



Program

IACSS & ISPAS
Joint Congress 2022

Saturday 10.09.2022

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| 13:00 - 13:30 | Opening Ceremony Location: Großer Festsaal | |
| 13:30 - 14:30 | Keynote Speaker 1: Anna Martin-Niedecken Chair: Arnold Baca Location: Großer Festsaal | |
| 14:30 - 15:30 | Keynote Speaker 2: Thomas Stöggel Chair: Arnold Baca Location: Großer Festsaal | |
| 15:30 - 16:00 | Coffee Break | |
| 16:00 - 17:45 | Parallel Sessions 1 Chairs: Thomas Jaitner & Hans Kainz Location: Hörsaal 31 | Chairs: Sam Robertson & Christoph Triska Location: Hörsaal 32 |
| 16:00 - 16:15 | Biomechanics: Random Forest Modeling Improves RTS Information Based On Isokinetic Parameters Of Male Athletes <i>Authors: Kevin Nolte, Alexander Gerharz, Thomas Jaitner, Axel Knicker, & Tobias Alt</i> | Exercise Physiology Applied to Performance: Relationship between near-infrared spectroscopy derived muscle oxidative capacity and the power-duration relationship in highly-trained cyclists: a pilot study <i>Authors: Matthias Hovorka, Peter Leo, Justin Lawley, & Alfred Nimmerichter</i> |
| 16:15 - 16:30 | Biomechanics: Head Kinematics in Soccer Headers and their Lab-Based Surrogates <i>Authors: Jan Kern, Philipp Gulde, Dominic Rasp, & Joachim Hermsdörfer</i> | Exercise Physiology Applied to Performance: Muscle Deoxygenation Profiles During Moderate-, Heavy- and Severe-intensity Cycling <i>Authors: Alfred Nimmerichter, Sandro Jennewein, Stefan Sölkner, Matthias Hovorka, & Bernhard Prinz</i> |
| 16:30 - 16:45 | Biomechanics: Effects of test modality and hip flexion on resultant knee flexor moments <i>Authors: Tobias Alt, Kevin Nolte, Dennis Horn, Dominik Modenbach, Axel Knicker, & Thomas Jaitner</i> | Exercise Physiology Applied to Performance: Intra-individual variation of the muscular oxygen saturation at different exercise intensities and cadences <i>Authors: Stefan Sölkner, Sandro Jennewein, Matthias Hovorka, Bernhard Prinz, & Alfred Nimmerichter</i> |

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| 16:45 - 17:00 | <p>Biomechanics:</p> <p>Reproducibility of peak torque during isometric and isokinetic knee extension exercise</p> <p><i>Authors: Manfred Zöger, Alfred Nimmerichter, Arnold Baca, & Klaus Wirth</i></p> | <p>Exercise Physiology Applied to Performance:</p> <p>Effects of a 30-minute stay in a hyperbaric environment after intense exercise on muscle oxygenation and anaerobic exercise performance</p> <p><i>Authors: Koji Kajiwara, Taiki Yamamoto, Yoshinari Uehara, & Tetsushi Moriguchi</i></p> |
| 17:00 - 17:15 | <p>Biomechanics:</p> <p>Tracking and prediction of basketball free throws</p> <p><i>Authors: Lea E. Junge-Bornholt, Heiko Maurer, Lisa K. Maurer, & Hermann Müller</i></p> | <p>Match Analysis:</p> <p>An Interactive Tactical Analysis System of Badminton Matches</p> <p><i>Authors: Xiangtong Chu, Yingcai Wu, & Hui Zhang</i></p> |
| 17:15 - 17:30 | <p>Biomechanics:</p> <p>Altered knee joint kinematics and loading after an anterior cruciate reconstruction</p> <p><i>Authors: Johannes Eichwalder, Willi Koller, Arnold Baca, Patrick Wenninger, & Hans Kainz</i></p> | <p>Match Analysis:</p> <p>The Relationship between Technique and Scores in Tennis Doubles - A Study of Male and Female Collegiate Tennis Players</p> <p><i>Authors: Shuhei Okamura, Koki Numata, & Ryogo Kashiwagi</i></p> |
| 17:30 - 17:45 | <p>Performance Analysis in Health and Senior Sport:</p> <p>Influence of Covid-19 restrictions on physiological performance measures in police special forces</p> <p><i>Authors: Bernhard Prinz, Manfred Zöger, Klaus Wirth, & Alfred Nimmerichter</i></p> | <p>Match Analysis:</p> <p>Attack with Empty Goal (7 vs 6) in Team Handball - Analysis of Men's EHF Euro 2022</p> <p><i>Authors: Duarte Sousa, Américo Cardoso, Ana Rodrigues, Helder Lopes, Catarina Fernando, & João Prudente</i></p> |
| 17:45 - 18:00 | <p>Biomechanics:</p> <p>Monitoring unilateral anterior cruciate ligament rehabilitation via musculoskeletal modeling</p> <p><i>Authors: Johannes Eichwalder, Anna Horschinegg, Willi Koller, Arnold Baca, & Hans Kainz</i></p> | <p>Match Analysis:</p> <p>Automatic segmentation and contextualization of elite handball matches with machine learning</p> <p><i>Authors: Manuel Bassek, Alexander Banning, Daniel Memmert, & Dominik Raabe</i></p> |

