## Day 1 (Monday, 22 June UTC)

### 20:00
- **Conference Opening Ceremony (Webinar)**
  - Keynote Lecture (Webinar)
  - Statistical biomechanical models of running
  - Prof. John Rasmussen

### 20:20
- **Room 1**
  - **Running: Motion Analysis**
- **Room 2**
  - **Cycling: Vibration, Control, Heat**
- **Room 3**
  - **Winter sports: On ice**
  - **Archery, Pentathlon, Gymnastics**
- **Room 4**
  - **Sports in water: Biomechanics**
- **Room 5**
  - **Lounge**

### 21:00
- **Room 1**
  - Comparison between indoor sled tests on the skillrun treadmill and outdoor field tests at increasing sledge loads
  - Alesandro Volpe
- **Room 2**
  - A study of skin-close heat and moisture with different types of backpacks in cycling
  - Robert Klauer
- **Room 3**
  - Enhancing performance of elite speed skaters using skateview, a new device to measure performance in speed skating
  - Jeroen van der Eb
- **Room 4**
  - Optimal shooting cadence in the laser-run trial of modern pentathlon
  - Tom Maddalena
- **Room 5**
  - Fully coupled modeling of athlete force application and power transfer in rowing ergometry
  - Stephen Tullis

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## Day 2 (Tuesday, 23 June UTC)

### Keynote Lecture (Webinar)

**Lessons of the past, prospects for the future**  
*Prof. Kazuya Seo*

### Session Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Room 1</th>
<th>Room 2</th>
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<th>Room 5</th>
<th>Room 6</th>
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<tbody>
<tr>
<td>20:00</td>
<td></td>
<td>Fluid Dynamics: Ball, Shuttle</td>
<td>Golf</td>
<td>Football, Basketball</td>
<td>Running: Shoes</td>
<td>Sports surface</td>
<td>Lounge</td>
</tr>
<tr>
<td>20:40</td>
<td>Room 1</td>
<td>Comparing the aerodynamic behaviour of real footballs to a smooth sphere using tomographic PIV</td>
<td>Matthew Ward</td>
<td>Introducing a new activity-based balance index using accelerometer data and evaluate it as a predictor of skill level among elite junior soccer players</td>
<td>Perception of running shoe cushioning: objective and subjective measurements in short-distance running</td>
<td>Impact of alternative synthetic turf infills on athlete performance and safety</td>
<td>Kyley Dickson</td>
</tr>
<tr>
<td>21:00</td>
<td>Room 2</td>
<td>Numerical investigation of the flow around a feather shuttlecock with rotation</td>
<td>John Hart</td>
<td>Design and verification of a highly accurate and precise passing machine for american football</td>
<td>Influence of running shoes and running velocity on ‘ride’ during running</td>
<td>Impact of brushing and infill maintenance on field safety of third generation synthetic turf</td>
<td>Kyley Dickson</td>
</tr>
<tr>
<td>21:20</td>
<td>Room 3</td>
<td>Investigation of aerodynamic drag of baseballs with gyro spin</td>
<td>Bin Lyu</td>
<td>Investigating the influence of shaft balance point on clubhead speed: a simulation study</td>
<td>Peak compression force physics in rugby union scrum</td>
<td>In-shoe plantar pressure measurement – influence of insole placement on selected parameters during running</td>
<td>Franziska Mally</td>
</tr>
<tr>
<td>21:40</td>
<td>Room 4</td>
<td>Influence of surface properties on soccer-ball trajectories</td>
<td>John Goff</td>
<td>Influence of grip mass on driving performance</td>
<td>Non-parametric shape optimization of a football boot bottom plate</td>
<td>Running shoes - possible correlations of biomechanical and material tests</td>
<td>Franziska Mally</td>
</tr>
<tr>
<td>22:00</td>
<td>Room 5</td>
<td>Comparison of aerodynamic properties of badminton feather and synthetic shuttlecocks</td>
<td>Kenichi Nakagawa</td>
<td>Clustering golfers through force plate analysis</td>
<td>Simulation-driven design of a portable basketball hoop system</td>
<td>Effect of rest periods on mechanical ageing of running shoes</td>
<td>Liu Gan</td>
</tr>
<tr>
<td>22:20</td>
<td>Room 6</td>
<td>Serve ball trajectory characteristics of different volleyballs and their causes</td>
<td>Takehiro Tamari</td>
<td>Proposal of golf swing analysis method using singular value decomposition</td>
<td>Analysis of arm joint torques at ball-release for set and jump shots in basketball</td>
<td>Classification of the runner’s preferences in running shoes based on equilibrium-point-based muscle synergies</td>
<td>Daisuke Kogawa</td>
</tr>
<tr>
<td>22:40</td>
<td></td>
<td>Difference of reynolds crisis aspects on soccer balls and their panels</td>
<td>Yuki Sakamoto</td>
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### Free conversation

