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*Cesare Svelto, Politecnico di Milano, Italy*
*Gianluca Gatti, University of Calabria, Italy*

365 **Calibration of a Clustering Algorithm to Improve the Nearshore Wave Prediction System**
*Elisa Castro, University of Catania, Italy*
*Claudio Iuppa, University of Messina, Italy*
*Rosaria Musumeci, University of Catania, Italy*
*Luca Cavallaro, University of Catania, Italy*
*Maria Gabriella Xibilia, University of Messina, Italy*
*Luca Patanè, University of Messina, Italy*
*Enrico Foti, University of Catania, Italy*

371 **Machine Learning Regressor for Impedance Parameter Estimation of QCM Sensors for Liquid Media Characterization**
*Irene Cappelli, University of Siena, Italy*
*Ada Fort, University of Siena, Italy*
*Marco Mugnaini, University of Siena, Italy*
*Enza Panzardi, University of Siena, Italy*
*Valerio Vignoli, University of Siena, Italy*

377 **Vibration Energy Harvesting From Planar Excitations in Industrial Machines**
*Hossein Shabanalinezhad, University of Calabria, Italy*
*Piero Malcovati, University of Pavia, Italy*
*Cesare Svelto, Politecnico di Milano, Italy*
*Gianluca Gatti, University of Calabria, Italy*

383 **Optical Fiber Sensor for Real-Time Monitoring of Industrial Structures and Application to Urban Telecommunication Networks**
*Tatyana V. Gritsenko, Bauman Moscow State Technical University, Russia*
*German Yu. Chesnokov, National Research University Higher School of Economics, Russia*
*Kirill I. Koshelev, Bauman Moscow State Technical University, Russia*
*Roman I. Khan, Bauman Moscow State Technical University, Russia*
*Konstantin V. Stepanov, Bauman Moscow State Technical University, Russia*
*Olga V. Valba, National Research University Higher School of Economics, Russia*
*Anton O. Chernutsky, Bauman Moscow State Technical University, Russia*
*Cesare Svelto, Politecnico di Milano, Italy*
*Andrey A Zhirnov, Bauman Moscow State Technical University, Russia*
*Alexey Pniov, Bauman Moscow State Technical University, Russia*
*Valery Karasik, Bauman Moscow State Technical University, Russia*

389 **Cycle Aging Effect on Lithium-Ion Battery Resistance: A Machine Learning Approach**
*Simone Barcellona, Politecnico di Milano, Italy*
*Loris Cannelli, SUPSI-USI, Switzerland*
*Silvia Colnago, Politecnico di Milano, Italy*
*Christian Laurano, Politecnico di Milano, Italy*
*Luigi Piegari, Politecnico di Milano, Italy*

395 **Experimental Design and Maintenance, Towards a Decision-Making Approach Driven by Degradation Models, With Application to Lithium-Ion Batteries**
*Antonio Pievatolo, National Research Council, Italy*
*Alessandro Magrini, University of Florence, Italy*
*Giovanni Meccariello, National Research Council, Italy*
*Loredana Cristaldi, Politecnico di Milano, Italy*
*Gabriele Patrizi, University of Florence, Italy*
*Nedka D Nikiforova, University of Florence, Italy*

401 **Artificial Neural Network Modeling of Microwave Sensors for Dielectric Liquids Characterization**
*Giovanni Gugliandolo, University of Messina, Italy*
*Zlatica D. Marinkovic, University of Niš, Serbia*
*Xiue Bao, Beijing Institute of Technology, China*
*Cristiano De Marchis, University of Messina, Italy*
*Filippo Battaglia, University of Messina, Italy*
*Mariangela Latino, University of Messina, Italy*
*Giuseppe Campobello, University of Messina, Italy*
*Giovanni Crupi, University of Messina, Italy*
*Nicola Donato, University of Messina, Italy*

406 **State of Health Estimation for Li-Ion Battery Using Machine Learning**
*Riya Sharma, Thapar University, India*
*Anju Bala, Thapar University, India*
*Ashima Singh, Thapar University, India*
*Mukesh Singh, Thapar University, India*

412 **Defect Modeling During the SLM Process for Manufacturing Microwave Devices**
*Shuai Li, Beijing Institute of Technology, China*
*Xiue Bao, Beijing Institute of Technology, China*
*Giovanni Gugliandolo, University of Messina, Italy*
*Haoyun Yuan, Beijing Institute of Technology, China*
*Jinkai Li, Tangshan Research Institute of BIT, China*
*Linxiang Shao, Beijing Institute of Technology, China*
*Minghe Du, Tangshan Research Institute of BIT, China*
*Nicola Donato, University of Messina, Italy*
*Zlatica D. Marinkovic, University of Niš, Serbia*
*Giovanni Crupi, University of Messina, Italy*
*Lili Fang, Beijing Institute of Technology, China*
*Liming Si, Beijing Institute of Technology, China*
*Houjun Sun, Beijing Institute of Technology, China*

417 **IoT Sensor for Measuring Corrosion in Metal Artworks**
*Adriano Demetrio, Politecnico di Milano, Italy*
*Marco Faifer, Politecnico di Milano, Italy*
*Christian Laurano, Politecnico di Milano, Italy*
*Kumar Sunilkumar Pawar, Politecnico di Milano, Italy*
*Sergio Toscani, Politecnico di Milano, Italy*

422 **GaN HEMT Modeling Using an Optimization Strategy Based on Gated Recurrent Unit Networks**
*Jialin Cai, Hangzhou Dianzi University, China*
*Giovanni Gugliandolo, University of Messina, Italy*
*Zlatica D. Marinkovic, University of Niš, Serbia*
*Mariangela Latino, University of Messina, Italy*
*Enza Fazio, University of Messina, Italy*
*Gianni Bosi, University of Ferrara, Italy*
*Antonio Raffo, University of Ferrara, Italy*
*Giovanni Crupi, University of Messina, Italy*
*Nicola Donato, University of Messina, Italy*

427 **The MICS Project: A Data Science Pipeline for Industry 4.0 Applications**
*Loredana Cristaldi, Politecnico di Milano, Italy*
*Parisa Esmaili, Politecnico di Milano, Italy*
*Giambattista Gruosso, Politecnico di Milano, Italy*
*Alessio La Bella, Politecnico di Milano, Italy*
*Massimo Mecella, Sapienza Università di Roma, Italy*
*Riccardo Scattolini, Politecnico di Milano, Italy*
*Ala Arman, Sapienza Università di Roma, Italy*
*Gian Antonio Susto, University of Padova, Italy*
*Letizia Tancaa, Politecnico di Milano, Italy*

432 **Control and Thermal Design of a Bi-Directional Grid Interface Converter for Fast-Recharging Stations Developed in the Framework of the Italian PNRR Research Activities**
*Nicola Toscani, Politecnico di Milano, Italy*
*Paolo De Carli, Politecnico di Milano, Italy*
*Stefano Rampoldi, Politecnico di Milano, Italy*
*Matteo Sposito, ePEBBs Srl, Italy*
*Andrea Polastri, ePEBBs Srl, Italy*
*Mattia Rossi, Tampere University, Finland*
*Francesco Castelli-Dezza, Politecnico di Milano, Italy*

438 **Digital Technologies for the Design of Human-Robot Collaborative Cells**
*Christian Cella, Politecnico di Milano, Italy*
*Paolo Rocco, Politecnico di Milano, Italy*
*Andrea Zanchettin, Politecnico di Milano, Italy*

## Thursday, October 26

### *Session 3.1 - Using Extended Reality and Artificial Intelligence for Mental State Detection with Passive BCIs*

**Room: Aula Maggiore**

444 **Dreams Emotions Identified Without Awakenings by Machine and Deep Learning From EEG Signals in REM Sleep**
*Luis Alfredo Moctezuma, University of Tsukuba, Japan*
*Felix Ipanaque Arevalo, University of Tsukuba, Japan*
*Marta Molinas, Norwegian University of Science and Technology, Norway*
*Takashi Abe, University of Tsukuba, Japan*

450 **Towards Neuroadaptive Augmented Reality Piano Tutorials**
*Florian Maitz, Graz University of Technology, Austria*
*Lucchas Ribeiro Skreinig, Graz University of Technology, Austria*
*Denis Kalkofen, Graz University of Technology, Austria*
*Selina Christin Wriessnegger, Graz University of Technology, Austria*

