IEEE STAR Lecco2024

IEEE

POLITECNICO MILANO 1863

POLO TERRITORIALE DI LECCO

2024 IEEE INTERNATIONAL WORKSHOP ON

Sport Technology and Research

LECCO, ITALY / JULY 8-10, 2024

[FINAL PROGRAM]

ATHENA
BUSINESS AND TECHNOLOGY CONSULTING

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IEEE STAR 2024 Venue

IEEE **STAR 2024** will be held at the **Politecnico di Milano - Polo Territoriale di Lecco - Building 9 - Via Gaetano Previati, 1/C - Lecco**.

Polo di Lecco have a brand new university campus: 47.000 m² dedicated to instruction, research and student services.

This means modern classrooms where innovative teaching can take place, “state-of-the-arts” labs, and on-campus living space for 204 international and non-resident of Lecco students.

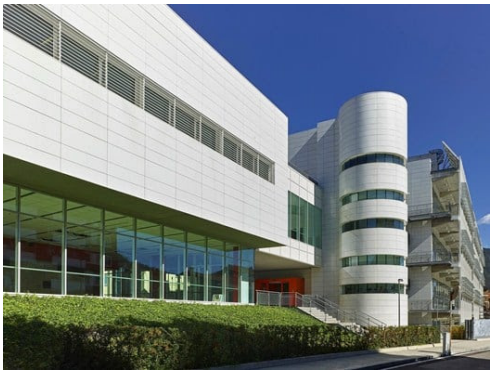
ADDRESS
Via Gaetano Previati, 1/C
Lecco

Use the QRCode to open the location on *Google Maps.*

IEEE STAR 2024 Social Events

WELCOME PARTY
Monday July 8 - H 18:00

The Welcome Party will be held on **Monday, July 8 - 18.00** - at "Bistrot PolEATecnico" - Politecnico di Milano, Polo Territoriale di Lecco.



ADDRESS
Via Gaetano Previati, 1
Lecco, Italy

SOCIAL DINNER
Tuesday July 9 - H 19:30

The Gala Dinner will be held on **Tuesday, July 9 - 19.30** - at **"Frigerio" Restaurant.**

ADDRESS
Piazza XX Settembre, 54
Lecco, Italy

IEEE STAR 2024 Patronages

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Technical Program - Monday, July 8

08:00 - 17:00	*Politecnico di Milano - Polo Territoriale di Lecco - Building 9* **REGISTRATIONS**

09:15 - 09:30	*Building 9 - Room B04* **OPENING CEREMONY**

09:30 - 10:00	*Building 9 - Room B04* **KEYNOTE SPEAKER**

Silvano Zanuso, *Technogym*
Innovating in the sport and fitness industry: the case of Technogym

10:00 - 10:30	**COFFEE BREAK**

10:30 - 12:30	*Building 9 - Room B04* **Session 1 - Sport Performances - Part I**

10:30 **A Novel Low-Cost Timing System for Alpine Ski Races Based on Low Power Microcontrollers and Peer-To-Peer Wireless Data Transfer**
Davide Mazzocca, University of Naples Federico II, Italy
Alessandro Borghese, University of Naples Federico II, Italy
Vincenzo Romano Marrazzo, University of Naples Federico II, Italy
Luca Maresca, University of Naples Federico II, Italy
Michele Riccio, University of Naples Federico II, Italy
Giovanni Breglio, University of Naples Federico II, Italy
Andrea Irace, University of Naples Federico II, Italy

10:50 **Technologies for Non-Invasive and Continuous Blood Glucose Monitoring in Sports: A Patent Landscape Analysis**
Pietro Massone, Politecnico di Milano, Italy
Massimo Barbieri, Politecnico di Milano, Italy
Alessandra Angelucci, Politecnico di Milano, Italy
Andrea Aliverti, Politecnico di Milano, Italy

11:10 **Diaphragmatic, Thoracic and Abdominal Breathing for Sport: The Effect on Vagal Activity, a Case Report**
Angelica Carandina, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Italy
Eleonora Tobaldini, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Italy
Riccardo Asnaghi, University of Milan, Politecnico di Milano, Italy

Ilaria Righi, Foundation IRCCS Cà Granda Ospedale Maggiore Policlinico, Italy
Gabriel Dias, University of Milan, Italy
Nicola Montano, University of Milan, Italy
Andrea Aliverti, Politecnico di Milano, Italy
Antonella LoMauro, Politecnico di Milano, Italy

