

# **2022 IEEE International Workshop on Sport Technology and Research (STAR 2022)**

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# WORKSHOP PROGRAM

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**Wednesday, July 6**

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## ***Session 1 - Sport Performance Track***

**Room:** Palace Museum Magnifica Comunità di Fiemme

**Chair:** Antonio Tessitore

**1 Scalable centimetric tracking system for team sports**

*Luca Santoro, University of Trento, Italy*

*Matteo Nardello, University of Trento, Italy*

*Daniele Fontanelli, University of Trento, Italy*

*Davide Brunelli, University of Trento, Italy*

*Dario Petri, University of Trento, Italy*

**7 An IoT-enabled Portable System for Field-based Endurance Run Testing**

*Joao M.O. Passos, Instituto Politécnico de Viana do Castelo, Portugal*

*Sérgio Ivan Lopes, Instituto Politécnico de Viana do Castelo, Campus Universitario de Santiago, Portugal*

*Pedro M. Moreira, Instituto Politécnico de Viana do Castelo, Portugal*

*Filipe M. Clemente, Instituto Politécnico de Viana do Castelo, Instituto de Telecomunicações, Portugal*

*Pedro Bezerra, CIDESD, Instituto Politécnico de Viana do Castelo, Portugal*

*Rui Silva, SPRINT, Instituto Politécnico de Viana do Castelo, Portugal*

*Luis P. Rodrigues, Instituto Politécnico de Viana do Castelo, Portugal*

**13 Feasibility study of an embedded platform for biopotentials acquisition during sports activities**

*Alessio Serrani, Politecnico di Milano, Kalpa Srl, Italy*

*Andrea Aliverti, Politecnico di Milano, Italy*

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*Alessandra Angelucci, Politecnico di Milano, Italy*

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*Manuela Galli, Politecnico di Milano, Italy*

*Andrea Aliverti, Politecnico di Milano, Italy*

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*Yuqi Liu, Japan Advanced Institute of Science and Technology, Japan*

*Kecheng Lai, Japan Advanced Institute of Science and Technology, Japan*

*Tsutomu Fujinami, Japan Advanced Institute of Science and Technology, Japan*

**29 Automatic generation of realistic cardiopulmonary exercise test data with a conditional generative adversarial neural network**

*Andrea Zignoli, University of Trento, Italy*

*Damiano Fruet, University of Trento, Italy*

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## ***Session 2 - Active Life Style Track***

**Room:** Palace Museum Magnifica Comunità di Fiemme

**Chair:** Martin Schnitzer

**35 The RALCoach: A Virtual Coach Technology for Recreational Runners**

*Andrea Galli, Politecnico di Milano, Italy*

*Filippo Ghisio, Politecnico di Milano, Italy*

*Laura Ginestretti, Politecnico di Milano, Italy*

*Mirko Salaris, Politecnico di Milano, Italy*

*Marco D. Santambrogio, Politecnico di Milano, Italy*

- 41 Simultaneous measurement of forearm muscle activity, vibrational transfer and grip strength during the tennis forehand stroke using a novel wearable device – a pilot study**

*Chantelle Jean Rigozzi, The University of Sydney, Australia*

*Jeremy Cox, The University of Sydney, Australia*

*Gareth A Vio, The University of Sydney, Australia*

*Philip Poronnik, The University of Sydney, Australia*

- 47 Nordic Walking technique evaluation with sensorized walking poles**

*Barbara Pellegrini, University of Verona, Italy*

*Francesco Mocera, Polytechnic of Turin, Italy*

*Aurelio Somà, Polytechnic of Turin, Italy*

*Caterina Russo, Polytechnic of Turin, Italy*

*Federico Schena, University of Verona, Italy*

*Lorenzo Bortolan, University of Verona, Italy*

- 51 Assessment of jugular venous pulse during walking by wearable strain-gauge plethysmograph: a pilot study**