456 **Toward an EEG-Based System for Monitoring Cognitive Load in Neurosurgeons**
*Pasquale Arpaia, University of Naples Federico II, Italy*
*Roberta Ayadi, IRCCS Carlo Besta Neurological Institute, Italy*
*Giovanni Carone, IRCCS Carlo Besta Neurological Institute, Italy*
*Nicolò Castelli, IRCCS Carlo Besta Neurological Institute, Italy*
*Anna Della Calce, University of Naples Federico II, Italy*
*Irene Del Chicca, ab medica, Italy*
*Mirco Frosolone, National Research Council, Italy*
*Ludovica Gargiulo, University of Naples, Federico II, Italy*
*Giovanna Mastrati, University of Naples Federico II, Italy*
*Nicola Moccaldi, University of Naples Federico II, Italy*
*Marco Nalin, ab medica, Italy*
*Alessandro Perin, IRCCS Carlo Besta Neurological Institute, Italy*
*Mauro Picciafuoco, ab medica, Italy*

462 **EEG Based Emotion Classification Using Two Layer Convolutional Neural Network**
*Thiruselvam S, Indian Institute of Technology Madras, India*
*Ramasubba Reddy Machireddy, Indian Institute of Technology Madras, India*

467 **Maths Anxiety and Cognitive States Monitoring for Neuroadaptive Learning Systems Using Electroencephalography**
*Federica Armani, University of Essex, United Kingdom*
*Ian Daly, University of Essex, United Kingdom*
*Alexei Vernitski, University of Essex, United Kingdom*
*Helge Gillmeister, University of Essex, United Kingdom*
*Reinhold Scherer, University of Essex, United Kingdom*

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## *Session 3.2 - Computer-Aided Solutions in Healthcare: Bioimaging and 3D Printing*

**Room: Aula A**

473 **Advanced 3D Printing of Patient-Specific Human Heart for Improved Surgical Planning**
*Riccardo Forni, Reykjavik University, Iceland*
*Giacomo Pavan, University of Padova, Italy*
*Arnar E. Gunnarsson, Reykjavik University, Iceland*
*Carlo Ricciardi, University of Naples Federico II, Italy*
*Cristiana Corsi, University of Bologna, Italy*
*Paolo Gargiulo, Reykjavik University, Iceland*

479 **Deep Learning Model for Video-Classification of Echocardiography Images**
*Michela Destito, University Magna Graecia, Italy*
*Paolo Zaffino, University Magna Graecia, Italy*
*Jolanda Sabatino, University of Padua, Italy*
*Claudia Critelli, University Magna Graecia, Italy*
*Arber Qoku, Goethe University Frankfurt, Germany*
*Florian Buettner, Goethe University Frankfurt, Germany*
*Salvatore De Rosa, University Magna Graecia, Italy*
*Maria Francesca Spadea, Karlsruhe Institute of Technology, Germany*

484 **Optimization of 3D Fused Deposition Modeling Printing Process for the Manufacturing of Devices for Medical Use**
*Danilo Calderone, University of Naples Federico II, Italy*
*Giuseppe Cesarelli, University of Naples Federico II, Italy*
*Mario Cesarelli, University of Sannio, Italy*
*Luigi Iuppariello, AORN Santobono Pausilipon, Italy*
*Pasquale Guida, AORN Santobono Pausilipon, Italy*
*Antonio Casaburi, AORN Santobono Pausilipon, Italy*
*Gemma Romano, AORN Santobono Pausilipon, Italy*
*Francesco Amato, University of Naples Federico II, Italy*
*Fabrizio Clemente, National Research Council, Italy*

490 **3D Dental Reconstruction With Photogrammetry Technology**
*Francesca Angelone, University of Naples Federico II, Italy*
*Alfonso M Ponsiglione, University of Naples Federico II, Italy*
*Emilio Andreozzi, University of Naples Federico II, Italy*
*Danilo Calderone, University of Naples Federico II, Italy*
*Giuseppe Cesarelli, University of Naples Federico II, Italy*
*Francesco Amato, University of Naples Federico II, Italy*
*Maria Romano, University of Naples Federico II, Italy*

496 **Explainable Deep Learning for Brain Cancer Detection and Localisation**
*Mario Cesarelli, University of Sannio, Italy*
*Francesco Mercaldo, University of Molise, Italy*
*Antonella Santone, University of Molise, Italy*

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## *Session 3.3 - Microwaves with Artificial Intelligence: a New Paradigm for Improved Biomedical Applications*

**Room: Aula B**

502 **A Multifrequency Inverse-Scattering Technique for Brain Stroke Microwave Diagnostics**
*Alessandro Fedeli, University of Genoa, Italy*
*Maurica Maheswaran, University of Genoa, Italy*
*Valentina Schenone, University of Genoa, Italy*
*Andrea Sciarrone, University of Genoa, Italy*
*Igor Bisio, University of Genoa, Italy*
*Fabio Lavagetto, University of Genoa, Italy*
*Matteo Pastorino, University of Genoa, Italy*
*Andrea Randazzo, University of Genoa, Italy*
*Claudio Estatico, University of Genoa, Italy*

507 **A Machine Learning Approach to Microwave Sensing for Non-Invasive Alzheimer's Disease Detection**
*Leonardo Cardinali, Politecnico di Torino, Italy*
*Mattia Spano, Politecnico di Torino, Italy*
*Martina Gugliermino, Politecnico di Torino, Italy*
*Marco Ricci, Politecnico di Torino, Italy*
*David O. Rodriguez-Duarte, Politecnico di Torino, Italy*
*Jorge A. Tobon Vasquez, Politecnico di Torino, Italy*
*Rosa Scapaticci, National Research Council, Italy*
*Roberta Palmeri, National Research Council, Italy*
*Lorenzo Crocco, National Research Council, Italy*
*Francesca Vipiana, Politecnico di Torino, Italy*

513 **Segmentation Approach for Enhanced Biomedical Microwave Imaging**
*Sandra Costanzo, University of Calabria, Italy*
*Giovanni Buonanno, University of Calabria, Italy*
*Alexandra Flores, University of Calabria, Italy*

519 **Microwave Imaging for Brain Cancer Detection: Enhanced Accuracy With Machine Learning Approach**
*Sandra Costanzo, University of Calabria, Italy*
*Alexandra Flores, University of Calabria, Italy*
*Giovanni Buonanno, University of Calabria, Italy*

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## *Session 3.4 - SPECIAL EVENT - MetroVAI4ensic - Part I*

**Room: Aula Morandi**

525 **A Framework to Improve the Comparability and Reproducibility of Morphing Attack Detectors**
*Nicolò Di Domenico, University of Bologna, Italy*
*Guido Borghi, University of Bologna, Italy*
*Annalisa Franco, University of Bologna, Italy*
*Matteo Ferrara, University of Bologna, Italy*
*Davide Maltoni, University of Bologna, Italy*

531 **On the Human Ability in Detecting Digitally Manipulated Face Images**
*Annalisa Franco, University of Bologna, Italy*
*Frøy Løvåsdal, National Police Directorate, Norway*
*Davide Maltoni, University of Bologna, Italy*

537 **Deep Audio Analyzer: A Framework to Industrialize the Research on Audio Forensics**
*Valerio Francesco Puglisi, University of Catania, Italy*
*Oliver Giudice, University of Catania, Italy*
*Sebastiano Battiato, University of Catania, Italy*

543 **Evaluating Deep Neural Networks for Face Recognition With Different Subsets of Mugshots From the Photo-Signaling Procedure**
*Paolo Contardo, Università Politecnica Delle Marche, Italy*
*Nicolò Rossini, Università Politecnica Delle Marche, Italy*
*Selene Tomassini, Università Politecnica Delle Marche, Italy*
*Nicola Falcionelli, Università Politecnica Delle Marche, Italy*
*Aldo F. Dragoni, Università Politecnica Delle Marche, Italy*
*Paolo Sernani, University of Macerata, Italy*

549 **An Innovative Tool for Uploading/Scraping Large Image Datasets on Social Networks**
*Nicolò Fabio Arceri, University of Catania, Italy*
*Oliver Giudice, University of Catania, Italy*
*Sebastiano Battiato, University of Catania, Italy*

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## *Session 3.4 - SPECIAL EVENT - MetroVAI4ensic - Part II*

**Room: Aula Morandi**

555 **A Metrological Approach to Ethical and Legal Issues in Artificial Intelligence**
*Alessandro M Ferrero, Politecnico di Milano, Italy*
*Veronica Scotti, Politecnico di Milano, Italy*

560 **SDGs-Based AI Ethics: an Analysis of Recent Computer Vision Research**
*Silvio De Magistris, University of Florence, Italy*
*Alberto Del Bimbo, University of Florence, Italy*

565 **A Survey on the Applications, Limitations, and Ethical Considerations of ChatGPT in Various Industries**
*Wafa Elhag, University of Doha for Science and Technology, Qatar*
*Dina Bouteldja, University of Doha for Science and Technology, Qatar*
*Seifeddine Bouallegue, University of Doha for Science and Technology, Qatar*

