Franco Marinozzi and Marina Torre*

15:35 Five years of Lean Six Sigma in the healthcare: an overview of main tools and results | *Giovanni Improta, Alfonso Maria Ponsiglione, Arianna Scala, Danilo Di Laura, Lucia Sara D'Angiolella and Giuseppe Cesarelli*

15:40 Blood glucose prediction from Flash Glucose Monitoring and Fitbit data: a deep learning approach | *Pietro Bosoni, Marco Meccariello, Valeria Calcaterra, Cristiana Larizza, Lucia Sacchi and Riccardo Bellazzi*

15:45 IoT ink pen for the ecological study of age-related changes in handwriting | *Davide Di Febbo, Francesca Lunardini, Milad Malavolti, Alessandra Pedrocchi, Alberto Borghese and Simona Ferrante*

15:50 Analysis of heart rate variability as evaluation method for the risk of sepsis in the low-weight preterm infant | *Fabio Tarricone, Viviana Bernocco, Domenico Buongiorno, Antonio Brunetti, Antonella D'Orazio, Antonio Del Vecchio, Vitoantonio Bevilacqua and Flavia Petrillo*

15:55 Experimental Validation of an E-Textile T-Shirt for ECG Monitoring | *Federica Amitrano, Armando Coccia, Leandro Donisi, Arcangelo Biancardi, Gaetano Pagano and Gianni D'Addio*

16:00 Benchmarking between a Sensorized E-textile Sock for Remote Monitoring and a Stereophotogrammetric System | *Leandro Donisi, Armando Coccia, Federica Amitrano, Carlo Ricciardi, Giuseppe Cesarelli and Gianni D'Addio*