11:30 **Evaluation of Locomotor-Respiratory Coupling (LRC) Using the Motion Analysis System**
Antonella LoMauro, Politecnico di Milano, Italy
Christian Pozzi, Politecnico di Milano, Italy
Andrea Aliverti, Politecnico di Milano, Italy

11:50 **A Sensorized Insole to Estimate Ground Reaction Forces and Center of Pressure During Gait**
Virginia Civeriati, Politecnico di Milano, Italy
Benito L Pugliese, Politecnico di Torino, Italy
Carlo Carraro, Politecnico di Milano, Italy
Giulia Corniani, Harvard Medical School, USA
Federico Bauducco, Harvard Medical School, USA
Alessandra Angelucci, Politecnico di Milano, Italy
Andrea Aliverti, Politecnico di Milano, Italy
Paolo Bonato, Harvard Medical School, USA

12:10 **Blockchain Integration in FIFA Clearing House: Enhancing Security and Operational Efficiency**
Davide Calderone, University of Bologna, Italy
Giorgia Costa, University of Camerino, University of Turin, Italy

12:30 - 14:00 **LUNCH**
Bistrot PolEATecnico

14:00 - 16:00 *Building 9 - Room B04*
Session 2 - Sports, Disability and Rehabilitation

14:00 **Muscular Activity in a Paralympic Swimmer: A Case Study**
Filippo Motta, Politecnico di Milano, Italy
Lucia Donno, Politecnico di Milano, Italy
Flavia Marrone, Politecnico di Milano, Italy
Antonella LoMauro, Politecnico di Milano, Italy
Veronica Cimolin, Politecnico di Milano, IRCCS Istituto Auxologico Italiano, Italy
Manuela Galli, Politecnico di Milano, Italy

14:20 **Enhancing Inclusive Sport Participation for Students With Special Needs Through VR and Rowing Simulator**
Mario Covarrubias, Politecnico di Milano, Italy
Prabhjot Singh, Politecnico di Milano, Italy
Flavia Marrone, Politecnico di Milano, Italy
Filippo Bertozzi, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy
Manuela Galli, Politecnico di Milano, Italy

14:40 **A Motorized Trike for Prolonged Cycling Training Assisted by Functional Electrical Stimulation**
Davide Savona, Politecnico di Milano, Italy
Camilla Zanco, Politecnico di Milano, Italy
Nicole Sanna, Politecnico di Milano, Italy
Laura Brignole, Politecnico di Milano, Italy
Alessandra Pedrocchi, Politecnico di Milano, Italy
Emilia Ambrosini, Politecnico di Milano, Italy

15:00 **Toward the Implementation of High Intensity Interval Training During FES-Cycling: An Exploratory Study**
Nicole Sanna, Politecnico di Milano, Italy
Roberta Nossa, IRCCS Eugenio Medea, Italy
Emilia Biffi, IRCCS Eugenio Medea, Italy
Alessandra Pedrocchi, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy
Emilia Ambrosini, Politecnico di Milano, Italy

15:20 **Technical Assessment in Paralympic Water Polo: A Measurement Protocol to Support the Classification of Athletes With Disabilities**
Cristiana Frontuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Francesca Campoli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Lucio Caprioli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Saeid Edriss, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Antonella Galvan, FINP, Italy
Mario Giuliano, FINP, Italy
Cristian Romagnoli, San Raffaele Rome University, Italy
Giuseppe Annino, Tor Vergata University of Rome, Italy
Vincenzo Bonaiuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy

15:40 **Whole-Body Vibration Exposure During Snowboard With Lower Limb Amputations**
Delphine Chadefaux, Université Sorbonne Paris Nord, France
Jules Olivié, Université Sorbonne Paris Nord, France
Xavier Bonnet, Université Sorbonne Paris Nord, France

16:00 - 16:30 **COFFEE BREAK**

16:30 - 17:50 *Building 9 - Room B04*
Session 3 - Materials for Sports

16:30 **On a Nondestructive Viscoelastic Characterization of Sport Surfaces Through a Model-Based Approach**
Ciro Tordela, University of Naples Federico II, Italy
Andrea Genovese, University of Naples Federico II, Italy