570 **The Possible Relationships Between Law and Ethics Applied to AI**
*Lucilla Gatt, Università Degli Studi Suor Orsola Benincasa, Italy*
*Ilaria Amelia Caggiano, Università Degli Studi Suor Orsola Benincasa, Italy*
*Maria Cristina Gaeta, Università Degli Studi Suor Orsola Benincasa, Italy*
*Livia Aulino, Università Degli Studi Suor Orsola Benincasa, Italy*
*Emiliano Troisi, Università Degli Studi Suor Orsola Benincasa, Italy*

575 **Legal and Technical Answers to Privacy Issues Raised by AI-Based Facial Recognition Algorithms**
*Claudia Capasso, University of Tuscia, Italy*
*Andrea Zingoni, University of Tuscia, Italy*
*Giuseppe Calabrò, University of Tuscia, Italy*
*Alessandro Sterpa, University of Tuscia, Italy*

## *Poster Session 2*

**Room: FAST Conference Center**

581 **Towards the Integration of Metaverse and Multimedia Information Retrieval**
*Patrick Steinert, University of Hagen, Germany*
*Stefan Wagenpfeil, University of Hagen, Germany*
*Ingo Frommholz, University of Wolverhampton, United Kingdom*
*Matthias L. Hemmje, University of Hagen, Germany*

587 **Neural Networks Embedded in Wearable Devices: A Preliminary Digital vs. Analog Comparison**
*Daniele M. Crafa, Politecnico di Milano, Italy*
*Susanna Di Giacomo, Politecnico di Milano, Italy*
*Carlo Fiorini, Politecnico di Milano, Italy*
*Marco Carminati, Politecnico di Milano, Italy*

593 **Blood Glucose Regulation in Type 1 Diabetes Through Optimized Nonlinear Control Strategies**
*Iqra Shafeeq Mughal, University of Catania, Italy*
*Luca Patanè, University of Messina, Italy*
*Riccardo Caponetto, University of Messina, Italy*

599 **Tangible Tactical Belt: Haptic Realism for Virtual Reality Police Training**
*Markus Murtinger, USECON GmbH, AIT Austrian Institute of Technology GmbH, University of Salzburg, Austria*
*Jakob C Uhl, AIT Austrian Institute of Technology GmbH, University of Salzburg, Austria*
*Quynh Nguyen, AIT Austrian Institute of Technology GmbH, University of Salzburg, Austria*
*Georg Regal, AIT Austrian Institute of Technology GmbH, University of Salzburg, Austria*

605 **Synchronisation Issues in Wireless EEG Systems for P300 Amplitude Measurement: ab medica Helmate Case Study**
*Pasquale Arpaia, University of Naples Federico II, Italy*
*Anna Della Calce, University of Naples Federico II, Italy*
*Irene Del Chicca, ab medica, Italy*
*Ludovica Gargiulo, University of Naples Federico II, Italy*
*Nicola Moccaldi, University of Naples Federico II, Italy*
*Marco Nalin, ab medica, Italy*
*Mauro Picciafuoco, ab medica, Italy*

610 **The Value of Immersive Communication Systems in Online Meetings: A Problem Statement and Literature Review**
*Paolo Barzon, TNO, The Netherlands*
*Sylvie Dijkstra-Soudarissanane, TNO, The Netherlands*
*Simon Gunkel, TNO, The Netherlands*
*Evangelos Alexiou, TNO, The Netherlands*

616 **Parsimonious Technologies for Sensing Upper Limb Muscles Activation**
*Mahrukh Azhar, University of Strasbourg, France*
*Beatrice Luciani, Politecnico di Milano, Italy*
*Maciej Bednarczyk, University of Strasbourg, Italy*
*Benoit Wach, University of Strasbourg, Italy*
*Marta Gandolla, Politecnico di Milano, Italy*
*Bernard Bayle, University of Strasbourg, Italy*

622 **An Analog-To-Information Architecture for Single-Chip Sensor-Processor Inference System**
*Amir Khan, CSIC-Universidad de Sevilla, Spain*
*Jorge Fernandez-Berni, CSIC-Universidad de Sevilla, Spain*
*Ricardo Carmona-Galan, CSIC-Universidad de Sevilla, Spain*

628 **Development of Synthetic 3D Printed Knee Joint to Assess Mechanical and Functional Properties of Degenerative Cartilage**
*Federica Kiyomi Ciliberti, Reykjavik University, Iceland*
*Riccardo Forni, Reykjavik University, Iceland*
*Damiano Coato, University of Padova, Italy*
*Gianmarco Dolino, University of Padova, Italy*
*Lorena Guerrini, Reykjavik University, Iceland*
*Vincenzo Minutolo, University of Campania Luigi Vanvitelli, Italy*
*Paolo Gargiulo, Reykjavik University, Iceland*

634 **Brain-Computer Interface to Drive Industrial Robots: An Experimental Study in Hybrid Human-Robot Manufacturing**
*Luciano Magliulo, Youbiquo, Italy*
*Luca Conte, Youbiquo, Italy*
*Francesco Senatore, Youbiquo, Italy*
*Leopoldo Angrisani, University of Naples Federico II, Italy*

640 **Bayesian Optimization With Multi Constraints for Planar Rotary Spring Design**
*Zhicheng Hang, Politecnico di Milano, Italy*
*Marta Gandolla, Politecnico di Milano, Italy*
*Francesco Braghin, Politecnico di Milano, Italy*

646 **A Machine Learning Approach to Classify Ventilatory Efficiency**
*Giuseppe Prisco, University of Molise, Italy*
*Klara Komici, University of Molise, Italy*
*Francesco Mercaldo, University of Molise, Italy*
*Leandro Donisi, University of Campania Luigi Vanvitelli, Italy*
*Mario Cesarelli, University of Sannio, Italy*
*Germano Guerra, University of Molise, Italy*
*Antonella Santone, University of Molise, Italy*

652 **EEG and HRV-Based Assessment of Neurosurgeons Training for Anxiety Regulation and Stress Monitoring**
*Pasquale Arpaia, University of Naples Federico II, Italy*
*Giovanni Carone, IRCCS Carlo Besta Neurological Institute, Italy*
*Nicolò Castelli, IRCCS Carlo Besta Neurological Institute, Italy*
*Giovanni D'Errico, Politecnico di Torino, Italy*
*Ludovica Gargiulo, University of Naples Federico II, Italy*
*Luigi Maffei, University of Lisbon, Portugal*
*Giovanna Mastrati, University of Naples Federico II, Italy*
*Nicola Moccaldi, University of Naples Federico II, Italy*
*Marco Nalin, ab medica, Italy*
*Alessandro Perin, IRCCS Carlo Besta Neurological Institute, Italy*
*Mauro Picciafuoco, ab medica, Italy*
*Cosimo Puttilli, ab medica, Italy*
*Pedro M. Ramos, University of Lisbon, Portugal*
*Rachele Robbio, University of Naples Federico II, Italy*

658 **Analysing and Modelling Human Trust to a Navigation Robot**
*Happy Chidi Onyeoru, University of Sheffield, United Kingdom*
*Christopher Wirth, University of Manchester, United Kingdom*
*Mahnaz Arvaneh, University of Sheffield, United Kingdom*
*Joshua Giles, University of Sheffield, United Kingdom*

664 **Toward the Improvement of Probabilistic Classifiers Using Ontologies**
*Andrea Apicella, University of Naples Federico II, Italy*
*Anna Corazza, University of Naples Federico II, Italy*
*Francesco Isgrò, University of Naples Federico II, Italy*
*Roberto Prevete, University of Naples Federico II, Italy*

670 **Integrating Gaze Tracking With Augmented Reality on Mobile Devices: A Framework for Enhanced User Interaction**
*Lucia Cascone, University of Salerno, Italy*
*Andrea Francesco Abate, University of Salerno, Italy*
*Chiara Pero, University of Salerno, Italy*
*Sergio Del Sorbo, University of Salerno, Italy*
*Emanuele Galati, University of Salerno, Italy*

676 **An Assistive Robot in an Indoor Scenario: The Stretch Hello Robot as Environment Organizer**
*Mir Farooq Ali, Università Politecnica Delle Marche, Italy*
*David C. Nchekwube, Università Politecnica Delle Marche, Italy*
*Oleg Genova, Università Politecnica Delle Marche, Italy*
*Alessandro Freddi, Università Politecnica Delle Marche, Italy*
*Andrea Monteriù, Università Politecnica Delle Marche, Italy*

682 **Entropy-Based EEG Measures for Revealing Altered Neural Dynamics in Alzheimer's Disease: A Preliminary Study**
*Andrea Cataldo, University of Salento, Italy*
*Sabatina Criscuolo, University of Naples Federico II, Italy*
*Egidio De Benedetto, University of Naples Federico II, Italy*
*Antonio Masciullo, University of Salento, Italy*
*Marisa Pesola, University of Naples Federico II, Italy*
*Raissa Schiavoni, University of Salento, Italy*