Sunday 11.09.2022

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| 09:00 - 09:45 | Keynote Speaker 3: Ulf Brefeld Chair: Martin Lames Location: Großer Festsaal | |
| 09:45 - 10:30 | Keynote Speaker 4: Matthias Kempe Chair: Martin Lames Location: Großer Festsaal | |
| 10:30 - 11:00 | Coffee Break | |
| 11:00 - 11:45 | Round Table: Machine Learning for Sports Chair: Martin Lames Location: Großer Festsaal | |
| 11:45 - 13:15 | Parallel Sessions 2 | |
| | Chairs: Lary Katz & Josef Wiemeyer Location: Hörsaal 31 | Chairs: Otto Kolbinger & Phillip Kornfeind Location: Hörsaal 32 |
| 11:45 - 12:00 | Applications: High execution quality leads to more beneficial break point angles during the Nordic Hamstring Exercise <i>Authors: Jana Bergmann, Marcus Schmidt, & Thomas Jaitner</i> | Coaching and Training: Application of Image Processing Algorithms for the Analysis and Evaluation of Motion Sequences of Speed Climbing Athletes <i>Authors: Dominik Pandurevic, Alexander Sutor, & Klaus Hochradel</i> |
| 12:00 - 12:15 | Applications: Mobile Applications for Training – Attitudes and experiences <i>Author: Josef Wiemeyer</i> | Coaching and Training: Effects of different coaching instructions on muscle activations and synergies during sumo deadlifts: a case study <i>Authors: Paul Kaufmann, Alexander Pürzel, Johannes Eichwalder, David Deimel, Willi Koller, Arnold Baca, & Hans Kainz</i> |
| 12:15 - 12:30 | Performance Analysis in Youth Sport: Activity Profile Differences between Small-Sided Games and Competitive Match Play in Elite Youth Soccer Players <i>Authors: Richard Hauer, Paul Störchle, Harald Tschan, & Arnold Baca</i> | Coaching and Training: Leveling the playing field: a new proposed method to address relative age- and maturity-related Bias in UK male academy soccer players <i>Authors: Sofie Bolckmans, Werner F Helsen, Janet L Starkes, Chris Towlson, Chris Barnes, & Guy Parkin</i> |

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| 12:30 - 12:45 | Performance Analysis in Youth Sport: Comparing Player Statistical Performance Across the AFL and Tier 2 Australian Football Leagues <i>Authors: Paul Gustin, James Brown, David Carey, Haresh Suppiah, & Robert Younger</i> | Machine Learning and Data Mining: Towards Personalised Performance Prediction in Road Cycling through Machine Learning <i>Authors: Leonid Kholkin, Arie-Willem de Leeuw, Tim Verdonck, & Steven Latre</i> |
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| 12:45 - 13:00 | Performance Analysis in Youth Sport: Adaption of throwing techniques in youth basketball according to ball size, basket height and throwing distance <i>Authors: Carina Thomas, Kevin Nolte, & Thomas Jaitner</i> | Machine Learning and Data Mining: Towards Integration of Sleep Quality in Sports Monitoring – Improving Wearable Sleep Detection Algorithms through Respiratory Information <i>Authors: Daniel Krauss, Robert Richer, Arne Küderle, Nicolas Rohleder, & Bjoern M. Eskofier</i> |
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| 13:00 - 13:15 | | Machine Learning and Data Mining: In-play analysis of Twitter data over the course of football matches <i>Authors: Fabian Wunderlich, & Daniel Memmert</i> |
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Lunch Break