*Erica Menegatti, University of Ferrara, Italy*

*Antonino Proto, University of Ferrara, Italy*

*Gianfranco Paternò, University of Ferrara, Italy*

*Sergio GIANESINI, University of Ferrara, Italy*

*Anselmo Pagani, University of Ferrara, Italy*

*Piva Tommaso, University of Ferrara, Italy*

*Raisi Andrea, University of Ferrara, Italy*

*Valentina Zerbini, University of Ferrara, Italy*

*Angelo Taibi, University of Ferrara, Italy*

*Paolo Zamboni, University of Ferrara, Italy*

*Giovanni Grazzi, University of Ferrara, Italy*

*Gianni Mazzoni, University of Ferrara, Italy*

*Simona Mandini, University of Ferrara, Italy*

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## Thursday, July 7

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### **Session 3 - Sport Performance Track**

**Room: Val di Fiemme - Palacongressi**

**Chair: Barbara Pellegrini**

- 56 System for Performance Assessment of K2 Crews in Flatwater Sprint Kayak**

*Vincenzo Bonaiuto, Tor Vergata University of Rome, Italy*

*Giuseppe Annino, Tor Vergata University of Rome, Italy*

*Paolo Boatto, APLAB Italy*

*Nunzio Lanotte, San Raffaele Rome Open University, Italy*

*Lucio Caprioli, San Raffaele Rome Open University, Italy*

*Elvira Padua, San Raffaele Rome Open University, Italy*

*Cristian Romagnoli, Tor Vergata University of Rome, Italy*

- 61 Don't Dampen the Fun: Acoustic Study of a Mechanically Modified Puck for Blind Ice Hockey**

*Colton Doherty, Saint Louis University, USA*

*Jake Little, Saint Louis University, USA*

*Jennifer L. Tennison, Saint Louis University, USA*

*Jenna L. Gorlewicz, Saint Louis University, USA*

- 67 Are non-profit Sport Clubs ready for Digitalization? A Case Study of Tyrolean Soccer Teams**

*Wachholz Felix, Leopold-Franzens-University, Austria*

*Spörk Valentin, Leopold-Franzens-University, Austria*

*Scheiber Sabrina, Leopold-Franzens-University, Austria*

*Schnitzer Martin, Leopold-Franzens-University, Austria*

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**72 Towards Continuous Professional Monitoring of Health Status Based on Energetic Balancing**

*Binh Vu, Forschungsinstitut für Telekommunikation und Kooperation, Germany*

*Sebastian Bruchhaus, FernUniversität in Hagen, Germany*

*Anne Moorhead, Ulster University, UK*

*Huiru Zheng, Ulster University, UK*

*Luigi D'Arco, Ulster University, UK*

*Louise Lynch, Ulster University, UK*

*Luigia Simona Sica, University of Naples Federico II, Italy*

*Michela Ponticorvo, University of Naples Federico II, Italy*

*Federico Diano, University of Naples Federico II, Italy*

*Haithem Afli, Munster Technological University, Ireland*

*Praveen Joshi, Munster Technological University, Ireland*

*Andrea Molinari, Università di Trento, Italy*

*Matthias Hemmje, GLOBIT GmbH*

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**Session 4 - Smart sport facilities and fan engagement track/sport performance Track**

**Room:** Val di Fiemme - Palacongressi

**Chair:** Ada Ferri

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*Kaden Conley, Gannon University, USA*

*Davide Piovesan, Gannon University, USA*

*Xiaoxu Ji, Gannon University, USA*

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*Alessandro Polo, ELEDIA Research Center - University of Trento, Italy*

*Paolo Rocca, ELEDIA Research Center - University of Trento, Italy, Xidian University, China*

**89 Setup and method for assessing hand vibration and perceived discomfort during road race and gravel bike handlebars vibration**