688 **Raman Spectroscopy of Cells for Cancer Classification Through Machine Learning**
*Lerina Aversano, University of Sannio, Italy*
*Mario Luca Bernardi, University of Sannio, Italy*
*Marta Cimitile, Unitelma Sapienza University, Italy*
*Andrea Cusano, University of Sannio, Italy*
*Martina Iammarino, University of Sannio, Italy*
*Marco Pisco, University of Sannio, Italy*
*Sara Spaziani, University of Sannio, Italy*
*Chiara Verdone, University of Sannio, Italy*

694 **Virtual Experience Toolkit: Enhancing 3D Scene Virtualization From Real Environments Through Computer Vision and Deep Learning Techniques**
*Clara Garcia, Polytechnic University of Valencia, Spain*
*Pau Mora, Polytechnic University of Valencia, Spain*
*Mario Ortega, Polytechnic University of Valencia, Spain*
*Eugenio Ivorra, Polytechnic University of Valencia, Spain*
*Gaetano Valenza, Research Center "E. Piaggio", Italy*
*Mariano Alcañiz, Polytechnic University of Valencia, Spain*

700 **Depth Map Super-Resolution Fusing Color Information**
*Davide Palesano, Politecnico di Milano, Italy*
*Marco Paracchini, Politecnico di Milano, Italy*
*Marco Marcon, Politecnico di Milano, Italy*
*Stefano Tubaro, Politecnico di Milano, Italy*

706 **Exploring Canopy Temperature and Height Dynamics in Forest Ecosystems**
*Riyaaz Uddien Shaik, University of California, USA*
*Kathiravan Thangavel, RMIT University, Australia*
*Sriram Babu Jallu, Wageningen University, The Netherlands*
*Dario Spiller, Sapienza University of Rome, Italy*
*Roberto Sabatini, Khalifa University of Science and Technology, United Arab Emirates*
*Weiping Zeng, Super GeoAI Technology Inc, Canada*

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## *Session 4.1 - General Track 1 (AI)*

**Room: Aula Maggiore**

711 **Electromyography Gestures Sensing With Deeply Quantized Neural Networks**
*Danilo Pietro Pau, STMicroelectronics, Italy*
*Marc Dimbiniaina Randriatsimiovalaza, STMicroelectronics, Italy*

717 **Objective Assessment of Tremor in Parkinson's Disease Using the RehaBEElitation Serious Game**
*Luanne Cardoso Mendes, Federal University of Uberlândia, Brazil*
*Ariana Moura Cabral, Federal University of Uberlândia, Brazil*
*Camille Marques Alves, Federal University of Uberlândia, Brazil*
*Yann Morère, University of Lorraine, France*
*Adriano de Oliveira Andrade, Federal University of Uberlândia, Brazil*

723 **Ethical Challenges of Using Artificial Intelligence in Judiciary**
*Angel Mary John, Mar Gregorios College of Law, India*
*Aiswarya M U, Mar Gregorios College of Law, India*
*Jerrin Thomas Panachakel, College of Engineering, Trivandrum, India*

729 **Aging Aware Retraining With a Sparse Update for Neuromorphic Computing**
*Aswani Radhakrishnan, Digital University Kerala, India*
*Alex James, Digital University Kerala, India*

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## *Session 4.2 - General Track 2 (Metro)*

**Room: Aula Morandi**

735 **Properties and Perspectives of Digital Holographic Microscopy for Bioaerosol Detection**
*Alessandro Molani, Politecnico di Milano, Italy*
*Francesca Pennati, Politecnico di Milano, Italy*
*Andrea Aliverti, Politecnico di Milano, Italy*
*János Pálhalmi, DataSenseLabs Ltd., Hungary*

741 **Early Detection of Fire in EV Battery Using Machine Learning Approach**
*Ishpreet Kaur, Thapar Institute of Engineering and Technology, India*
*Mukesh Singh, Thapar Institute of Engineering and Technology, India*
*Singara Singh Kasana, Thapar Institute of Engineering and Technology, India*

747 **TinyML Anomaly Detection in Portable Cutting Tools**
*Parisa Esmaili, Politecnico di Milano, Italy*
*Federico Cavedo, Politecnico di Milano, Italy*
*Parvaneh Esmaili, Cyprus International University, Turkey*
*Michele Norgia, Politecnico di Milano, Italy*

752 **Static Eccentricity Fault Analysis in Three-Phase Induction Motors Using Current Signal**
*Shady S. Refaat, University of Hertfordshire Hatfield, United Kingdom*
*Ahmed Al-Shemmery, Texas A M University at Qatar, Qatar*
*Kais Abdulmawjood, Texas A M University at Qatar, Qatar*
*Sayed Mohammad Kameli, Texas A M University at Qatar, Qatar*
*Abdelaziz Abuelrub, Texas A M University at Qatar, Qatar*

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## *Session 4.3 - General Track 3 (XR)*

**Room: Aula A**

757 **The EXPERIENCE Project: Unveiling Extended-Personal Reality Through Automated VR Environments and Explainable Artificial Intelligence**
*Gaetano Valenza, University of Pisa, Italy*
*Mariano Alcañiz, Polytechnic University of Valencia, Spain*
*Antonio Luca Alfeo, University of Pisa, Italy*
*Matteo Bianchi, University of Pisa, Italy*
*Vladimir Carli, Karolinska Institutet, Sweden*
*Vincenzo Catrambone, University of Pisa, Italy*
*Mario Giovanni C.A. Cimino, University of Pisa, Italy*
*Gabriela Dudnik, Centre Suisse d Electronique et de Microtechnique, Switzerland*
*Andrea Duggento, University of Rome Tor Vergata, Italy*
*Matteo Ferrante, University of Rome Tor Vergata, Italy*
*Claudio Gentili, University of Padua, Italy*
*Jaime Guixeres, Polytechnic University of Valencia, Spain*
*Simone Rossi, University of Siena, Italy*
*Nicola Toschi, University of Rome Tor Vergata, Italy*
*Virginie van Wassenhove, CEA/NeuroSpin, INSERM U992, France*

763 **Exploring the Potential of Eye-Tracking Technology for Emotion Recognition: A Preliminary Investigation**
*Mariano Alcañiz, Polytechnic University of Valencia, Spain*
*Leopoldo Angrisani, University of Naples Federico II, Italy*
*Pasquale Arpaia, University of Naples Federico II, Italy*
*Egidio De Benedetto, University of Naples Federico II, Italy*
*Luigi Duraccio, Politecnico di Torino, Italy*
*Lucia Gomez-Zaragoza, Polytechnic University of Valencia, Spain*
*Javier Marìn-Morales, Polytechnic University of Valencia, Spain*
*Maria Eleonora Minissi, Polytechnic University of Valencia, Spain*

769 **Stability of Feature Detection Algorithms in Low Quality Video Encoding**
*Valerio De Luca, University of Salento, Italy*
*Lucio T De Paolis, University of Salento, Italy*

775 **Ethical Considerations for AI-Driven Adaptive Virtual Environments in XR Training for First Responders: An Industry Perspective**
*Olivia Zechner, AIT Austrian Institute of Technology GmbH, Austria*
*Daniele Pretolesi, AIT Austrian Institute of Technology GmbH, Austria*
*Emma Jaspaert, Tilburg University, the Netherlands*
*Daniel García Guirao, IDENER, Spain*
*Manfred Tscheligi, University of Salzburg, Austria*

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## *Session 4.4 - General Track 4 (NE)*

**Room: Aula B**

781 **Cross-Subject Mindfulness Meditation EEG Decoding**
*Angeliki I. Karaiskou, KU Leuven, Belgium*
*Carolina Varon, KU Leuven, Belgium*
*Kaat Alaerts, KU Leuven, Belgium*
*Maarten De Vos, KU Leuven, Belgium*

787 **Mental Fatigue Evaluation for Passive and Active BCI Methods for Wheelchair-Robot During Human-In-The-Loop Control**
*Karameldeen Omer, Università Politecnica delle Marche, Italy*
*Francesco Vella, Università Politecnica delle Marche, Italy*
*Francesco Ferracuti, Università Politecnica delle Marche, Italy*
*Alessandro Freddi, Università Politecnica delle Marche, Italy*
*Sabrina Iarlori, Università Politecnica delle Marche, Italy*
*Andrea Monteriù, Università Politecnica delle Marche, Italy*

793 **Low-Contrast SSVEP Stimuli to Improve User Experience of Brain-Computer Interface Involving Virtual Reality**
*Thibault Porssut, Capgemini Engineering, France*
*Alix Gouret, Capgemini Engineering, France*
*Dmitrii Bryzgalov, Capgemini Engineering, France*
*Alex Lafont, Capgemini Engineering, France*
*Sébastien Rouze, Wake Up and Smile, Spain*
*Solène Le Bars, Capgemini Engineering, France*