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| 14:15 - 16:15 | Parallel Sessions 3 Chairs: Martin Dobiasch & Thomas Stöggl Location: Hörsaal 31 | | Chairs: Daniel Link & Tiago Russomano Location: Hörsaal 32 | |
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| 14:15 - 14:30 | Exercise Physiology Applied to Performance: Acceptance and Intended Use of a Feedback System for Fencing <i>Authors: Martin Dobiasch, & Stefan Oppl</i> | Performance Analysis of Elite Athletes and Teams: How the COVID-19 Pandemic has Changed the Game of Soccer <i>Author: Daniel Link</i> |
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| 14:30 - 14:45 | Exercise Physiology Applied to Performance: Muscle oxygen desaturation during a simulated vertical ski mountaineering race <i>Authors: Michael Lasshofer, & Thomas Stöggl</i> | Performance Analysis of Elite Athletes and Teams: Game-related skills that influence success in elite men's volleyball <i>Authors: Sotirios Drikos, Konstantinos Sotiropoulos, & Karolina Barzouka</i> |
| 14:45 - 15:00 | Exercise Physiology Applied to Performance: A simple model for prediction of running velocity on 800 m <i>Author: Anton usaj</i> | Performance Analysis of Elite Athletes and Teams: A foretaste of Qatar 2022: Decreased playing time of internationals after the 2017 Africa Cup of Nations <i>Author: Otto Kolbinger</i> |
| 15:00 - 15:15 | Technology and Performance Analysis: Challenges & considerations in determining the validity of player tracking systems in team sports <i>Authors: Sam Robertson, & Rob Aughey</i> | Performance Analysis of Elite Athletes and Teams: The ANHEQ criteria reveal deficits of execution and reporting in NHE research <i>Authors: Tobias Alt, Jannik Severin, & Marcus Schmidt</i> |
| 15:15 - 15:30 | Technology and Performance Analysis: Capturing proprioception through time-variability properties of accelerometry <i>Authors: Lluç Montull, & Natàlia Balagué</i> | Performance Analysis of Elite Athletes and Teams: Modeling the extra pass in basketball <i>Authors: Bence Supola, Thomas Hoch, & Arnold Baca</i> |
| 15:30 - 15:45 | Technology and Performance Analysis: Concurrent Validity of Global Positioning Systems in non-professional soccer <i>Authors: Marcus Schmidt, Jan Schneider, & Thomas Jaitner</i> | Performance Analysis of Elite Athletes and Teams: Stroke Performance Analysis in Different Score States of Table Tennis Mixed Doubles <i>Authors: Zheng Zhou, & Hui Zhang</i> |

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| 15:45 - 16:00 | Technology and Performance Analysis: Validation of a differential pressure system to assess in-water forces in competitive swimming <i>Authors: Catarina C. Santos, Mário J. Costa, Daniel A. Marinho, Tiago M. Barbosa, & Sérgio M.</i> | Performance Analysis of Elite Athletes and Teams: Analysis of the pace strategies (PS) of Olympic finalist swimmers in the 1500-meter freestyle race <i>Authors: Tiago Russomanno, Keila Kakazu, Augusto Faria, & Américo Costa</i> | |
| 16:00 - 16:15 | Technology and Performance Analysis: DataDebugging: Enhancing trust in soccer action-value models by contextualization <i>Authors: Maaike Van Roy, & Jesse Davis</i> | Performance Analysis of Elite Athletes and Teams: Technical and Tactical Analysis of Japanese Table Tennis Player ITO Mima <i>Authors: Ruizhi Liu, & Martin Lames</i> | |
| 16:15 - 16:45 | Coffee Break | | |
| 16:45 - 18:00 | Parallel Sessions 4 | | |
| | Chairs: Daniel Link & Joao Ribeiro Location: Hörsaal 31 | Chairs: Martin Lames & Jaime Sampaio Location: Hörsaal 32 | Chairs: Arnold Baca & Jesse Davis Location: Hörsaal 30 |
| 16:45 - 17:00 | Match Analysis: Analyzing Collapsibility in Performance Analysis in Sports <i>Authors: Maximilian Klemp, Robert Rein, & Daniel Memmert</i> | Performance Analysis of Elite Athletes and Teams: Which Achievements Are Associated To a Better Offensive Performance in NBA? A Survival Analysis Study <i>Authors: Ambra Macis, Marica Manisera, Marco Sandri, & Paola Zuccolotto</i> | Modelling and Simulation: A Game Model of Serving and Receiving for Excellent Tennis Players <i>Authors: Wenming Liu, & Hui Zhang</i> |
| 17:00 - 17:15 | Match Analysis: Giving context to passing in football matches – contributions from packing and unpacking outplayed opponent players in a domestic league versus UEFA Champions League <i>Authors: André Oliveira, & Rui Marcelino</i> | Performance Analysis of Elite Athletes and Teams: Chance Factors in Football: Goals, Conversions, Schedule and Season <i>Author: Martin Lames</i> | Modelling and Simulation: Studying the effects of sport competitions schedules in predictive models through simulation and network analysis <i>Authors: Marc Garnica Caparrós, Daniel Memmert, & Fabian Wunderlich</i> |