16:50 **Biomechanical and Metabolic Effects of Using Spring Shoes During Locomotion**
Filippo Bertozzi, Politecnico di Milano, Italy

Christian Nino, ELMAS Sport Division, Italy
Giovanni Moschioni, Politecnico di Milano, Italy
Manuela Galli, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy

17:10 **Laboratory Evaluation of Water Bottle Cages Equivalent Stiffnesson Printed Membrane by Aerosol Jet for Ion Detection in Industrial Field**
Carlotta Massotti, Politecnico di Milano, Italy
Davide Galletta, Politecnico di Milano, Italy
Benjamin Lehner, SCOTT SPORTS SA, Italy
Federico Stella, SCOTT SPORTS SA, Italy
Marco Tarabini, Politecnico di Milano, Italy

17:30 **Materials for Sport and Rehabilitation: Mechanical Performance and Sustainability**
Riccardo Gerosa, Politecnico di Milano, Italy
Barbara Rivolta, Politecnico di Milano, Italy
Davide Panzeri, Politecnico di Milano, Italy
Mirko Tenca, Politecnico di Milano, Italy

18:00 - 19:00	**WELCOME PARTY** *Bistrot PolEATecnico*

Technical Program - Tuesday, July 9

08:30 - 16:00	*Politecnico di Milano - Polo Territoriale di Lecco - Building 9* **REGISTRATIONS**

09:00 - 09:30	*Building 9 - Room B04* **KEYNOTE SPEAKER**

Federico Smanio, *WeSportUp*
From idea to product. The road of startups in the field of sports technology

09:30 - 10:30	*Building 9 - Room B04* **Session 4.1 - General Track - Part I**

09:30 **Data Acquisition and Analysis of ILCA 6 Dinghies Sailing Upwind**
Paolo Belluco, LWT3 Srl, Italy
Marta Zattoni, LWT3 Srl, Italy

09:50 **Heart Rate Variability Metrics During Exercise: A Comparison Between Standard ECG and a Smart t-Shirt**
Marta Carrara, Politecnico di Milano, Italy
Stefania Coelli, Politecnico di Milano, Italy
Pierluigi Reali, Politecnico di Milano, Italy

10:10 **Distribution of Contact Forces of a Climber in Typical Rest Positions**
Eleonora Bonelli, Politecnico di Milano, Italy
Susanna Rampichini, University of Milan, Italy
Eloisa Limonta, University of Milan, Italy
Alessandro Colombo, Politecnico di Milano, Italy

09:30 - 10:30	*Building 9 - Room B01* **Session 4.2 - General Track - Part II**

09:30 **NECSTCamp: A Novel Approach to Education and Physical Well-Being**
Susanna Bardini, Politecnico di Milano, Italy
Laura Ginestretti, Politecnico di Milano, Italy
Jacopo Lazzari, Politecnico di Milano, Italy
Marco D Santambrogio, Politecnico di Milano, MIT, Italy

09:50 **Towards a Greater Awareness of the Relevance of Sleep and Physical Activity for Personal Well-Being**
Susanna Bardini, Politecnico di Milano, Italy
Jacopo Lazzari, Politecnico di Milano, Italy
Laura Ginestretti, Politecnico di Milano, Italy
Marco D Santambrogio, Politecnico di Milano, MIT, Italy

10:10 **Differences in Weight-Acceptance Phase During Landing in Block Jumps: A Pilot Study on Female Volleyball Players**
Emilia Scalona, University of Brescia, Italy
Martina Mosso, University of Brescia, Italy
Gianluca Rossetto, University of Brescia, Italy
Giuseppe Andreoni, Politecnico di Milano, Italy
Nicola Francesco Lopomo, Politecnico di Milano, Italy

10:30 - 11:00 **COFFEE BREAK**

11:00 - 13:00 *Building 9 - Room B04*
Session 5.1 - General Track - Part III

11:00 **Ski Pose Estimation**
Giulia Martinelli, University of Trento, Italy
Federico Diprima, University of Trento, Italy
Niccolò Bisagno, University of Trento, Italy
Nicola Conci, University of Trento, Italy

11:20 **Comparative Evaluation of GPS Data Smoothing Techniques for Error Minimization in Sport Performance Metrics**
Susanna Stillavato, University of Milan, Italy
Gabriele Santicchi, University of Milan, Italy
Davide Ballada, Soccerment Srl, Italy
Federico Frellicca, Soccerment Srl, Italy
Aldo Comi, Soccerment Srl, Italy
Fabio Esposito, University of Milan, Italy
Matteo Zago, University of Milan, Italy