799 **A Brain-Computer Interface Augmented Reality Framework With Auto-Adaptive SSVEP Recognition**
*Yasmine Mustafa, Missouri University of Science and Technology, USA*
*Mohamed Elmahallawy, Missouri University of Science and Technology, USA*
*Tony T. Luo, Missouri University of Science and Technology, USA*
*Seif Eldawlatly, Ain Shams University, The American University in Cairo, Egypt*

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## *Session 5.1 - Towards Industry 5.0: opportunities, challenges, and enabling technologies*

**Room: Aula Maggiore**

805 **Towards Human-Centricity Within a Sofa Factory Assembly Line: A Real-Time Location System**
*Valerio Pulcini, STIIMA-CNR, Italy*
*Marco Sacco, STIIMA-CNR, Italy*
*Gianfranco Modoni, STIIMA-CNR, Italy*

810 **An AR-Based Tool for Acquisition and Automatic Labeling of Human-Object Interactions From First Person Vision**
*Luigi Seminara, University of Catania, Italy*
*Francesco Ragusa, University of Catania, Italy*
*Rosario Leonardi, University of Catania, Italy*
*Giovanni Maria Farinella, University of Catania, Italy*
*Antonino Furnari, University of Catania, Italy*

816 **A Multi-Channel Deep-Learning Prediction Algorithm for Battery State-Of-Health Indicator**
*Gabriele Patrizi, University of Florence, Italy*
*Marcantonio Catelani, University of Florence, Italy*
*Lorenzo Ciani, University of Florence, Italy*
*Yuchen Song, Harbin Institute of Technology, China*
*Datong Liu, Harbin Institute of Technology, China*

822 **A Novel Machine Learning Algorithm for State of Health Prediction of Lithium-Ion Batteries**
*Filippo Battaglia, University of Messina, Italy*
*Giuseppe Campobello, University of Messina, Italy*
*Davide Aloisio, University of Messina, Italy*
*Salvatore Gianluca Leonardi, National Research Council, Italy*
*Giovanni Gugliandolo, University of Messina, Italy*
*Giovanni Brunaccini, National Research Council, Italy*
*Francesco Sergi, National Research Council, Italy*
*Nicola Donato, University of Messina, Italy*

828 **Model-Agnostic Methods for Soft Sensor Interpretability**
*Luca Patanè, University of Messina, Italy*
*Francesca Sapuppo, University of Messina, Italy*
*Giuseppa Scipilliti, University of Catania, Italy*
*Maria Gabriella Xibilia, University of Messina, Italy*

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## *Session 5.2 - The value of muscular activity monitoring in neurorehabilitation: Surface EMG and beyond*

**Room: Aula Morandi**

834 **Upper Limb Phasic Muscle Synergies With Negative Weightings: Applications for Rehabilitation**
*Alessandro Scano, National Research Council, Italy*
*Cristina Brambilla, National Research Council, Italy*
*Marta Russo, IRCCS Fondazione Santa Lucia, Italy*
*Andrea d'Avella, University of Messina, IRCCS Fondazione Santa Lucia, Italy*

840 **High-Density Surface Electromyography Allows for Longitudinal Assessment of the Neural Drive to Muscle in Individuals With Acute Stroke**
*Marco Benedini, Università degli Studi di Brescia, Italy*
*Hélio V Cabral, Università degli Studi di Brescia, Italy*
*Marta Cogliati, Università degli Studi di Brescia, Italy*
*Luca Falciati, Università degli Studi di Brescia, Italy*
*Luciano Bissolotti, Teresa Camplani Foundation, Italy*
*Claudio Orizio, Università degli Studi di Brescia, Italy*
*Laura McPherson, Washington University School of Medicine, USA*
*Francesco Negro, Università degli Studi di Brescia, Italy*

846 **Feasibility of a Portable, Wearable, High-Density Surface EMG Device for Detecting Functional Hand-Object Interactions**
*Andrea Bandini, Scuola Superiore Sant'Anna, Italy*
*Giada Zecchin, Politecnico di Milano, Italy*
*Francesco Iberite, Scuola Superiore Sant'Anna, Italy*
*Tommaso Proietti, Scuola Superiore Sant'Anna, Italy*
*Silvestro Micera, Scuola Superiore Sant'Anna, Italy, EPFL, Switzerland*
*Emilia Ambrosini, Politecnico di Milano, Italy*

852 **An EMG-Triggered Cooperative Controller for a Hybrid FES-Robotic System**
*Federica Ferrari, Politecnico di Milano, Italy*
*Eva Zimei, Politecnico di Milano, Italy*
*Marta Gandolla, Politecnico di Milano, Italy*
*Alessandra Pedrocchi, Politecnico di Milano, Italy*
*Emilia Ambrosini, Politecnico di Milano, Italy*

858 **Towards Personalized Myoelectric Control Strategies**
*Davide Costanzi, University of Verona, Italy*
*Marta Gandolla, Politecnico di Milano, Italy*
*Andrea Calanca, University of Verona, Italy*

## *Session 5.3 - Simulation approaches and Artificial Intelligence for healthcare and biomedical engineering*

**Room: Aula A**

864 **Using Wearable Sensors and Motion Parameters for Recognizing Progressive Supranuclerar Palsy Phenotypes**
*Noemi Pisani, University of Naples Federico II, Italy*
*Carlo Ricciardi, University of Naples Federico II, Italy*
*Marina Picillo, University of Salerno, Italy*
*Filomena Abate, University of Salerno, Italy*
*Anna Rosa Avallone, University of Salerno, Italy*
*Francesco Amato, University of Naples Federico II, Italy*
*Mario Cesarelli, University of Sannio, Italy*

870 **Feasibility of Tree-Based Machine Learning Models to Discriminate Safe and Unsafe Posture During Weight Lifting**
*Giuseppe Prisco, University of Molise, Italy*
*Maria Romano, University of Naples Federico II, Italy*
*Fabrizio Esposito, University of Campania Luigi Vanvitelli, Italy*
*Mario Cesarelli, University of Sannio, Italy*
*Antonella Santone, University of Molise, Italy*
*Leandro Donisi, University of Campania Luigi Vanvitelli, Italy*

876 **Heart Rate Variability During a Complex Postural Control Task With the BioVRSea Paradigm**
*Marco Recenti, Reykjavik University, Iceland*
*Lorena Guerrini, Reykjavik University, University of Campania L. Vanvitelli, Iceland*
*Alessia Lindemann, Reykjavik University, Iceland*
*Simona Pierucci, Reykjavik University, Iceland*
*Carlo Ricciardi, University of Naples Federico II, Italy*
*Alfonso M Ponsiglione, University of Naples Federico II, Italy*
*Hannes Petersen, Akureyri Hospital, Iceland*
*Paolo Gargiulo, Reykjavik University, Landspitali University Hospital, Iceland*

882 **A Cluster Analysis for Parkinson's Disease Phenotyping With Gait Parameters**
*Michela Russo, University of Naples Federico II, Italy*
*Carlo Ricciardi, University of Naples Federico II, Italy*
*Marianna Amboni, University of Salerno, Italy*
*Antonio Volzone, University of Salerno, Italy*
*Paolo Barone, University of Salerno, Italy*
*Maria Romano, University of Naples Federico II, Italy*
*Francesco Amato, University of Naples Federico II, Italy*

## Friday, October 27

### *Session 6.1 - Life Cycle Assessment and Environmental Sustainability of Measurement Systems*
**Room: Aula Maggiore**

888 **Sustainable Measures for Assessing the Impact of Climate Effects on Livestock Biological Variability**
*Nadia Piscopo, University of Naples Federico II, Italy*
*Lucia Trapanese, University of Naples Federico II, Italy*
*Roberta Matera, University of Naples Federico II, Italy*
*Alessio Cotticelli, University of Naples Federico II, Italy*
*Oscar Tamburis, National Reasearch Council, Italy*
*Roberta Cimmino, ANASB, Italy*
*Angela Salzano, University of Naples Federico II, Italy*

893 **The Wild Boar as an Ecosystem Service: Moving Steps Towards Biodiversity Engineering**
*Luigi Esposito, University of Naples Federico II, Italy*
*Marika Di Paolo, University of Naples Federico II, Italy*
*Damiano Altieri, University of Naples Federico II, Italy*
*Paolo Viola, University of Tuscia, Italy*
*Luis J. Merino Goyenechea, Universidad de León, Spain*
*Riccardo Primi, University of Tuscia, Italy*
*Raffaele Marrone, University of Naples Federico II, Italy*
*Nadia Piscopo, University of Naples Federico II, Italy*

