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CONFERENCE PROGRAM

Wednesday, October 26

Session 1.1 - Artificial intelligence, machine learning and computer vision in healthcare

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Chairs: Esteban José Palomo, *University of Málaga, Spain*
Andrea Apicella, *University of Naples Federico II, Italy*

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Esteban J. Palomo, University of Malaga, Spain
Manuel Jiménez-Navarro, Hospital Universitario Virgen de la Victoria, Spain

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Birgit Harthum, USECON GmbH, Austria
Manfred Tscheligi, University of Salzburg, AIT Austrian Institute of Technology GmbH, Austria

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Yuan Yao, Fuzhou University, China
Joseph Timoney, Maynooth University, Ireland
Ting Bi, Maynooth University, Ireland

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Ronald Tetzlaff, Technische Universität Dresden, Germany
Leon Chua, University of California, US
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Chairs: Silvia Serino, *Università Cattolica di Milano, Italy*
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Chiara Stramba-Badiale, Istituto Auxologico Italiano, Italy
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Pietro Cipresso, University of Turin, IRCCS Istituto Auxologico Italiano, Italy
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Luca Cecchetti, IMT School for Advanced Studies Lucca, Italy
Enzo Pasquale Scilingo, University of Pisa, Italy

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Chairs: Aldo F. Dragoni, *Università Politecnica delle Marche, Italy*
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Thursday, October 27

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Chairs: *Leandro Donisi, University of Naples Federico II, Italy*
Carlo Ricciardi, University of Naples Federico II, Italy

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Torbjörg Ída Ívarsdóttir, Reykjavik University, Iceland
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Itziar Mengual i Escalona, Reykjavik University, Iceland
Andrea Colacino, University of Salerno, Italy
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Claudia Critelli, Università degli Studi Magna Græcia di Catanzaro, Italy
Alessio Merola, Università degli Studi Magna Græcia di Catanzaro, Italy
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Mario Sansone, University of Naples Federico II, Italy
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Arnar E. Gunnarsson, Reykjavik University, Iceland
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Gianluca Ricciardelli, Azienda Ospedaliera Universitaria OO. RR. San Giovanni di Dio e Ruggi, Italy
Filomena Abate, University of Salerno, Italy
Maria Francesca Tepedino, University of Salerno, Italy
Maria Consiglia Calabrese, Azienda Ospedaliera Universitaria OO. RR. San Giovanni di Dio e Ruggi, Italy
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346 Machine Learning and Biosignals are Able to Discriminate Biomechanical Risk Classes According to the Revised NIOSH Lifting Equation

Leandro Donisi, University of Naples Federico II, Italy
Giuseppe Cesarelli, University of Naples Federico II, Italy
Edda Capodaglio, IRCCS Maugeri, Italy
Monica Panigazzi, IRCCS Maugeri, Italy
Mario Cesarelli, University of Naples Federico II, Italy
Giovanni D'Addio, IRCCS Maugeri, Italy

Session 5.3 - SPECIAL EVENT - Psychobit - PART 2

Room: Laguna Hall

Chairs: Onofrio Gigliotta, *University of Naples Federico II, Italy*
Davide Marocco, *University of Naples Federico II, Italy*

352 The Role of Empathic Traits in the Interaction With Virtual Humans

Mariachiara Rapuano, University of Campania Luigi Vanvitelli, Italy
Tina Iachini, University of Campania Luigi Vanvitelli, Italy
Francesco Ruotolo, University of Campania Luigi Vanvitelli, Italy
Alessandro Troise, University of Campania Luigi Vanvitelli, Italy
Md Sheeraz Anwar, University of Campania Luigi Vanvitelli, Italy
Gennaro Ruggiero, University of Campania Luigi Vanvitelli, Italy

357 We Implicitly Empathize With Virtual Agents: The Effect of Motor Simulation

Scila Nunziata, University of Campania Luigi Vanvitelli, Italy
Renato Orti, University of Campania Luigi Vanvitelli, Italy
Antonella Ferrara, University of Campania Luigi Vanvitelli, Italy
Francesco Ruotolo, University of Campania Luigi Vanvitelli, Italy
Gennaro Ruggiero, University of Campania Luigi Vanvitelli, Italy
Tina Iachini, University of Campania Luigi Vanvitelli, Italy

362 The Role of Conscientiousness and Toxic Behaviors on Skills Development in Professional E-Sports

Mariacristina Marzano, University of Bologna, Italy
Elvis Mazzoni, University of Bologna, Italy
Martina Benvenuti, University of Bologna, Italy