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| 17:15 - 17:30 | <p>Match Analysis:</p> <p>Notational analysis on the shooting play of left-handed right backcourt players in women's handball</p> <p><i>Authors: Saori Nakayama, Eiko Yamada, Hajime Fujimoto, & Hiroshi Aida</i></p> | <p>Performance Analysis of Elite Athletes and Teams:</p> <p>Golf Ball Stroke Analysis: Differences in High-Level Golfers</p> <p><i>Authors: Matěj Brožka, František Zahálka, & Tomáš Gryc</i></p> | <p>Modelling and Simulation:</p> <p>Examining Tactical Compliance in Football Matches using Cross Recurrence Analysis</p> <p><i>Authors: Sebastian Hermann, & Hendrik Meth</i></p> |
| 17:30 - 17:45 | <p>Match Analysis:</p> <p>Predicting the in-game status in soccer with machine learning based on spatiotemporal player tracking data</p> <p><i>Authors: Steffen Lang, Raphael Wild, Alexander Isenko, & Daniel Link</i></p> | <p>Performance Analysis of Elite Athletes and Teams:</p> <p>Comparison of passing profile between training and competition in elite football: practical applications</p> <p><i>Authors: Guilherme de Sousa Pinheiro, & Jana Huber</i></p> | <p>Modelling and Simulation:</p> <p>Measuring and modelling brain-muscle interaction in stretching</p> <p><i>Authors: Gerrit Kollegger, & Josef Wiemeyer</i></p> |
| 17:45 - 18:00 | <p>Match Analysis:</p> <p>Match performance parameters distinguishing winning, losing or drawing in Brazilian elite football</p> <p><i>Authors: Guilherme de Sousa Pinheiro, Mateus Figueiredo, & Varley Costa</i></p> | <p>Performance Analysis of Elite Athletes and Teams:</p> <p>The effects of COVID-19 on home advantage in rugby union</p> <p><i>Authors: Nimai Parmar, Nic James, Seb Sherwood, & Duncan Locke</i></p> | |
| 18:00 - 19:00 | <p>IACSS Assembly</p> <p>Location: Großer Festsaal</p> | | |

Monday 12.09.2022

09:00 - **Keynote Speaker 5:** Daniel Memmert
 09:45 Chair: Nic James
 Location: Großer Festsaal

09:45 - **Poster Session 1**
 10:30 **Chairs:** Josef Wiemeyer
Location: Arkadenhof

Applications:

Computer vision based gate crossing detection for timing and analysis of ski and snowboard races

Authors: Steven Verstockt, Jelle De Bock, Timon De Backer, Maarten Slembrouck, & Lore Simons

Biomechanics:

Individualized Feedback Training in High Performance Rowing

Authors: Thomas Jaitner, Kevin Nolte, & Stefan Weigelt

Coaching and Training:

Understanding How Background, Experience and Aspiration Vary with Coach Gender

Authors: Kirsten Spencer, & Murray Griffin

Coaching and Training:

Acute effects of FIFA 11+ and a dynamic warm-up on performance among collegiate football players. A crossover randomized controlled trial

Authors: Mojtaba Asgari, Marcus Schmidt, Benedikt Terschluse, Maximilian Sueck, & Thomas Jaitner

Computer Vision:

Drone-based system for position detection in sports

Authors: Tiago Russomanno, Patrick Blauburger, Marc Schmid, Otto Kolbinger, & Martin Lames

Data Analytics and Performance:

Diagnostics of performance prerequisites in sport in the context of the possible use of fuzzy theory

Authors: Antonin Zdercik, Pavel Holecek, & Jiri Zhanel

Data Analytics and Performance:

Systematic analysis of position-data-based key performance indicators in elite soccer

Authors: Justus Schlenger, Fabian Wunderlich, Dominik Raabe, & Daniel Memmert

Exercise Physiology Applied to Performance:

Sport-specific differences in key performance factors among handball, basketball and table tennis players

Authors: Henrieta Horníková, Filip Skala, & Erika Zemková

Exercise Physiology Applied to Performance:

Energy requirements during Critical Swim Speed Testing using Backward Extrapolation – a single case study

Authors: Christoph Triska, Christoph Soukup, Johannes Ernst, Katharina Zebura, & Astrid Reif

Exercise Physiology Applied to Performance:

Influence of training methods on PACES in the long-term training process

Author: Katrin Hoffmann

Exercise Physiology Applied to Performance:

A comparison of external loads between training sessions and matches in elite female soccer players

Authors: Dominik Strebing, Richard Hauer, Astrid Reif, & Christoph Triska

Exercise Physiology Applied to Performance:

Possibilities of using e-bike riding in training and primary prevention of health promotion

Authors: Iva Šeflová, Jaromír Patočka, & Josef Černožorský

Machine Learning and Data Mining:

Exploring the Opportunity of Fuzzy Labelling for Machine Learning Tasks in Soccer Match Analysis

Authors: Henrik Biermann, Dominik Raabe, & Daniel Memmert

Machine Learning and Data Mining:

Modelling non-linearity in training load and injury risk research: A simulation study

Authors: Lena Bache-Mathiesen, Thor Einar Andersen, & Morten Wang Fagerland

Miscellaneous:

Left-right differences in ground reaction force during blocking in college female volleyball players

Authors: Koki Numata, Koji Hamada, Ryogo Kashiwagi, & Misato Sakanaka

Miscellaneous:

The underestimated risk of injury in the recreational sport of kitesurfing

Authors: Julian Ramin Andresen, Thomas Junker, Reimer Andresen, Klaus-Dieter Luitjens, Christoph Kopetsch, & Fabian Scheer

Performance Analysis in Youth Sport:

Game-Performance-Analysis of High School Tennis Players with Low Competitive Performance

Authors: Ryogo Kashiwagi, Shunsuke Murakami, Shinya Iwanaga, Koki Numata, Shuhei Okamura, & Hiroo Takahashi

Performance Analysis in Youth Sport:

Legal and illegal ruck cleanouts in South African non-professional youth rugby

Authors: Wilbur Kraak, & Stephanie Kruger

Performance Analysis in Health and Senior Sport:

The associations between body mass index and short fire shooting efficiency in special police officers

Authors: Mario Kasović, Ivana Štrbac, Mate Bilobrk, Damir Sladin, Andro Štefan, Katerina Jenčikova, & Lovro Štefan

Virtual Reality and E-Learning:

Virtual Reality and the Implementation in Coaching, Skill Acquisition and Application to Surfing

Authors: Kirsten Spencer, Oliver Farley, & Livvie Baudinet

10:30 - 11:00

Coffee Break

11:00 - 11:45

Poster Session 2

Chairs: Anna Martin-Niedecken

Location: Arkadenhof

Match Analysis:

Effective coach feedback and fighter application in mixed martial arts

Authors: Kirsten Spencer, & Anton Vera

Match Analysis:

A performance analysis of baseball batting order in players of differing skill levels

Authors: Yuan-Cheng Cheng, Chien-Lin Chen, & Tsung-Yu Hsieh

Match Analysis:

The effect of offensive strategies in Taiwan Sub-Elite Men's Basketball

Authors: Wing Yu Vanessa Huen, Che-Yi Yang, & Tsung-Yu Hsieh.

Match Analysis:

Features of the Japanese National Team at the Rugby World Cup 2019 in Japan

Authors: Hironobu Shimozono, Koh Sasaki, Takumi Yamamoto, Ichiro Watanabe, & Jun Murakami

Match Analysis:

A Comparison of Match Outcomes between the Pool and Final stages in Japan Rugby Top League.

Authors: Takumi Yamamoto, Koh Sasaki, Hironobu Shimozono, Jun Murakami, Ichiro Watanabe, & Go Chiba

Performance Analysis of Elite Athletes and Teams:

Coaching, context & communication: delivering critical performance analysis insights in real time.

Author: Andrew Butterworth

Performance Analysis of Elite Athletes and Teams:

Are Leaders Leading Others to Perform Better? Empirical Analysis of Effects of Leader Players' Performance of Other Players in NBA

Author: Alperen Kocsoy

Performance Analysis of Elite Athletes and Teams:

Accuracy of three Global Positioning Systems for determining speed and distance parameters in professional soccer

Authors: Marcus Schmidt, Kevin Nolte, Mathias Kolodziej, Alexander Ulbricht, & Thomas Jaitner

Performance Analysis of Elite Athletes and Teams:

A Systematization Model for Quantitative Game Analysis

Authors: Christian Winter, & Mark Pfeiffer

Performance Analysis of Elite Athletes and Teams:

The Effects of Competitive Pressure on Scanning Activity and Passing Accuracy in a VR-based Soccer Test

Authors: Rafael Bagatin, António Fonseca, Júlio Garganta, Mark Williams, & Cláudia Dias.