899 **Enhancing Urban Environmental Sustainability Through Unified Stakeholders Needs Co-Creation Process (AENEA)**
*Georgios Koutalieris, ENORA Innovation, Greece*
*Symeon Symeonidis, ENORA Innovation, Greece*
*Iphigeneia Kapsomenaki, ENORA Innovation, Greece*
*Maria João Feio, University of Coimbra, Portugal*
*Luigi Esposito, University of Naples Federico II, Italy*
*Arriel Benis, Holon Institute of Technology, Israel*
*Carina Dantas, SHINE 2Europe, Portugal*
*Miriam Cabrita, SHINE 2Europe, Portugal*
*Harm op den Akker, SHINE 2Europe, Portugal*
*Oscar Tamburis, National Reasearch Council, Italy*

905 **Exploring the Relationship Between Performance and Environmental Sustainability in Measurement Systems: A Preliminary Study**
*Leopoldo Angrisani, University of Naples Federico II, Italy*
*Mauro D'Arco, University of Naples Federico II, Italy*
*Egidio De Benedetto, University of Naples Federico II, Italy*
*Luigi Duraccio, Politecnico di Torino, Italy*
*Antonio Esposito, University of Naples Federico II, Italy*
*Monica Imbò, University of Naples Federico II, Italy*
*Annarita Tedesco, University of Naples Federico II, Italy*

911 **Comparison of 1D and 3D Convolutional Neural Networks for Wildfire Detection Using PRISMA Hyperspectral Imagery and Domain Adaptation**
*Andrea Carbone, Sapienza University of Rome, Italy*
*Dario Spiller, Sapienza University of Rome, Italy*
*Stefania Amici, National Institute of Geophysics and Volcanology, Italy*
*Kathiravan Thangavel, RMIT University, Australia*
*Roberto Sabatini, Khalifa University of Science and Technology, United Arab Emirates*
*Giovanni Laneve, Sapienza University of Rome, Italy*

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## *Session 6.2 - SPECIAL EVENT - PsychoBit - Part I*

**Room: Aula Morandi**

917 **The Implementation of a Mobile Game for Social Inclusion in Multicultural School Contexts**
*Alessandra Colella, University of Naples Federico II, Italy*
*Concetta Esposito, University of Naples Federico II, Italy*
*Dario Bacchini, University of Naples Federico II, Italy*

922 **Virtual Agents and Proxemic Distances: How Social Interactions Affect Our Spatial Representations**
*Scila Nunziata, University of Campania Luigi Vanvitelli, Italy*
*Antonella Ferrara, University of Campania Luigi Vanvitelli, Italy*
*Tina Iachini, University of Campania Luigi Vanvitelli, Italy*
*Renato Orti, University of Campania Luigi Vanvitelli, Italy*
*Alessandro Troise, University of Campania Luigi Vanvitelli, Italy*
*Gennaro Ruggiero, University of Campania Luigi Vanvitelli, Italy*

928 **"Escape With Pulcinella": Development of a Gamified Environment and Pilot Study on Escape Rooms for Language Learning and Cultural Knowledge Acquisition**
*Erica Chinzer, University of Naples Federico II, Italy*
*Raffaele Di Fuccio, University of Foggia, Italy*
*Michela Ponticorvo, University of Naples Federico II, Italy*

933 **Affective Evaluations of Rooms in Immersive Virtual Reality: The Effect of Naturalistic Elements**
*Mariachiara Rapuano, University of Campania Luigi Vanvitelli, Italy*
*Francesco Ruotolo, University of Campania Luigi Vanvitelli, Italy*
*Gennaro Ruggiero, University of Campania Luigi Vanvitelli, Italy*
*Loreta Cannito, University of Campania Luigi Vanvitelli, Italy*
*Fabiola Capitelli, University of Campania Luigi Vanvitelli, Italy*
*Federico Cioffi, University of Campania Luigi Vanvitelli, Italy*
*Massimiliano Masullo, University of Campania Luigi Vanvitelli, Italy*
*Luigi Maffei, University of Campania Luigi Vanvitelli, Italy*
*Tina Iachini, University of Campania Luigi Vanvitelli, Italy*

939 **Enhancing Career-Related Teacher Support Through Technologies: The NEFELE Training Model**
*Anna Parola, University of Naples Federico II, Italy*
*Luigia Simona Sica, University of Naples Federico II, Italy*
*Ioannis Kalemis, Hellenic Open University, Greece*
*Federico Diano, University of Naples Federico II, Italy*
*Achilles Kameas, Hellenic Open University, Greece*

## *Session 6.3 - Soft Metrology: Advances for psychological and human factors in digital society*

**Room: Aula A**

944 **Securing Web Technology and Navigation Against Phishing Through CNN**
*Christian Catalano, University of Salento, Italy*
*Andrea Chezzi, University of Salento, Italy*
*Vita Santa Barletta, University of Bari, Italy*
*Angelo Corallo, University of Salento, Italy*

949 **Development of a Behavioral Avoidance Test in Virtual Reality (VR-BAT)**
*Sergio Frumento, University of Pisa, Italy*
*Alessio Iannizzotto, University of Pisa, Italy*
*Alberto Greco, University of Pisa, Italy*
*Enzo Pasquale Scilingo, University of Pisa, Italy*
*Angelo Gemignani, University of Pisa, Italy*
*Danilo Menicucci, University of Pisa, Italy*

954 **Artificial Intelligence for Automotive Security: How to Support Developers in Automotive Solutions**
*Vita Santa Barletta, University of Bari, Italy*
*Christian Catalano, University of Salento, Italy*
*Mirko De Vincentiis, University of Bari, Italy*
*Anibrata Pal, University of Bari, Italy*
*Michele Scalera, University of Bari, Italy*

960 **Automotive Knowledge Base for Supporting Vehicle-SOC Analysts**
*Vita Santa Barletta, University of Bari, Italy*
*Danilo Caivano, University of Bari, Italy*
*Mirko De Vincentiis, University of Bari, Italy*
*Anibrata Pal, University of Bari, Italy*
*Francesco Volpe, University of Bari, Italy*

966 **Proposing a Natural Language Processing Approach to Detect Personal Meaning Organizations Linguistic Patterns**
*Antonio Guerrieri, University of Salento, Italy*
*Antonino Esposito, Fondazione Neurone Onlus, Italy*
*Angelo Picardi, Italian National Institute of Health, Italy*
*Giulio Nicolò Meldolesi, Fondazione Neurone Onlus, Italy*

## *Session 7.1 - Memristor Models, Devices, Circuits and Systems for Artificial Intelligence Applications*

**Room: Aula Maggiore**

971 **Local Fading Memory Effects in a Tantalum Oxide ReRAM Cell From Hewlett Packard Labs**
*Alon Ascoli, TU Dresden, Germany*
*Nicolas Schmitt, TU Dresden, Germany*
*Ioannis Messaris, TU Dresden, Germany*
*Ahmet Samil Demirkol, TU Dresden, Germany*
*Ronald Tetzlaff, TU Dresden, Germany*
*J.P. Strachan, RWTH Aachen University, Germany*
*Leon Chua, University of California, Germany*

977 **A Compact SPICE Model for Current Transients within the Subthreshold Regime of Memristors**
*Daniel Mannion, University College London, United Kingdom*
*Wing Ng, University College London, United Kingdom*
*Adnan Mehonic, University College London, United Kingdom*
*Tony Kenyon, University College London, United Kingdom*

983 **Analog Feedback-Controlled Memristor Programming Circuit for Analog Content Addressable Memory**
*Jiaao Yu, Forschungszentrum Jülich, Technical University of Munich, Germany*
*Paul-Philipp Manea, Forschungszentrum Jülich, RWTH Aachen University, Germany*
*Sara Ameli, Forschungszentrum Jülich, RWTH Aachen University, Germany*
*Mohammad Hizzani, Forschungszentrum Jülich, RWTH Aachen University, Germany*
*Amro Eldebiky, Technical University of Munich, Germany*
*John Paul Strachan, Forschungszentrum Jülich, RWTH Aachen University, Germany*

989 **Mackey-Glass Time Series Forecasting by Nanowire Networks**
*Gianluca Milano, Istituto Nazionale di Ricerca Metrologica, Italy*
*Tushar Chakrabarty, Politecnico di Torino, Italy*
*Carlo Ricciardi, Politecnico di Torino, Italy*

995 **Rapid Detection of SARS-CoV-2 Antigen Utilizing Machine Learning-Enabled Graphene-Based Smart Gas Sensors**
*Shirong Huang, TU Dresden, Germany*
*Bergoi Ibarlucea, TU Dresden, Germany*
*Luis Antonio Panes-Ruiz, TU Dresden, Germany*
*Gianaurelio Cuniberti, TU Dresden, Germany*

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## *Session 7.2 - SPECIAL EVENT - PsychoBit - Part II*
**Room: Aula Morandi**