367 Analysing E-BTT Data: The E-TAN ANALYST Prototype

Antonietta Argiuolo, University of Naples Federico II, Italy
Michela Ponticorvo, University of Naples Federico II, Italy

372 Automated Categorization of Behavioral Quality Through Deep Neural Networks

Paolo Pagliuca, Institute of Cognitive Sciences and Technologies - CNR, Italy
Nicola Milano, Institute of Cognitive Sciences and Technologies - CNR, Italy
Stefano Nolfi, Institute of Cognitive Sciences and Technologies - CNR, Italy

377 From Principal Component Analysis to Autoencoders: A Comparison on Simulated Data From Psychometric Models

Monica Casella, University of Naples Federico II, Italy
Pasquale Dolce, University of Naples Federico II, Italy
Michela Ponticorvo, University of Naples Federico II, Italy
Davide Marocco, University of Naples Federico II, Italy

POSTER SESSION 2

Room: National Research Council Headquarters

Chairs: Oscar Tamburis, *National Research Council of Italy*
Egidio De Benedetto, *University of Naples Federico II, Italy*

382 Prediction of Scalp EEG Waveforms From Forehead Electrodes Using Convolutional Neural Networks to Improve Signal-To-Noise Ratio

Kazuki Yamawaki, National Institute of Information and Communications Technology, Japan
Hiroki Watanabe, National Institute of Information and Communications Technology, Japan
Yasushi Naruse, National Institute of Information and Communications Technology, Japan

- 388 **Effect of Auditory Stimuli on Electroencephalography-Based Authentication**
Nibras Abo Alzahab, Università Politecnica delle Marche, Italy
Angelo Di Iorio, Università Politecnica delle Marche, Italy
Lorenzo Scalise, Università Politecnica delle Marche, Italy
Marco Baldi, Università Politecnica delle Marche, Italy
- 393 **BISON: BCI-Based Interaction Concepts for Operating Microscopes in Neurosurgery**
Maurice Rekrut, German Research Center for Artificial Intelligence (DFKI), Germany
Matthias Nadig, German Research Center for Artificial Intelligence (DFKI), Germany
Tobias Jungbluth, German Research Center for Artificial Intelligence (DFKI), Germany
Johannes Ihl, German Research Center for Artificial Intelligence (DFKI), Germany
- 399 **Adapting EEG Based MI-BMI Depending on Alertness Level for Controlling a Lower-Limb Exoskeleton**
Laura Ferrero, Miguel Hernández University of Elche, Spain
Vicente Quiles, Miguel Hernández University of Elche, Spain
Mario Ortiz, Miguel Hernández University of Elche, Spain
Eduardo Iáñez, Miguel Hernández University of Elche, Spain
José M. Azorín, Miguel Hernández University of Elche, Spain
- 404 **Digital Content Interaction in 3D Environments**
Franca Giannini, CNR-IMATI, Italy
Katia Lupinetti, CNR-IMATI, Italy
Marina Monti, CNR-IMATI, Italy
Mario Alvise Di Bernardo, RagTag, Italy
Sara Anastasi, INAIL, Italy
Giuseppe Augugliaro, INAIL, Italy
Luigi Monica, INAIL, Italy
- 410 **Fully Automated Approaches for Localization of Intraoperative Electrographic Electrodes**
Kaiyang (Victor) Cheng, University of California, USA
Han Jie (Shawn) Liu, University of California, USA
Brianna Sun, University of California, USA
Selina Wu, University of California, USA
William Speier, University of California, USA
- 416 **Human-In-The-Loop Approach for Enhanced Mobile Robot Navigation**
Karameldeen Ibrahim Mohamed Omer, 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
Camillo Porcaro, Università Politecnica delle Marche, Italy
- 422 **Deep Learning Based Detachment Segmentation: The MIRET Approach**
Federico Foria, ETS, Italy
Mario Calicchio, ETS, Italy
Gabriele Miceli, ETS, Italy
Aniello Xie, RMT, Italy
Davide Cuccato, RMT, Italy
Alessandro Allegro, RMT, Italy
- 427 **Direction Decoding of Physical and Visual Perturbations From EEG**
Shayan Jalilpour, Graz University of Technology, Austria
Gernot Müller-Putz, Graz University of Technology, Austria
- 432 **Threat Assessment in Police VR Training: Multi-Sensory Cues for Situation Awareness**
Jakob C Uhl, AIT Austrian Institute of Technology GmbH, PLUS University of Salzburg, Austria
Markus Murtinger, USECON GmbH, AIT Austrian Institute of Technology GmbH, Austria
Olivia Zechner, AIT Austrian Institute of Technology GmbH, PLUS University of Salzburg, Austria
Manfred Tscheligi, AIT Austrian Institute of Technology GmbH, PLUS University of Salzburg, Austria