11:40 **OSL-ActionSpotting: A Unified Library for Action Spotting in Sports Videos**
Yassine Benzakour, Montefiore Institute, University of Liège, Belgium
Bruno Cabado, Cinfo, University of A Coruna, Spain
Silvio Giancola, King Abdullah University of Science and Technology, Saudi Arabia
Anthony Cioppa, Montefiore Institute, University of Liège, Belgium
Bernard Ghanem, King Abdullah University of Science and Technology, Saudi Arabia
Marc Van Droogenbroeck, Montefiore Institute, University of Liège, Belgium

12:00 **Investigating Event-Based Cameras for Video Frame Interpolation in Sports**
Antoine Dekyvere, Montefiore Institute, University of Liège, Belgium
Anthony Cioppa, Montefiore Institute, University of Liège, Belgium
Silvio Giancola, King Abdullah University of Science and Technology, Saudi Arabia
Bernard Ghanem, King Abdullah University of Science and Technology, Saudi Arabia
Marc Van Droogenbroeck, Montefiore Institute, University of Liège, Belgium

12:20 **WTDTool: Women's Talent Detection Tool**
Juan López-De-Armentia, Tecnalia, Basque Research and Technology Alliance, Spain

12:40 **Assessment Method of Indoor Localization System for High-Performance Sports Analysis**
Laurie Conteville, EFREI Paris, France

Elizabeth Colin, EFREI Paris, France
Farshad Shamlu, EFREI Paris, France

11:00 - 13:00 *Building 9 - Room B01*
Session 5.2 - General Track - Part IV

11:00 **MealMate: Towards a Meal, Exercise and Sleep Tracking App to Enhance Physical Performances**
Susanna Bardini, Politecnico di Milano, Italy
Laura Ginestretti, Politecnico di Milano, Italy
Clara Maria Gabana, Politecnico di Milano, Italy
Alessio Pesavento, Politecnico di Milano, Italy
Edoardo Sorgentone, Politecnico di Milano, Italy
Marco D Santambrogio, Politecnico di Milano, MIT, Italy

11:20 **Hexalab: A Novel Facility for Sport Simulations Based on Human-In-The-Loop Concept**
Carol Sergenti, Università di Pavia, Italy
Hermes Giberti, Università di Pavia, Italy
Giuseppe Mangano, Università di Pavia, Italy
Josè Farias Fuentes, Università di Pavia, Italy
Manuela Galli, Politecnico di Milano, Italy
Filippo Bertozzo, Politecnico di Milano, Italy
Marco Tarabini, Politecnico di Milano, Italy

11:40 **Monitoring Performance in Women's Soccer Players During Training Through Wearable Sensors: Design Issues and Reliability Assessement**
Giuseppe Andreoni, Politecnico di Milano, Italy
Nicola Francesco Lopomo, Politecnico di Milano, Italy
Paolo Perego, Politecnico di Milano, Italy

12:00 **Measuring Calcaneus Eversion Angle During Running at Different Speeds and Inclinations: A 3D Kinematics Approach**
Nina Verdel, University of Ljubljana, Jozef Stefan Institute, Slovenia
Neža Nograšek, University Medical Centre Ljubljana, University of Ljubljana, Slovenia
Irinej Papuga, University of Ljubljana, Slovenia
Miha Drobnič, University of Ljubljana, Slovenia
Vojko Strojnik, University of Ljubljana, Slovenia
Matej Supej, University of Ljubljana, Slovenia

12:20 **A Wireless Intra-Oral Device for Respiratory and Cardiovascular Monitoring in Sport**
Andrea Scarpellini, University of Illinois, USA
Andrea Aliverti, Politecnico di Milano, Italy
Hananeh Esmailbeigi, University of Illinois, USA

12:40 **Monitoring fatigue-induced ground reaction forces variations among professional football players using an instrumented pair of football shoes: a two-phase study**
Alexandre Karamanoukian, Phyling, France
Jean-Philippe Boucher, Phyling, France

Romain Labbé, Phyling, France
Nicolas Vignais, Université Rennes 2, France

13:00 - 14:00	**LUNCH** *Bistrot PolEATecnico*

14:00 - 16:00	*Building 9 - Room B04* **Session 6 - Computational Analyses in Sports**