1000 **"Safer": Design and Development of a Supportive Assistant for Emotion Regulation**
*Federico Diano, University of Naples Federico II, Italy*
*Michela Ponticorvo, University of Naples Federico II, Italy*
*Luigia Sica, University of Naples Federico II, Italy*

1006 **Exploring Motor Patterns in Autism Spectrum Disorder Using Raw Data and Artificial Intelligence: A Pilot Study**
*Maria Luongo, University of Naples Federico II, Italy*
*Roberta Simeoli, University of Naples Federico II, Italy*
*Davide Marocco, University of Naples Federico II, Italy*
*Michela Ponticorvo, University of Naples Federico II, Italy*

1012 **Autoencoders as a Tool to Detect Nonlinear Relationships in Latent Variables Models**
*Raffaella Esposito, University of Naples Federico II, Italy*
*Monica Casella, University of Naples Federico II, Italy*
*Nicola Milano, University of Naples Federico II, Italy*
*Davide Marocco, University of Naples Federico II, Italy*

1017 **WAITASEC: The Development of an Application for People' Digital Wellness**
*Martina Benvenuti, University of Bologna, Italy*
*Sergio Sangiorgi, Unveil Consulting Srl, Italy*
*Marco Favilla, Unveil Consulting Srl, Italy*
*Roberto Lattuada, Waitasec, Italy*
*Kymm Li, Waitasec, Italy*
*Elvis Mazzoni, University of Bologna, Italy*

1022 **Putting the Pieces Together: Exploring the Dimensionality of Enhanced Baking Tray Task Indexes in School-Aged Children**
*Antonietta Argiuolo, University of Naples Federico II, Italy*
*Federica Somma, University of Naples Federico II, Italy*
*Monica Casella, University of Naples Federico II, Italy*
*Onofrio Gigliotta, University of Naples Federico II, Italy*
*Michela Ponticorvo, University of Naples Federico II, Italy*

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## *Session 7.4 - Active brain-computer interfaces for daily-life applications*
**Room: Aula B**

1027 **Improving Common Spatial Patterns in Brain-Computer Interface Using Dynamic Time Warping and EEG Normalization**
*Mohamed A A Mohamed, University of Sheffield, United Kingdom*
*Mahnaz Arvaneh, University of Sheffield, United Kingdom*
*Payam Soulatiantork, University of Sheffield, United Kingdom*
*Kai Keng Ang, Institute for Inforcomm Research, A*STAR, Singapore*
*Phua Kok Soon, Institute for Inforcomm Research, A*STAR, Singapore*
*Salem SL Mansour, University of Sheffield, United Kingdom*

1033 **EEG-Based Self-Paced Decoding of Upper Limb Movement Intention in Healthy Subjects**
*Matteo Ceradini, Scuola Superiore Sant'Anna, Italy*
*Stefano Tortora, University of Padova, Italy*
*Luca Tonin, University of Padova, Italy*
*Silvestro Micera, Scuola Superiore Sant'Anna, Italy, EPFL, Switzerland*

1039 **Decoding Motion Trajectories in an Online Upper Limb BCI: Linear Regression Vs Deep Learning**
*Niall McShane, Ulster University, United Kingdom*
*Attila Korik, University of Bath, United Kingdom*
*Karl McCreadie, Ulster University, United Kingdom*
*Darryl Charles, Ulster University, United Kingdom*
*Damien Coyle, University of Bath, United Kingdom*

1045 **Investigation of Neurophysiological Biomarkers Using Dry Electrodes EEG Device in Patients With Neurological Diseases Undergoing Motor Neurorehabilitation: Protocol Trial**
*Agnese Seregni, Casa di Cura Igea, Italy*
*Peppino Tropea, Casa di Cura Igea, Italy*
*Luca Chiveri, Casa di Cura Igea, Italy*
*Su-Chun Huang, Institute of Experimental Neurology-INSPE, Italy*
*Marco Nalin, ab medica, Italy*
*Marta Tacchini, Institute of Experimental Neurology, San Raffaele Vita-Salute University, Italy*
*Irene Del Chicca, ab medica, Italy*
*Giancarlo Comi, Casa di Cura Igea, San Raffaele Vita-Salute University, Italy*
*Letizia Leocani, Institute of Experimental Neurology, San Raffaele Vita-Salute University, Italy*
*Massimo Corbo, Casa di Cura Igea, Italy*

1051 **Virtual Hand Illusion-Based Motor Imagery Guidance System for Stroke Patients: A Pilot Study**
*Hojun Jeong, Sungkyunkwan University, Korea*
*Haemin Jung, Sungkyunkwan University, Korea*
*Minyoung Kim, CHA University School of Medicine, Korea*
*Jonghyun Kim, Sungkyunkwan University, Korea*

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## *Poster Session 3*

**Room: FAST Conference Center**

1057 **Machine Learning for Anomaly Detection in Induction Motors**
*Simone Mari, University of L'Aquila, Italy*
*Giovanni Bucci, University of L'Aquila, Italy*
*Fabrizio Ciancetta, University of L'Aquila, Italy*
*Edoardo Fiorucci, University of L'Aquila, Italy*
*Andrea Fioravanti, University of L'Aquila, Italy*

1063 **Sinc-EEGNet for Improving Performance While Reducing Calibration of a Motor Imagery-Based BCI**
*Pasquale Arpaia, University of Naples Federico II, Italy*
*Elisa Bertone, University of Naples Federico II, Italy*
*Antonio Esposito, University of Naples Federico II, Italy*
*Angela Natalizio, Politecnico di Torino, Italy*
*Marco Parvis, Politecnico di Torino, Italy*
*Alessandra Pedrocchi, Politecnico di Milano, Italy*
*Andrea Pollastro, University of Naples Federico II, Italy*

1069 **Advanced Electrical Characterization of Memristive Arrays for Neuromorphic Applications**
*Stefan Wiefels, Forschungszentrum Jülich GmbH, Germany*
*Xiaohua Liu, Forschungszentrum Jülich GmbH, Germany*
*Kristoffer Schnieders, Forschungszentrum Jülich GmbH, Germany*
*Mathias Schumacher, aixACCT Systems GmbH, Germany*
*Rainer Waser, Forschungszentrum Jülich GmbH, Germany*
*Lutz Nielen, aixACCT Systems GmbH, Germany*

1075 **Feasibility and Accuracy of a Dry and Wireless EEG Helmet for Upper Limb Motor Imagery-Based Brain-Computer Interfaces**
*Matteo Ceradini, Scuola Superiore Sant'Anna, Italy*
*Michael Lassi, Scuola Superiore Sant'Anna, Italy*
*Elena Losanno, Scuola Superiore Sant'Anna, Italy*
*Alexander Gontran-Massey, Université de Franche-Comté, France*
*Marco Nalin, ab medica, Italy*
*Irene Del Chicca, ab medica, Italy*
*Cosimo Puttilli, ab medica, Italy*
*Silvestro Micera, Scuola Superiore Sant'Anna, Italy, EPFL, Switzerland*
*Andrea Bandini, Scuola Superiore Sant'Anna, Italy*

1081 **Closed-Loop In-Memory Computing for Energy-Efficient Matrix Eigendecomposition**
*Piergiulio Mannocci, Politecnico di Milano, Italy*
*Elisabetta Giannone, Politecnico di Milano, Italy*
*Daniele Ielmini, Politecnico di Milano, Italy*

1087 **U-Net Convolutional Neural Network for Optic Disc Segmentation**
*Vito Ivano D'Alessandro, Polytechnic University of Bari, Italy*
*Francesco Adamo, Polytechnic University of Bari, Italy*
*Luisa De Palma, Polytechnic University of Bari, Italy*
*Daniel Lotano, Polytechnic University of Bari, Italy*
*Marco Scarpetta, Polytechnic University of Bari, Italy*

1092 **The SNOWED Dataset and Its Application to Po River Monitoring Through Satellite Images**
*Marco Scarpetta, Polytechnic University of Bari, Italy*
*Mattia Alessandro Ragolia, Polytechnic University of Bari, Italy*
*Maurizio Spadavecchia, Polytechnic University of Bari, Italy*
*Paolo Affuso, Polytechnic University of Bari, Italy*
*Nicola Giaquinto, Polytechnic University of Bari, Italy*

1098 **Machine Learning-Based Classification of the Traffic of Digital Marketing Campaigns**
*Sara Abbonizio, Università Politecnica Delle Marche, Italy*
*Paolo Sernani, University of Macerata, Italy*
*Aldo F. Dragoni, Università Politecnica Delle Marche, Italy*
*Paolo Rinaldesi, Revelop Srl, Italy*