Session 6.1 - Immersive Teleoperation and Medical AI

Room: Conference Hall

Chairs: Salvatore Livatino, *University of Hertfordshire, United Kingdom*
Saber Sami, *University of East Anglia, United Kingdom*

438 A Cross-Language Dementia Classifier: A Preliminary Study

Flavio Bertini, University of Parma, Italy
Davide Allevi, University of Bologna, Italy
Gianluca Lutero, University of Bologna, Italy
Laura Calza, University of Bologna, Italy
Danilo Montesi, University of Bologna, Italy

444 The Use of Clustering to Understand Disease Progression in Rheumatoid Arthritis

Beatriz de la Iglesia, University of East Anglia, United Kingdom
Kathapet Nawongs, University of East Anglia, United Kingdom
Jack Dainty, University of East Anglia, United Kingdom
Alexander Macgregor, University of East Anglia, United Kingdom

449 The Immersion Advantage in Command & Control: From Desktop Monitors to VR Headsets

Alessandro Zocco, Elettronics Group (ELT), Italy
Salvatore Livatino, University of Hertfordshire, United Kingdom
Phillip Gainley, University of Hertfordshire, United Kingdom
Yasir Iqbal, University of Hertfordshire, United Kingdom
Giuseppe Morana, University of Hertfordshire, United Kingdom

454 Immersive Visualization in Pilot Training: From Cockpit Panels to Drone Navigation

Salvatore Livatino, University of Hertfordshire, United Kingdom
Giuseppe Morana, University of Hertfordshire, United Kingdom
Yasir Iqbal, University of Hertfordshire, United Kingdom
Maya Mohamed, University of Hertfordshire, United Kingdom
Sungwoo David Hwang, University of Hertfordshire, United Kingdom
Phillip Gainley, University of Hertfordshire, United Kingdom
Hai Thanh Nguyen, HoChiMinh City University of Technical Education, Vietnam
Kate Williams, University of Hertfordshire, United Kingdom
Alessandro Zocco, Elettronics Group (ELT), Italy

Session 6.2 - Biosignal-based Measurements of Mental States

Room: Marconi Hall

Chairs: Antonino Raffone, *Sapienza University of Rome, Italy*
Giovanni D'Errico, *Politecnico di Torino, Italy*

459 Nat(UR)e: Quantifying the Relaxation Potential of Ultra-Reality Multisensory Nature Walk Experiences

Marilia Karla Soares Lopes, INRS-EMT, University of Québec, Canada
Belmir J. de Jesus, Jr., INRS-EMT, University of Québec, Canada
Marc-Antoine Moinnereau, INRS-EMT, University of Québec, Canada
Reza Amini Gougeh, INRS-EMT, University of Québec, Canada
Olivier Rosanne, INRS-EMT, University of Québec, Canada
Walter Schubert, INRS-EMT, University of Québec, Canada, Federal University of Health Sciences of Porto Alegre, Brazil
Alcyr Alves de Oliveira, INRS-EMT, University of Québec, Canada, Federal University of Health Sciences of Porto Alegre, Brazil
Tiago Falk, INRS-EMT, University of Québec, Canada