Performance Analysis of Elite Athletes and Teams:

The VR-OTS: Virtual Reality Oculomotor Test System for Concussion Assessment

Authors: Wolfgang Mehringer, Georg Michelson, & Bjoern Eskofier

Performance Analysis of Elite Athletes and Teams:

Analysis of small game situations in the offensive behavior of the most successful teams in the UEFA Champions League

Authors: Carlos Elvira Aranda, Mario Amatria Jiménez, José Antonio Pérez Turpin, & María José

Performance Analysis of Elite Athletes and Teams:

Analysis of the construction of the shot and the goal in the most successful teams in the UEFA Champions League

Authors: Carlos Elvira Aranda, Mario Amatria Jiménez, José Antonio Pérez Turpin, & María José Gomis

Performance Analysis of Elite Athletes and Teams:

Evaluating micro-meso synchronization tendencies in elite football teams: the effects of distance and angle to the goal

Authors: João Ribeiro, Keith Davids, Daniel Barreira, Pedro Silva, Júlio Garganta, & Rui Jorge

Technology and Performance Analysis:

The Effect of Self-Training System Using Smart-Ball to Develop the Speed and Accuracy of Soccer Free Kicks for Juniors

Authors: Islam Mahmoud, Noha Mahmoud, & Larry Katz

Technology and Performance Analysis:

Inertial Sensors Detect Differences between the Sexes in Spatiotemporal Characteristics during Running

Authors: Rachel Mason, Fraser Young, Gill Barry, Alan Godfrey, & Samuel Stuart

Technology and Performance Analysis:

Intelligent Table Tennis Racket in Para Standing Classification: A Technological and Objective Approach

Authors: Sheng Kuang Wu, & Yung-Hoh Sheu

Technology and Performance Analysis:

Application of New Technology in Table Tennis: The Useful Evaluation Tool of Intelligent Racket

Authors: Yung-Hoh Sheu, Yu-Fen Chen, & Sheng Kuang Wu

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| | <p>Technology and Performance Analysis:</p> <p>Shot put throwing phase determination for performance analysis - A pilot study</p> <p><i>Authors: Samuel Bento da Silva, Tiago Guedes Russomanno, René Augusto Ribeiro, Martin Lames, & Milton Shoiti Misuta</i></p> | <p>Technology and Performance Analysis:</p> <p>Differences in vertical jump assessments using Takei and Optojump devices in male students</p> <p><i>Authors: Mahfoodha Al Kitani, Mohammed Al Mayahi, & Nabil Gmada</i></p> | <p>Technology and Performance Analysis:</p> <p>The Reliability of Speed of a Kicked Ball Using the Adidas miCoach Smart Soccer Ball</p> <p><i>Authors: Islam Mahmoud, Noha Mahmoud, & Larry Katz</i></p> | |
| 11:45 - 13:15 | <p>Parallel Sessions 5</p> <p>Chairs: Hans Leitert & Daniel Memmert</p> <p>Location: Hörsaal 31</p> | <p>Chairs: Ulf Brefeld & Jesse Davis</p> <p>Location: Hörsaal 32</p> | | |
| 11:45 - 12:00 | <p>Match Analysis:</p> <p>Expressing the Dynamic Nature of Handball Players' Movement: Preliminary Concept Based on Acceleration and an Angular Velocity of Handball Players</p> <p><i>Authors: Martin Kovar, Roman Cuberek, & Josef Heidler</i></p> | <p>Data Analytics and Performance:</p> <p>Modelling team performance in elite Women's basketball through principal component analysis and generalized mixed models</p> <p><i>Authors: Xing Wang, Gómez Ruano Miguel Ángel, Shao Liang Zhang, & Lorenzo Calvo Alberto</i></p> | | |
| 12:00 - 12:15 | <p>Match Analysis:</p> <p>Identification of match events in soccer from player and ball tracking data</p> <p><i>Authors: Sofwan Naim, Peter O'Donoghue, & Gemma Robinson</i></p> | <p>Data Analytics and Performance:</p> <p>Ranking performance and network structure in world rugby sevens; 2011-2020 longitudinal data analysis</p> <p><i>Authors: Koh Sasaki, Takumi Yamamoto, Ichiro Watanabe, Jun Murakami, & Hironobu Shimozono</i></p> | | |
| 12:15 - 12:30 | <p>Performance Analysis of Elite Athletes and Teams:</p> <p>Influences of training with the Digital-Vision-trainer (DVT) on the stereopsis of handball goalkeepers</p> <p><i>Authors: Fabian Heinke, Wolfgang Mehringer, Björn Eskofier, & Georg Michelson</i></p> | <p>Data Analytics and Performance:</p> <p>An innovative xG Model for football analytics</p> <p><i>Authors: Mattia Cefis, & Maurizio Carpita</i></p> | | |