1104 **VO.I.C.E. FIRST: Supporting Human Assistants With Real-Time Voice Understanding**
*Mario Corrado, In&Out S.p.A. - Teleperformance, Italy*
*Vincenzo Giliberti, In&Out S.p.A. - Teleperformance, Italy*
*Manuel Gozzi, Isagog Srl, Italy*
*Vincenzo Lanzolla, In&Out S.p.A. - Teleperformance, Italy*
*Guido Vetere, Isagog Srl, Italy*
*Domenico Zurlo, In&Out S.p.A. - Teleperformance, Italy*

1110 **Serious Games for Cybersecurity: How to Improve Perception and Human Factors**
*Vita Santa Barletta, University of Bari, Italy*
*Miriana Calvano, University of Bari, Italy*
*Federica Caruso, University of L'Aquila, Italy*
*Antonio Curci, University of Bari, Italy*
*Antonio Piccinno, University of Bari, Italy*

1116 **Estimation of Ground NO2 Measurements From Sentinel-5P Tropospheric Data Through Categorical Boosting**
*Francesco Mauro, University of Sannio, Italy*
*Luigi Russo, University of Sannio, Italy*
*Fjoralba Sota Janku, University of Sannio, Italy*
*Alessandro Sebastianelli, European Space Agency*
*Silvia Liberata Ullo, University of Sannio, Italy*

1122 **Early Prevention of Heart Attacks Using Memristor-Based Machine Learning and Surface Enhanced Raman Spectroscopy With Collapsible Nanofinger**
*Ye Zhuo, University of Southern California, USA*
*Zerui Liu, University of Southern California, USA*
*Deming Meng, University of Southern California, USA*
*Pan Hu, University of Southern California, USA*
*Wenhao Song, University of Southern California, USA*
*Yunxiang Wang, University of Southern California, USA*
*Ruoyu Zhao, University of Southern California, USA*
*Tse-Hsien Ou, University of Southern California, USA*
*Sushmit Hossain, University of Southern California, USA*
*Alyna Xinxia Tang, Shanghai high school international division, China*
*J. Joshua Yang, University of Southern California, USA*
*Wei Wu, University of Southern California, USA*

1128 **A Survey on Uncertainty Assessment in ANN-Based Measurements**
*Vincenzo Gallo, University of Salerno, Italy*
*Marco Carratù, University of Salerno, Italy*
*Valter Laino, University of Salerno, Italy*
*Consolatina Liguori, University of Salerno, Italy*
*Antonio Pietrosanto, University of Salerno, Italy*

1133 **Analytical Derivation of Sharp-Edge-Of-Chaos Domain in a One-Dimensional Memristor Array**
*Ahmet Samil Demirkol, TU Dresden, Germany*
*Alon Ascoli, TU Dresden, Germany*
*Ioannis Messaris, TU Dresden, Germany*
*Ronald Tetzlaff, TU Dresden, Germany*

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## *Session 8.1 - Memristor Models, Devices, Circuits and Systems for Artificial Intelligence Applications*
**Room: Aula Maggiore**

1138 **AI Adoption to Innovate Accounting Practice: Ethical Implications**
*Giulia Napolitano, University of Naples Federico II, Italy*

1144 **Museum Accessibility: A Managerial Perspective on Digital Approach**
*Gesualda Iodice, University of Naples Federico II, Italy*
*Francesco Carignani, University of Naples Federico II, Italy*
*Laura Clemente, Sapienza University of Rome, Italy*
*Francesco Bifulco, University of Naples Federico II, Italy*

1150 **Dealing With Learning Vulnerability: Service Robots to Nudge Student Engagement**
*Angelo Ranieri, University of Naples Federico II, Italy*
*Irene Di Bernardo, University of Naples Federico II, Italy*
*Cristina Mele, University of Naples Federico II, Italy*
*Tiziana Russo Spena, University of Naples Federico II, Italy*

1156 **The Impact of the Metaverse on Health Professionals' Empathy**
*Stefano Paolo Russo, University of Naples Federico II, Italy*
*Marialuisa Marzullo, University of Naples Federico II, Italy*

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## *Session 8.2 - SPECIAL EVENT - PsychoBit - Part II*
**Room: Aula Morandi**

1161 **The Effect of Performance Features of Telepresence Robots on Personality Perception of Their Users**
*Ali Asadi, University of Southern Denmark, Denmark*
*Kerstin Fischer, University of Southern Denmark, Denmark*

1166 **An Anthropomorphic Robot With ChatGPT for Learning Activities: The Teachers' Perspective**
*Federica Sacco, Università Cattolica del Sacro Cuore, Italy*
*Antonella Marchetti, Università Cattolica del Sacro Cuore, Italy*
*Cinzia Di Dio, Università Cattolica del Sacro Cuore, Italy*
*Federico Manzi, Università Cattolica del Sacro Cuore, Italy*
*Gisella Rossini, Università Cattolica del Sacro Cuore, Italy*
*Davide Massaro, Università Cattolica del Sacro Cuore, Italy*
*Angelo Cangelosi, University of Manchester, United Kingdom*
*Letizia Aquilino, Università Cattolica del Sacro Cuore, Italy*
*Luca Raggioli, University of Manchester, United Kingdom*

1171 **Skeleton Timed Up and Go on MARIO Robot**
*Alessandra Vitanza, Institute of Cognitive Sciences and Technologies - CNR, Italy*
*Paolo Pagliuca, Institute of Cognitive Sciences and Technologies - CNR, Italy*
*Filippo Cantucci, Institute of Cognitive Sciences and Technologies - CNR, Italy*
*Stefano Nolfi, Institute of Cognitive Sciences and Technologies - CNR, Italy*

1177 **Using Social Scripts in Human-Robot Interaction**
*Alessia Fantini, University of Pisa, CNR, Italy*
*Giovanni Pilato, National Research Council, Italy*

1182 **Mitigating the Negative Effect of Telepresence Robots via an Empathy-Eliciting Robot Moderator**
*Ali Asadi, University of Southern Denmark, Denmark*
*Erica Chinzer, University of Naples Federico II, Italy*
*Davide Marocco, University of Naples Federico II, Italy*
*Kerstin Fischer, University of Southern Denmark, Denmark*

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## *Session 8.3 - Active brain-computer interfaces for daily-life applications*

**Room: Aula A**

1188 **Deploying Unsupervised Learning for Daily Activity Windows Analisys in Cancer Patients**
*Adriano Tramontano, National Reasearch Council, Italy*
*Chiara Feoli, University of Naples Federico II, Italy*
*Oscar Tamburis, National Reasearch Council, Italy*
*Manuel Conson, University of Naples Federico II, Italy*
*Francesco Salzano, University of Cagliari, Italy*
*Mario Magliulo, National Reasearch Council, Italy*

1193 **A Novel Classification Model Based on Radiomics for Narrow Band Imaging in Laryngeal Cancer**
*Haiyang Wang, Politecnico di Milano, Italy*
*Luca Mainardi, Politecnico di Milano, Italy*
*Francesca Ronchetti, Politecnico di Milano, Italy*

1198 **Training Intelligent Driver State Monitoring Systems: Design and Validation of an Experimental Procedure in a Driving Simulator Environment**
*Roberta Presta, University Suor Orsola Benincasa, Italy*
*Chiara Tancredi, University Suor Orsola Benincasa, Italy*
*Flavia De Simone, University Suor Orsola Benincasa, Italy*
*Silvia Chiesa, RE:Lab, Italy*
*Laura Mancuso, University Suor Orsola Benincasa, Italy*
*Luca Marino, University Suor Orsola Benincasa, Italy*

1204 **A Modern Approach to Dimensional Inspection by Implementing Annotated 3D Cad Model in a Digital Manufacturing Environment**
*Ioan-Liviu Baciu, Hexagon Manufacturing Intelligence, Italy*
*Claudio Bruzzo, Hexagon Manufacturing Intelligence, Italy*
*Romano Iazurlo, Leonardo SpA, Italy*
*Gianluca Rizzi, Leonardo SpA, Italy*
*Andrea Tarantino, Leonardo SpA, Italy*

1209 **Recognition of Greek Alphabet Characters With Memristive Neuromorphic Circuit**
*Theodoros Panagiotis Chatzinikolaou, Democritus University of Thrace, Greece*
*Ioannis K. Chatzipaschalis, Democritus University of Thrace, Greece*
*Karolos-Alexandros Tsakalos, Democritus University of Thrace, Greece*
*Rafailia-Eleni Karamani, Democritus University of Thrace, Greece*
*Iosif-Angelos Fyrigos, Democritus University of Thrace, Greece*
*Stavros Kitsios, National Technical University of Athens, Greece*
*Panagiotis Bousoulas, National Technical University of Athens, Greece*
*Dimitrios Tsoukalas, National Technical University of Athens, Greece*
*Georgios Sirakoulis, Democritus University of Thrace, Greece*