- 465 **Mindfulness-Based Emotional Acceptance in Combination with Neurofeedback for Improving Emotion Self-Regulation: A Pilot Study**
Pasquale Arpaia, University of Naples Federico II, Italy
Lucia Calabrese, Sapienza University of Rome, Italy
Salvatore G. Chiarella, Sapienza University of Rome, Italy
Giovanni D'Errico, Politecnico di Torino, Italy
Lucio Tommaso De Paolis, University of Salento, Italy
Sabrina Grassini, Politecnico di Torino, Italy
Giovanna Mastrati, University of Naples Federico II, Italy
Nicola Moccaldi, University of Naples Federico II, Italy
Antonino Raffone, Sapienza University of Rome, Italy
Ersilia Vallefuoco, University of Naples Federico II, Italy
- 471 **Pupil Dilation and Self-Reported Emotional Response to IAPS Pictures: The Role of Emotional Regulation and Trait Mindfulness**
Luca Simione, CNR, Italy
Alisha Vabba, Sapienza, University of Rome, Italy
Antonino Raffone, Sapienza, University of Rome, Italy
Marco Mirolli, CNR, Italy
- 477 **Attention, Boredom and Mind-Wandering During a Vigilance Task: EEG and Ocular Markers**
Antonino Esposito, LUMSA University of Rome, Italy
Eleonora Braccili, Fondazione Neurone Onlus, Italy
Federica Sgrò, Fondazione Neurone Onlus, Italy
Eleonora Chiarantano, Sapienza University of Rome, Italy
Mariagrazia D'Ippolito, IRCCS Fondazione Santa Lucia, Italy
Iolanda Pisotta, IRCCS Fondazione Santa Lucia, Italy
Alessandra Bigioni, IRCCS Fondazione Santa Lucia, Italy
Antonio Guerrieri, Fondazione Neurone Onlus, Italy
Donatella Mattia, IRCCS Fondazione Santa Lucia, Italy
Febo Cincotti, Sapienza University of Rome, Italy
- 483 **Wellbeing Assessment of a Museum Experience in Virtual Reality Through UCL Measurement Tool Kit and Heart Rate Measurement: A Pilot Study**
Carola Gatto, University of Salento, Italy
Lucia Calabrese, Sapienza University of Rome, Italy
Salvatore G. Chiarella, Sapienza University of Rome, Italy
Valerio De Luca, University of Salento, Italy
Giovanni D'Errico, Politecnico di Torino, Italy
Benito Luigi Nuzzo, University of Salento, Italy
Antonino Raffone, Sapienza University of Rome, Italy
Lucio Tommaso De Paolis, University of Salento, Italy

Session 6.4 - Metrological methods and results on eXtended Reality, Artificial Intelligence and Neural Engineering in Healthcare

Room: Video-Conference Hall

Chairs: Vincenzo Ferrari, *University of Pisa, Italy*

Elvis C. S. Chen, *Western University, Robarts Research Institute, Canada*

- 489 **Ambient Assisted Living Using Non-Intrusive Smart Sensing and IoT for Gait Rehabilitation**

Joel Santos, ISCTE - Instituto Universitário de Lisboa, Portugal

Octavian Adrian Postolache, Instituto de Telecomunicações, Instituto Universitario de Lisboa, Portugal

Diana Mendes, Instituto Universitário de Lisboa, Italy

- 495 **Unified Calibration Technique for Augmented-Reality Ultrasound-Guided Interventions**

Elvis C. S. Chen, Western University, Canada

Daniel Allen, Western University, Canada

Joeana Cambranis-Romero, Western University, Canada

Terry Peters, Western University, Canada

- 501 **The Right Mix of Visual and Mechanical Constraints to Guide the Relative Pose Between Rigid Objects**
Vincenzo Ferrari, University of Pisa, Italy
Marina Carbone, University of Pisa, Italy
Giulia Sciarrino, University of Pisa, Italy
Fabrizio Cutolo, University of Pisa, Italy
- 506 **How to Mitigate Perceptual Limits of OST Display for Guiding Manual Tasks: A Proof of Concept Study With Microsoft HoloLens**
Sara Condino, University of Pisa, Italy
Fabrizio Cutolo, University of Pisa, Italy
Giulia Zari, University of Pisa, Italy
Renzo D'Amato, University of Pisa, Italy
Marina Carbone, University of Pisa, Italy
Vincenzo Ferrari, University of Pisa, Italy
-

Friday, October 28

Session 7.1 - AI-enabled solutions for e-health and value-cocreation

Room: Conference Hall

Chairs: *Cristina Mele, University of Naples Federico II, Italy*

Tiziana Russo Spena, University of Naples Federico II, Italy

- 511 **The Adoption of Artificial Intelligence Technologies in the Era of "Grey Tsunami": Prospects and Challenges**
Valentina Della Corte, University of Naples Federico II, Italy
Giovanna Del Gaudio, University of Naples Federico II, Italy
Fabiana Sepe, University of Naples Federico II, Italy
Simone Luongo, University of Naples Federico II, Italy
Anna Crisci, University of Naples Federico II, Italy
- 517 **Minimal Robot to Foster Well-Being: The HIRO Project**
Irene Di Bernardo, University of Naples Federico II, Italy
Marialuise Marzullo, University of Naples Federico II, Italy
Cristina Mele, University of Naples Federico II, Italy
Tiziana Russo Spena, University of Naples Federico II, Italy
Stefano Paolo Russo, University of Naples Federico II, Italy
- 522 **Blockchain Technology and Artificial Intelligence for Value Co-Creation in Healthcare**
Ylenia Cavacece, University of Naples Federico II, Italy
Sara Ebraico, University of Naples Federico II, Italy
Tiziana Russo Spena, University of Naples Federico II, Italy
Cristina Mele, University of Naples Federico II, Italy
Daniele Leone, University of Naples Parthenope, Italy
Francesco Schiavone, University of Naples Parthenope, Italy
Anna Bastone, University of Naples Parthenope, Italy
- 528 **Complementary Role of Conversational Agents in e-Health Services**
Angelo Ranieri, University of Naples Federico II, Italy
Andrea Ruggiero, University of Naples Federico II, Italy
- 534 **Healthy Food Delivery: Evidences From Italy**
Fabio Greco, University of Naples Parthenope, Italy
Francesco Carignani, University of Naples Parthenope, Italy
Marco Tregua, University of Naples Parthenope, Italy
Francesco Bifulco, University of Naples Parthenope, Italy