14:00 **Learning to Detect Soccer Pass at the Edge: A Comparison Between Edge and Cloud-Based Streaming Machine Learning Approaches**
Alessio Bernardo, Politecnico di Milano, Italy, Motus ML
Emanuele Della Valle, Politecnico di Milano, Italy

14:20 **Analyzing the Performance of Deep Learning-Based Techniques for Human Pose Estimation**
Federico Boscolo, Politecnico di Torino, Italy
Fabrizio Lamberti, Politecnico di Torino, Italy
Lia Morra, Politecnico di Torino, Italy

14:40 **Predicting Affective States Using Wearable Technology: A Machine Learning Approach**
Gergely Imre Birim, FZI, Research Center for Information Technology, Germany
Dennis Birkenmaier, FZI, Research Center for Information Technology, Germany
Marc Schroth, FZI, Research Center for Information Technology, Germany
Tao Hu, FZI, Research Center for Information Technology, Germany
Maximilian Hoffmann, FZI, Research Center for Information Technology, Germany
Marco Giurgiu, Karlsruhe Institute of Technology, Germany
Simon Woll, Karlsruhe Institute of Technology, Germany
Wilhelm Stork, FZI, Research Center for Information Technology, Germany

15:00 **Using Deep Neural Networks to Detect Non-Analytically Defined Expert Event Labels in Canoe Sprint Force Sensor Signals**
Sarah Rockstroh, Leipzig University of Applied Sciences, Germany
Patrick Frenzel, Leipzig University of Applied Sciences, Germany
Daniel Matthes, Leipzig University of Applied Sciences, Germany
Kay Schubert, Institute for Research and Development of Sports Equipment, Germany
David Wollburg, Institute for Research and Development of Sports Equipment, Germany
Mirco Fuchs, Leipzig University of Applied Sciences, Germany

15:20 **On Empirical Adequacy of an Ascent-Time Model: Uphills in bicycle races**
Len Bos, University of Verona, Italy
Michael A. Slawinski, Memorial University of Newfoundland, Canada
Raphael A. Slawinski, Mount Royal University, Canada
Theodore Stanoev, Memorial University of Newfoundland, Canada

15:40 **Leveraging Machine Learning to Predict National Basketball Association Player Injuries**
Omar Farghaly, Marquette University, USA
Priya Deshpande, Marquette University, USA

16:00 - 16:30	**COFFEE BREAK**

16:30 - 17:50	*Building 9 - Room B04* **Session 7 - Computational Analyses and Sport Performances**

16:30 **A Machine Vision Toolkit for Analyzing Tennis Racquet Positioning During Service**
Dhruv Jhamb, The World School, USA
Ross Greer, University of California, USA

16:50 **3D Markerless Velocity Based Weight Training System for Athletes: Detection, Estimation and Validation**
Vignesh Rajakumar, Indian Institute of Technology Madras, India
Pragathi R, Indian Institute of Technology Madras, India
Saravanan Manoharan, Indian Institute of Technology Madras, India
Anish Monsley Kirupakaran, Indian Institute of Technology Madras, India
Ravi Hegde, IIT Gandhinagar, India
Babji Srinivasan, Indian Institute of Technology Madras, India

17:10 **Track and Field Starting Blocks Performance: Assessment of an Alternative Measurement System for Evaluating Upper Limbs Contribution**
Chiara Martina, Politecnico di Milano, Italy
Elimar Vieira Vaz Junior, Politecnico di Milano, Italy
Paolo Vittorio Ceresa, Politecnico di Milano, Italy
Andrea Meazzi, Politecnico di Milano, Italy
Giorgia Zenone, Politecnico di Milano, Italy
Diego Scaccabarozzi, Politecnico di Milano, Italy

17:30 **A Preliminary Investigation to Advance Personalized Nutrition Strategies for Athletes**
Alessandra Vincenti, Università di Pavia, Italy
Hellas Cena, Università di Pavia, Italy
Pietro Mariano Casali, Università di Pavia, Italy
Carol Sergenti, Università di Pavia, Italy
Hermes Giberti, Università di Pavia, Italy