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| 12:30 - 12:45 | Performance Analysis of Elite Athletes and Teams: Multivariate analysis of winners and losers at Kazan 2018 Beach Handball World Championship <i>Authors: Alejandro Trejo-Silva, & Maximiliano Santiago</i> | Data Analytics and Performance: A Comparison of Methods for Automatic Outlier Detection in Ergospirometric Data and their Effect on the Performance of Predictive Models <i>Authors: Nina Baumgartner, Christina Kranzinger, Stefan Kranzinger, Cory Snyder, Thomas Stöggl, & Bernd Resch</i> |
| 12:45 - 13:00 | Performance Analysis of Elite Athletes and Teams: Development of a Badminton Match Analysis System Based on Keyplays <i>Authors: Fabian Hammes, & Daniel Link</i> | Data Analytics and Performance: Predicting Olympic success by Regression Modeling in Sport - An Analysis of the beginning of the 21st century <i>Authors: Christoph Clephas, Pro Stergiou, Hugh Tyreman, & Larry Katz</i> |
| 13:00 - 13:15 | Sponsored Presentation Organized by: Strykerlabs | Sponsored Presentation Organized by: Catapult |
| 13:15 - 14:00 | Lunch Break | |
| 14:00 - 14:45 | Keynote Speaker 6: Jaime Sampaio Chair: Juliana Exel Location: Großer Festsaal | |
| 14:45 - 15:30 | Keynote Speaker 7: Hans Leitert Chair: Juliana Exel Location: Großer Festsaal | |
| 15:30 - 16:00 | Coffee Break | |
| 16:00 - 17:15 | Round Table: Theory and Practice Chair: Nic James & Nimai Parmar Location: Großer Festsaal | |
| 17:30 - 18:30 | ISPAS Assembly Location: Großer Festsaal | |

Tuesday 13.09.2022

09:00 - **Keynote Speaker 8:** Yuxin Peng
10:00 Chair: Martin Lames
Location: Großer Festsaal

10:00 - **Parallel Sessions 6**
11:00 **Chairs:** Arnold Baca & Nimai Parmar
Chairs: Juliana Exel & Martin Lames
Location: Hörsaal 31 **Location:** Hörsaal 32

10:00 - **Data Analytics and Performance:** **Match Analysis:**
10:15 Using multiple machine learning algorithms to classify distinguishing KPIs between elite defenders and their sub-elite counterparts in professional men's football
Performance Analysis as a Scientific Discipline
Authors: Ashwin Phatak, Mikael Jamil, Saumya Mehta, Henrik Biermann, & Daniel Memmert *Author: Martin Lames*

10:15 - **Data Analytics and Performance:** **Match Analysis:**
10:30 Analysing offensive and defensive tactical behaviours in youth soccer using GPS-based positional data
Skill or luck? Analysing random influences on goal scoring in football
Authors: Gibson Moreira Praça, Pedro Emilio Drumond Moreira, Guilherme de Sousa Pinheiro, & Varley Teoldo da Costa *Authors: Fabian Wunderlich, Alessandro Seck, & Daniel Memmert*

10:30 - **Data Analytics and Performance:** **Match Analysis:**
10:45 Exploring Relationships Between Tactical Descriptors and Expected Possession Value (EPV)
The Effect of the Video Assistant Referee (VAR) on Referees' Decisions at FIFA Women's World Cups
Authors: Jonas Bischofberger, Juliana Exel, & Arnold Baca *Authors: Yeqin Zhang, Danyang Li, Chunman Li, Miguel-Ángel Gómez-Ruano, & Daniel Memmert*

10:45 - **Data Analytics and Performance:** **Match Analysis:**
11:00 Machine Learning from Pacing Patterns for Half-Marathon
Effectiveness of substitution strategies in increasing match intensities during elite female field hockey matches
Authors: Johan Attefors, Johan Lamm, & Moa Johansson *Author: Martinique Sparks*