- 539 **Constitutive Pathway of an Innovative Health-Tech Ecosystem: The Healthware Group Case Study**
Federica Izzo, University "Suor Orsola Benincasa", Italy
Domenico Salvatore, University "Suor Orsola Benincasa", Italy
Alessandra Storlazzi, University "Suor Orsola Benincasa", Italy
-

Session 7.2 - Legal aspects on Science & Society in Brain Computer Interface

Room: Marconi Hall

Chairs: Maria Cristina Gaeta, *Università degli Studi Suor Orsola Benincasa di Napoli, Italy*
Roberta Presta, *Università degli Studi Suor Orsola Benincasa di Napoli, Italy*

- 545 **Would I Consent If It Monitors Me Better? A Technology Acceptance Comparison of BCI-Based and Unobtrusive Driver Monitoring Systems**
Roberta Presta, University Suor Orsola Benincasa, Italy
Flavia De Simone, University Suor Orsola Benincasa, Italy
Laura Mancuso, University Suor Orsola Benincasa, Italy
Silvia Chiesa, RE:Lab, Italy
Roberto Montanari, University Suor Orsola Benincasa, Italy
- 551 **BCI Devices and Their Legal Compliance: A Prototype Tool for Its Evaluation and Measurement**
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
Anna Anita Mollo, Università Degli Studi Suor Orsola Benincasa, Italy
- 557 **BCI Devices and Their Capacity to Express Human Will Having Legal Value: A Model of Risk-Based Classification**
Lucilla Gatt, University Suor Orsola Benincasa, Italy
Ilaria Amelia Caggiano, University Suor Orsola Benincasa, Italy
Emiliano Troisi, University Suor Orsola Benincasa, Italy
Livia Aulino, University Suor Orsola Benincasa, Italy
Davide D'Aloia, University Suor Orsola Benincasa, Italy
Luigi Izzo, University Suor Orsola Benincasa, Italy
- 563 **Technology to Unlock the Mind: Citizen Science and Sandbox Approach for a New Model of BCI Governance**
Fiorella Battaglia, Ludwig-Maximilians-Universität München, Germany
Giuseppe Di Vetta, Sant'Anna School of Advanced Studies, Italy
-

Session 8.1 - Sensors, Extended Reality and Artificial Intelligence for Human Behavior Analysis

Room: Conference Hall

Chairs: Andrea Zingoni, *University of Tuscia, Italy*
Juri Taborri, *University of Tuscia, Italy*

- 568 **Analysing the Needs of Homeless People Using Feature Selection and Mining Association Rules**
José M Alcalde-Llargo, University of Córdoba, Spain
Carlos Garcia-Martinez, University of Córdoba, Spain
Pilar Aparicio-Martínez, University of Córdoba, Spain
Enrique Yeguas-Bolívar, University of Córdoba, Spain
Manuel Vaquero-Abellán, University of Córdoba, Spain
- 574 **Machine Learning Prediction of the Expected Performance of Football Player During Training**
Gianluca Morciano, Università Campus Bio-Medico di Roma, Italy
Andrea Zingoni, University of Tuscia, Italy
Andrea Morachioli, Consorzio Netlog SRL, Italy
Giuseppe Calabrò, University of Tuscia, Italy
- 579 **Recognition of Recurrent Movement Patterns of Football Players via Machine Learning**
Daniele Melloni, University of Tuscia, Italy
Andrea Zingoni, University of Tuscia, Italy
Andrea Morachioli, Consorzio Netlog SRL, Italy
Giuseppe Calabrò, University of Tuscia, Italy

585 Determining the Difficulties of Students With Dyslexia via Virtual Reality and Artificial Intelligence: An Exploratory Analysis