19:30	**GALA DINNER** *Frigerio Restaurant - Piazza XX Settembre, 54 - Lecco*

Technical Program - Wednesday, July 10

08:30 - 12:00	*Politecnico di Milano - Polo Territoriale di Lecco - Building 9* **REGISTRATIONS**

09:00 - 10:00	*Building 9 - Room B04* **Session 8 - Active Life Styles**

09:00 **BACCO: A Tool for Holistic Wellness Monitoring**
Laura Ginestretti, Politecnico di Milano, Italy
Marco D Santambrogio, Politecnico di Milano, MIT, Italy
Angelo Guarnerio, Politecnico di Milano, Italy
Alessandra Isella, Politecnico di Milano, Italy
Luca Fiorin, Politecnico di Milano, Italy

09:20 **Evaluation of a New Wearable Device for Indoor and Outdoor Environmental Monitoring**
Sara Bernasconi, Politecnico di Milano, Italy
Alessandra Angelucci, Politecnico di Milano, Italy
Andrea Aliverti, Politecnico di Milano, Italy

09:40 **Using A Sports Technology Maturity Model for Evaluating Smart Cities**
Paolo Bouquet, University of Trento, Italy
Andrea Molinari, Lappeenranta University of Technology, Finland, University of Trento, Italy
Sabrina Vettorato, University of Trento, Italy

10:00 - 10:30	**COFFEE BREAK**

10:30 - 12:00	*Building 9 - Room B04* **Session 9 - Sport Performances - Part II**

10:30 **Biomechanics of Noncontact and Indirect Contact Injuries in Èlite Male Football (Soccer) Players**
Alice Ranzini, University of Milan, Italy
Monica Nitri, University of Milan, Italy
Marco Loddo, Politecnico di Milano, Italy
Alessandro Pellegrini, University of Milan, Italy
Laura Orione, Politecnico di Milano, Italy
Asia Motalli, University of Milan, Italy
Fabio Esposito, University of Milan, Italy
Francesco Della Villa, Isokinetic Medical Group, FIFA Medical Centre of Excellence, Italy
Matteo Zago, University of Milan, Italy

10:50 **Agreement of Total Distance and Speed Metrics Across Multiple Football Tracking Devices**
Gabriele Santicchi, University of Milan, Italy

Susanna Stillavato, University of Milan, Italy
Pietro Cerveri, Politecnico di Milano, Italy
Fabio Esposito, University of Milan, Italy
Aldo Comi, Soccerment Srl, Italy
Federico Frellicca, Soccerment Srl, Italy
Marco Deriu, Soccerment Srl, Italy
Matteo Zago, University of Milan, Italy

11:10 The Trade-Off Between Jump Performance and ACL Injury Risk During Landings
Claudia Brunetti, University of Milan, Italy
Riccardo Solazzo, University of Milan, Italy
Filippo Bertozzi, Politecnico di Milano, Italy
Chiarella Sforza, University of Milan, Italy

11:30 Impact of IMU Placement on Vertical Jump Height Estimation: A Comparative Analysis in Countermovement Jumps
Giacomo Villa, Politecnico di Milano, Euleria Health, Italy
Veronica Cimolin, Politecnico di Milano, IRCCS Istituto Auxologico Italiano, Italy
Manuela Galli, Politecnico di Milano, Italy
Serena Cerfoglio, Politecnico di Milano, IRCCS Istituto Auxologico Italiano, Italy

11:50 Assessment of Tennis Timing Using an Acoustic Detection System
Lucio Caprioli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Francesca Campoli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Saeid Edriss, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Cristiana Frontuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Amani Najlaoui, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Elvira Padua, San Raffaele Rome University, Italy
Cristian Romagnoli, San Raffaele Rome University, Italy
Giuseppe Annino, University of Rome Tor Vergata, Italy
Vincenzo Bonaiuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy

12:10 AI-Driven Paddle Motion Detection
Amani Najlaoui, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Francesca Campoli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Lucio Caprioli, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Saeid Edriss, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Cristiana Frontuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Cristian Romagnoli, San Raffaele Rome University, Italy
Giuseppe Annino, University of Rome Tor Vergata, Italy
Vincenzo Bonaiuto, Sports Engineering Lab, University of Rome Tor Vergata, Italy
Andrea Zanela, ENEA, Italy

12:30 - 13:30	**LUNCH** *Bistrot PolEATecnico*

13:30 - 18:00	**SOCIAL EVENT**