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| 11:00 - 11:30 | Coffee Break | | |
| 11:30 - 13:30 | Parallel Sessions 7 Chairs: Hans Kainz & Savvas Stafylidis Location: Hörsaal 31 | Chairs: Phillip Kornfeind & Kerstin Witte Location: Hörsaal 32 | Chairs: Nic James & Nimai Parmar Location: Hörsaal 30 |
| 11:30 - 11:45 | Biomechanics: A wide stance width decreases muscular effort during the sumo deadlift <i>Authors: Alexander Pürzel, Johannes Eichwalder, Willi Koller, David Deimel, Paul Kaufmann, Arnold Baca, & Hans Kainz</i> | Computer Vision: Can pose estimation be used for performance analysis in the shot put - a pilot study <i>Authors: Takashi Fukushima, Samuel Bento da Silva, Rene Augusto Ribeiro, Milton Shoiti Misuta, Martin Lames, & Tiago Russomanno</i> | Match Analysis: Expected Turnovers (xTurnovers) - A Machine Learning Approach to Analyse the Turnover Resistance of Players <i>Authors: Andrew Peters, Nic James, Michael Davies, Mladen Sormaz, Matthew Reeves, & Nimai Parmar</i> |
| 11:45 - 12:00 | Biomechanics: Analysis of Joint Contact Forces in the Lower Extremities in Latin American Dance Sport <i>Authors: Clara Egner, Heinz-Bodo Schmiedmayer, & Hans Kainz</i> | Computer Vision: Use of Computer Vision to Automatically Predict Starting and Ending Point of a Rally in Badminton <i>Authors: Fabian Hammes, & Daniel Link</i> | Match Analysis: A new phase approach to analysing possession in football <i>Authors: Ungho Gwon, Nic James, Jongwon Kim, Goran Vučković, & Nimai Parmar</i> |
| 12:00 - 12:15 | Biomechanics: Biomechanical analysis of different movement strategies during the sumo deadlift <i>Authors: Alexander Pürzel, Willi Koller, Johannes Eichwalder, David Deimel, Paul Kaufmann, Arnold Baca, & Hans Kainz</i> | Technology and Performance Analysis: Estimation of vertical ground reaction force-based running parameters using pressure insoles with a reduced sensor set <i>Authors: Maïke Stoeve, Dorsaf Jdidi, Bhavesh Kumar, Steven Franklin, Patrick Roehrig, Ulf Jensen, & Bjoern M. Eskofier</i> | Match Analysis: Inter-Season Stability of Play Styles in the National Football League <i>Authors: Ben Carter, Nic James, & Nimai Parmar</i> |
| 12:15 - 12:30 | | Technology and Performance Analysis: Development of sensor-based throwing devices for technique training in the hammer throw <i>Authors: Stefan Tiedemann, & Kerstin Witte</i> | Match Analysis: Identifying Matches with Similar Physical Demands: A Machine Learning and Hierarchical Clustering Approach <i>Authors: Michael Davies, Nic James, Andrew Peters, Matthew Reeves, Mladen Sormaz, & Nimai Parmar</i> |

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| 12:30 - 12:45 | <p>Biomechanics:</p> <p>From the lab to the field: assessing player biomechanical condition using match data</p> <p><i>Authors: Eran Amit, Yoav Wegrzyn, Steve Barrett, & Moran Gad</i></p> | <p>Technology and Performance Analysis:</p> <p>Spin estimation of a table tennis ball without high-speed cameras in T.League</p> <p><i>Authors: Sho Tamaki, Satoshi Yamagata, & Sachiko Hashizume</i></p> | <p>Data Analytics and Performance:</p> <p>Corridor of Uncertainty: Examining the effect of Ball-Pitching Length on Batter Decision-Making in Elite International Cricket</p> <p><i>Authors: Saumya Mehta, Ashwin Phatak, John van der Kamp, Mikael Jamil, Geert Savelsbergh & Daniel Memmert</i></p> |
| 12:45 - 13:00 | <p>Miscellaneous:</p> <p>Assessing the Complexity Level of 16 Fundamental Movement Skills for teaching Physical Literacy: A Modified Delphi Study</p> <p><i>Authors: Homa Rafiei Milajerdi, Anna Thacker, Mahboubeh Ghayour Najafabadi, Christoph Clephas, & Larry Katz</i></p> | <p>Technology and Performance Analysis:</p> <p>A comparison of direct methods to measure in-water forces in competitive swimmers</p> <p><i>Authors: Catarina C. Santos, Mário J. Costa, Mafalda Pinto, Rogério Pereira, & Daniel A. Marinho</i></p> | |
| 13:00 - 13:15 | | <p>Technology and Performance Analysis:</p> <p>Assessment of Player and Ball Position Detection – Validation of Kinexon’s Local Positioning System</p> <p><i>Author: Patrick Blauburger</i></p> | |
| 13:30 | <p>Closing Ceremony Location: Großer Festsaal</p> | | |
| 18:00 | <p>Conference Dinner & Routledge Young Researcher Award Location: City Hall</p> | | |