Enrique Yeguas-Bolívar, University of Córdoba, Spain
José M Alcalde-Llargo, University of Córdoba, Spain
Pilar Aparicio-Martínez, University of Córdoba, Spain
Juri Taborri, University of Tuscia, Italy
Andrea Zingoni, University of Tuscia, Italy
Sara Pinzi, University of Córdoba, Spain

591 Exploring the Dynamics of Emotions in the Space of Colours Through the Viable Systems Approach (vSa) Perspective

Sergio Barile, Sapienza University of Rome, Italy
Clara Bassano, University of Salerno, Italy
Pietro Vito, Sapienza University of Rome, Italy
Aysel Alizada, Sapienza University of Rome, Italy
Roberto Cavaliere, University of Salerno, Italy
Paolo Barile, University of Salerno, Italy

Session 8.2 - Soft Sensors for Industry 4.0

Room: Marconi Hall

Chairs: *Salvatore Graziani, University of Catania, Italy*
Maria Gabriella Xibilia, University of Messina, Italy

597 Estimating Finite-Time Delay in Dynamical Soft Sensors: An Industrial Case of Study

Salvatore Graziani, University of Catania, Italy
Luca Patanè, University of Messina, Italy
Maria Gabriella Xibilia, University of Messina, Italy

602 Application of Data Distribution Metrics for Soft Sensors in Industrial Scenarios

Francesco Curreri, University of Palermo, Italy
Luca Patanè, University of Messina, Italy
Maria Gabriella Xibilia, University of Messina, Italy

608 A Combined Approach Using Lorentzian Fitting and ANNs for Microwave Resonator Modeling

Zlatica Marinković, University of Nis, Serbia
Giovanni Gugliandolo, University of Messina, Italy
Giuseppe Campobello, University of Messina, Italy
Giovanni Crupi, University of Messina, Italy
Nicola Donato, University of Messina, Italy

613 Batch Endpoint Prediction Using Local Mixture of Batch Time Experts

Francisco Souza, Radboud University, The Netherlands
Tim Offermans, Radboud University, The Netherlands
Jeroen Jansen, Radboud University, The Netherlands

618 Artificial Neural Networks for the Forecasting of Wave Climate in Proximity of Harbour Area

Elisa Castro, University of Catania, Italy
Giovanni Santonocito, University of Catania, Italy
Antonino Andrea Moschetto, University of Catania, Italy
Claudio Iuppa, University of Messina, Italy
Rosaria Musumeci, University of Catania, Italy
Luca Cavallaro, University of Catania, Italy
Enrico Foti, University of Catania, Italy

POSTER SESSION 3

Room: National Research Council Headquarters

Chairs: *Oscar Tamburis, National Research Council of Italy*
Egidio De Benedetto, University of Naples Federico II, Italy

624 Predictive Maintenance of Industrial Equipment Using Deep Learning: From Sensory Data to Remaining Useful Life Estimation

David C. Nchekwube, 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
Sauro Longhi, Università Politecnica delle Marche, Italy
Andrea Monteriù, Università Politecnica delle Marche, Italy

630 Evaluation of the Effectiveness of a Wearable, AR-Based BCI for Robot Control in ADHD Treatment

Pasquale Arpaia, University of Naples Federico II, Italy
Sabatina Criscuolo, University of Naples Federico II, Italy
Egidio De Benedetto, University of Naples Federico II, Italy
Nicola Donato, University of Messina, Italy
Luigi Duraccio, Politecnico di Torino, Italy

635 A New Dataset of Satellite Images for Deep Learning-Based Coastline Measurement

Marco Scarpetta, Polytechnic University of Bari, Italy
Maurizio Spadavecchia, Polytechnic University of Bari, Italy
Vito Ivano D'Alessandro, Polytechnic University of Bari, Italy
Luisa De Palma, Polytechnic University of Bari, Italy
Nicola Giaquinto, Polytechnic University of Bari, Italy

641 Semi-Automated Image Segmentation of Peri-Prostatic Tissue on MRI and Radiomics Features Stability: A Feasibility Study for Locally Advanced Prostate Cancer Detection

Arnaldo Stanzione, University of Naples Federico II, Italy
Renato Cuocolo, University of Salerno, Italy
Gianluigi Califano, University of Naples Federico II, Italy
Andrea Ponsiglione, University of Naples Federico II, Italy
Claudia Colla Ruvolo, University of Naples Federico II, Italy
Gaia Spadarella, University of Naples Federico II, Italy
Marco De Giorgi, University of Naples Federico II, Italy
Francesca Nessuno, University of Naples Federico II, Italy
Nicola Longo, University of Naples Federico II, Italy
Massimo Imbriaco, University of Naples Federico II, Italy