*Filippo Bertozzi, Politecnico di Milano, Italy*

*Alex P. Moorhead, Politecnico di Milano, Italy*

*Stefano Marelli, Politecnico di Milano, Italy*

*Federico Stella, Scott Sports AG*

*Manuela Galli, Politecnico di Milano, Italy*

*Marco Tarabini, Politecnico di Milano, Italy*

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*Paolo Bouquet, University of Trento, Italy*

*Andrea Molinari, Lappeenranta University of Technology, Finland, University of Trento, Italy*

*Lorenzo Bortolan, University of Verona, Italy*

*Alfredo Dal Prà, University of Trento, Italy*

*Giulio Bezzi, University of Trento, Italy*

*Sabrina Vettorato, University of Trento, Italy*

**100 AI for Sport in the EU Legal Framework**

*Alberto Orlando, University of Salento, Italy*

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**Room:** Val di Fiemme - Palacongressi

**Chair:** Nicola Conci

**106 Design and validation of a Cloth Face Covering (CFC) with low breathing resistance for sports practice**

*Ada Ferri, Politecnico di Torino, Italy  
Marco Barla, Politecnico di Torino, Italy  
Cristian Campagnaro, Politecnico di Torino, Italy  
Francesca Dotti, Politecnico di Torino, Italy  
Martina Dugoni, Politecnico di Torino, Italy  
Guglielmo Marchesa, Politecnico di Torino, Italy  
Daniele Mozzone, Istituto di Medicina dello Sport, Italy  
Alberto Vallan, Politecnico di Torino, Italy*

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*Damiano Fruet, University of Trento, Italy  
Andrea Zignoli, University of Trento, Italy  
Vigilio Fontanari, University of Trento, Italy  
Francesco Biral, University of Trento, Italy  
Sunil Raghavendra, University of Trento, Italy  
Mauro Pezzato, University of Trento, Italy  
Eric Saeter, University of Trento, Italy*

**117 Continuous respiratory rate estimation with a wearable temperature sensor during cycling exercise: a feasibility study**

*Carlo Massaroni, Università Campus Bio-Medico di Roma Italy  
Chiara Romano, Università Campus Bio-Medico di Roma Italy  
Andrea Nicolò, University of Rome "Foro Italico", Italy  
Lorenzo Innocenti, University of Rome "Foro Italico", Italy  
Massimo Sacchetti, University of Rome "Foro Italico", Italy  
Emiliano Schena, Università Campus Bio-Medico di Roma Italy*

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*Tommaso Piva, University of Ferrara, Italy  
Erica Menegatti, University of Ferrara, Italy  
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Andrea Raisi, University of Ferrara, Italy  
Rosario Lordi, University of Ferrara, Italy  
Gianni Mazzoni, University of Ferrara, Italy  
Lorenzo Zattoni, Università degli Studi di Milano, Italy  
Giovanni Grazzi, University of Ferrara, Italy  
Simona Mandini, University of Ferrara, Italy*

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*Salvatore Tedesco, University College Cork, Ireland  
Sebastian Scheurer, University College Cork, Ireland  
Kenneth N. Brown, University College Cork, Ireland  
Liam Hennessy, Setanta College Thurles Enterprise Centre, Ireland  
Brendan O'Flynn, University College Cork, Ireland*

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*Linda Tonelli, University of Trento, Italy  
Francesco Biral, University of Trento, Italy  
Andrea Zignoli, University of Trento, Italy  
Damiano Fruet, University of Trento, Italy  
Vigilio Fontanari, University of Trento, Italy*

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**Session 6 - Active life style track**

**Room:** Val di Fiemme - Palacongressi

**Chair:** Andrea Molinari

- 138 A guided walking program in urban environment for an healthy, active community: the experience of the University of Ferrara**

*Simona Mandini, University of Ferrara, Italy  
Erica Menegatti, University of Ferrara, Italy  
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Andrea Raisi, University of Ferrara, Italy  
Sabrina Masotti, University of Ferrara, Italy  
Gianni Mazzoni, University of Ferrara, Italy  
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Giovanni Grazzi, University of Ferrara, Italy  
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- 143 Investigation of the attitude and competency toward the use of technology in a cohort of sport science students**