646 To the Green From the Bl(u)e: An Innovative System for Monitoring Urban Green Areas

Adriano Tramontano, National Research Council of Italy, Italy
Oscar Tamburis, National Research Council of Italy, Italy
Mario Magliulo, National Research Council of Italy, Italy

651 Artificial Neural Network for the Identification of Postural Instability in Subject Wearing Lower Limb Exoskeleton

Ilaria Mileti, University Niccolò Cusano, Italy
Juri Taborri, University of Tuscia, Italy
Diego Torricelli, Spanish National Research Council, Spain
Stefano Rossi, University of Tuscia, Italy
Fabrizio Patanè, Niccolò Cusano University, Italy

Session 9.1 - Intrinsic Uncertainty in EEG-based Passive Brain Computer Interface (BCI)

Room: Conference Hall

Chairs: Antonio Esposito, *University of Naples Federico II, Italy*
Nicola Moccaldi, *University of Naples Federico II, Italy*

656 EEG-Based System for Executive Function Fatigue Detection

Andrea Apicella, University of Naples Federico II, Italy
Pasquale Arpaia, University of Naples Federico II, Italy
Paolo De Blasiis, University of Campania Vanvitelli, Italy
Anna Della Calce, University of Naples Federico II, Italy
Allegra Fullin, University of Campania Vanvitelli, Italy
Ludovica Gargiulo, University of Naples Federico II, Italy
Luigi Maffei, University of Campania Vanvitelli, Italy
Francesca Mancino, University of Naples Federico II, Italy
Nicola Moccaldi, University of Salento, Italy
Andrea Pollastro, University of Naples Federico II, Italy
Ersilia Vallefucio, University of Naples Federico II, Italy

661 Reproducible Assessment of Valence and Arousal Based on an EEG Wearable Device

Andrea Apicella, University of Naples Federico II, Italy
Pasquale Arpaia, University of Naples Federico II, Italy
Andrea Cataldo, University of Salento, Italy
Giovanni D'Errico, Politecnico di Torino, Italy
Davide Marocco, University of Naples Federico II, Italy
Giovanna Mastrati, University of Naples Federico II, Italy
Nicola Moccaldi, University of Salento, Italy
Andrea Pollastro, University of Naples Federico II, Italy
Bernadette Ricciardi, University of Naples Federico II, Italy
Ersilia Vallefucio, University of Naples Federico II, Italy

667 Multi-Electrode Array (MEASs) to Investigate Pathogenetic Disease Mechanisms and Pharmacological Properties in iPSC-Derived Neurons Modelling Neuropsychiatric Diseases

Giusy Carleo, University of Federico II, Naples, Italy
Yi-Shin Lee, University of Federico II, Naples, Italy
Agnese Secondo, University of Federico II, Naples, Italy
Francesco Miceli, University of Federico II, Naples, Italy
Maurizio Tagliatela, University of Federico II, Naples, Italy

673 An Open Source Multi-Modal Data-Acquisition Platform for Experimental Investigation of Blended Control of Scale Vehicles

Peter Redmond, Dublin City University, Ireland
Andrew Fleury, Dublin City University, Ireland
Tomas Ward, Dublin City University, Ireland

679 Signal Quality Assessment of a Wearable Electroencephalography (EEG) Device Built on a Flexible Printed Circuit: FlexEEG

Naomi du Bois, Ulster University, United Kingdom
Ryan Beveridge, Ulster University, United Kingdom
Niall McShane, Ulster University, United Kingdom
Tony Moore, Mortronics Ltd., Ireland
Damien Coyle, Ulster University, United Kingdom

Session 9.2 - Effective brain-computer interfaces based on active paradigms and extended reality

Room: Marconi Hall

Chairs: Emma Colamarino, Sapienza University of Rome, Fondazione Santa Lucia IRCCS, Italy
Niall McShane, Ulster University, United Kingdom

685 Exploring Strategies for Multimodal BCIs in an Enriched Environment

Tristan Venot, Sorbonne Université, France
Arthur Desbois, Sorbonne Université, France
Marie-Constance Corsi, Sorbonne Université, France
Laurent Hugueville, Sorbonne Université, France
Ludovic Saint-Bauzel, Sorbonne Université, France
Fabrizio De Vico Fallani, Sorbonne Université, France

- 691 **Multimodal Feedback in Assisting a Wearable Brain-Computer Interface Based on Motor Imagery**
Pasquale Arpaia, University of Naples Federico II, Italy
Damien Coyle, University of Ulster, United Kingdom
Francesco Donnarumma, National Research Council, Italy
Antonio Esposito, University of Naples Federico II, Italy
Angela Natalizio, Politecnico di Torino, Italy
Marco Parvis, Politecnico di Torino, Italy
Marisa Pesola, University of Naples Federico II, Italy
Ersilia Vallefuoco, University of Naples Federico II, Italy
- 697 **Online 3D Motion Decoder BCI for Embodied Virtual Reality Upper Limb Control: A Pilot Study**
Niall McShane, University of Ulster, United Kingdom
Karl McCreddie, University of Ulster, United Kingdom
Darryl Charles, University of Ulster, United Kingdom
Attila Korik, University of Ulster, United Kingdom
Damien Coyle, University of Ulster, United Kingdom
- 703 **Classifying Words in Natural Reading Tasks Based on EEG Activity to Improve Silent Speech BCI Training in a Transfer Approach**
Maurice Rekrut, German Research Center for Artificial Intelligence, Germany
Andreas Fey, Saarland University, Germany
Matthias Nadig, German Research Center for Artificial Intelligence, Germany
Johannes Ihl, German Research Center for Artificial Intelligence, Germany
Tobias Jungbluth, German Research Center for Artificial Intelligence, Germany
Antonio Krüger, German Research Center for Artificial Intelligence, Germany
- 709 **Low Frequency Brain Oscillations for Brain-Computer Interface Applications: From the Sources to the Scalp Domain**
Elena Mongiardini, University of Rome Sapienza, IRCCS Fondazione Santa Lucia, Italy
Emma Colamarino, University of Rome Sapienza, IRCCS Fondazione Santa Lucia, Italy
Jlenia Toppi, University of Rome Sapienza, IRCCS Fondazione Santa Lucia, Italy
Valeria de Seta, University of Rome Sapienza, IRCCS Fondazione Santa Lucia, Italy
Floriana Pichiorri, IRCCS Fondazione Santa Lucia, Italy
Donatella Mattia, IRCCS Fondazione Santa Lucia, Italy
Febo Cincotti, University of Rome Sapienza, IRCCS Fondazione Santa Lucia, Italy

Session 9.4 - From Artificial Intelligence to Extended Reality for Emergency and Disaster Management

Room: Video-Conference Hall

Chairs: *Silvia Liberata Ullo, University of Sannio, Italy*
Fabio Leccese, Roma Tre University, Italy

- 714 **Early Detection of Volcanic Eruption Through Artificial Intelligence on Board**
Pietro Di Stasio, University of Sannio, Italy
Alessandro Sebastianelli, University of Sannio, Italy
Gabriele Meoni, European Space Agency, Italy
Silvia Liberata Ullo, University of Sannio, Italy
- 719 **A Demo Setup Testing Onboard CNNs for Volcanic Eruption Detection**
Maria Pia Del Rosso, University of Sannio, Italy
Alessandro Sebastianelli, University of Sannio, Italy
Dario Spiller, Sapienza University of Rome, Italy
Silvia Liberata Ullo, University of Sannio, Italy
- 725 **Wildfire Segmentation Analysis From Edge Computing for On-Board Real-Time Alerts Using Hyperspectral Imagery**
Dario Spiller, Sapienza University of Rome, Italy
Kathiravan Thangavel, RMIT University, Australia
Sarathchandrakumar Thottuchirayil Sasidharan, Sapienza University of Rome, Italy
Stefania Amici, National Institute of Geophysics and Volcanology, Italy
Luigi Ansalone, ASI - Italian Space Agency, Italy
Roberto Sabatini, Khalifa University of Science and Technology, United Arab Emirates

731 **Hardware-In-The-Loop Simulations of Remote Sensing Disaster Monitoring Systems With Real-Time On-Board Computation**

Dario Spiller, Sapienza University of Rome, Italy

Andrea Carbone, Sapienza University of Rome, Italy

Francesco Latorre, Sapienza University of Rome, Italy

Fabio Curti, Sapienza University of Rome, Italy

737 **EO Space and Multi-Source Data Visualization Using Virtual Reality in the ESA Phi-Lab**

Paulo Sacramento, Solenix for ESA, Italy

Anatole Deligant, Palacký University Olomouc, Czech Republic

Sveinung Loekken, European Space Agency, Italy

Pierre-Philippe Mathieu, European Space Agency, Italy