*Antonio Tessitore, University of Rome "Foro Italico", Italy  
Daniele Conte, Lithuanian Sports University, Lithuania  
Inga Lukonaitiene, Lithuanian Sports University, Lithuania  
Mauro Mandorino, University of Rome "Foro Italico", Italy  
Harald Tschan, University of Vienna, Austria*

- 148 E.P.H.E.S.U.S.: E-bikes Pedalling for Healthy, Ecological and Smart Urban Sustainability**

*Alessandro Sampieri, University of Padua, Italy  
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- 154 How active are our kids? Interplay between physical activity, individual characteristics and environment**

*Anna-Maria Kogler, University of Innsbruck, Austria  
Elisabeth Happ, University of Innsbruck, Austria  
Martin Schnitzer, University of Innsbruck, Austria*

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## **Friday, July 8**

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### **Session 7 - Sport performance track**

**Room:** Val di Fiemme - Palacongressi

**Chair:** Dario Petri

- 159 Quality of Measurement Information in the Context of Sports Applications**

*Dario Petri, University of Trento, Italy  
Paolo Carbone, University of Perugia, Italy  
Luca Mari, Cattaneo University (LIUC), Italy*

- 164 Automatic event identification of para powerlifting bench press with a single inertial measurement unit**

*Lorenzo Rum, University of Rome Foro Italico, Italy  
Aldo Lazich, Italian Joint Veteran Center, Italy  
Tommaso Sciarra, Italian Joint Veteran Center, Italy  
Nicoletta Balletti, Italian Joint Veteran Center, Italy  
Elena Bergamini, University of Rome Foro Italico, Italy*

- 169 Estimating running kinematics variability with an IMU sensor placed on the runner's thorax**

*Andrea Zignoli, University of Trento, Italy  
Damiano Fruet, University of Trento, Italy  
Laurent Mourot, University of Bourgogne, France*

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### **Session 8 - Sport performance track**

**Room:** Val di Fiemme - Palacongressi

**Chair:** Paolo Bouquet

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*Tommaso Di Libero, University of Cassino and Southern Lazio, Italy*

*Chiara Carissimo, University of Cassino and Southern Lazio, Italy*

*Alessandro Zagaglia, University of Cassino and Southern Lazio, Italy*

*Gianni Cerro, University of Molise, Italy*

*Luigi Ferrigno, University of Cassino and Southern Lazio, Italy*

*Angelo Rodio, University of Cassino and Southern Lazio, Italy*

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*Lorenzo Zattoni, Università degli Studi di Milano, Italy*

*Luca Ercolin, Università di Ferrara, Italy*

*Simona Mandini, Università di Ferrara, Italy*

*Tommaso Piva, Università di Ferrara, Italy*

*Valentina Zerbini, Università di Ferrara, Italy*

*Andrea Raisi, Università di Ferrara, Italy*

*Luciana Zaccagni, Università di Ferrara, Italy*

**185 Accessible Video Analytics: the Use Case of Basketball**

*Nicola Conci, University of Trento, Italy*

*Francesco G.B. De Natale, University of Trento, Italy*

*Matteo Dalponte, University of Trento, Italy*

*Simone Bernabè, University of Trento, Italy*

*Niccolò Bisagno, University of Trento, Italy*

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*Lorenzo Bortolan, University of Verona, Italy*

*Aldo Savoldelli, University of Verona, Italy*

*Federico Schena, University of Verona, Italy*

*Barbara Pellegrini, University of Verona, Italy*

**195 Satellite IoT for Monitoring and Tracking of Athletes in Extreme Environments**

*Alessandra Galli, University of Padova, Italy*

*Claudio Narduzzi, University of Padova, Italy*

*Giacomo Peruzzi, University of Siena, Italy*

*Alessandro Pozzebon, University of Padova, Italy*