*You may ask the room keeper to make a private room*
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<tr>
<td>20:00</td>
<td><strong>Impact</strong></td>
<td>Fluid dynamics: Hydrodynamics, Ski</td>
<td>Measurement system</td>
<td>Winter sports: On snow</td>
<td>Baseball, Cricket</td>
<td>Lounge</td>
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<tr>
<td>20:40</td>
<td>The role of friction and tangential compliance on the resultant launch angle of a golf ball</td>
<td>Erik Henrikson</td>
<td>How to assess repeatability and reproducibility of a mechanical test? an example for sports engineers</td>
<td>A novel approach for a faster prototyping of winter sport equipment using digital image correlation and 3D-printing</td>
<td>Martin Colonna</td>
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<td>[21:00] Adjusting a momentum-based golf clubhead-ball impact model to improve accuracy</td>
<td>Behzad Danaei</td>
<td>Assessment of measurement uncertainty in optical marker tracking of high-speed motion</td>
<td>Comparing the performance of the biathlon rifles with wooden and titanium frames</td>
<td>Andrey Koplyug</td>
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<td>[21:20] Exploration of center of gravity, moment of inertia, and launch direction for putters with ball speed normalizing face properties</td>
<td>Jacob Lambeth</td>
<td>The hydrodynamics of high diving</td>
<td>Modelling bending stiffness and vibration characteristics to enable simulation-driven ski design</td>
<td>Martin Fagerström</td>
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<td></td>
<td>[21:40] A review of equestrian polo and a methodology for testing the mechanical properties of the mallet</td>
<td>Paul Ewart</td>
<td>Numerical CFD investigation of shortboard surfing: fin design vs. cutback turn performance</td>
<td>Can we trust inertial and heart rate sensor data from an apple watch device?</td>
<td>Hugo G. Espinosa</td>
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<td>[22:00] Effects of pimpyle height of a table tennis rubber on ball rebound behavior</td>
<td>Yoshiya Miyazawa</td>
<td>Evaluation of a framework for visual-feedback training based on a modified self-organizing map using sensing information including muscle activity</td>
<td>Quantifying topographical changes in muscle activation: a statistical parametric mapping approach</td>
<td>Patricio pincheira</td>
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<td>[22:20] Study on mechanical characteristics of string planes of badminton racquets by nonlinear finite element analysis</td>
<td>Masatomo Takizawa</td>
<td>Field research and numerical CFD analysis of humback whale-inspired shortboard fins</td>
<td>Flow behavior caused by air permeability of ski jumping suit fabric</td>
<td>Yuki Kataoka</td>
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<td>[22:40] Impact characteristics of a badminton racket with realistic finite element modeling</td>
<td>Shih-Rong Yin</td>
<td>Dynamic motion analysis using a wearable sensor system in a stabilometer installed with generation function of disturbance from a floor</td>
<td>Convenient method for detecting ski-turn features with inertial and planar pressure sensors</td>
<td>Seiji Matsumura</td>
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<td><strong>Day 3 (Wednesday, 24 June UTC)</strong></td>
<td>[Keynote Lecture (Webinar)] Of Bats and Balls</td>
<td>Prof. Lloyd Smith</td>
<td>[Free conversation (You may ask the room keeper to make a private room)]</td>
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<td>20:00</td>
<td>VR/AR, Feeling</td>
<td>Cycling: Aerodynamics, Planning, Training</td>
<td>Sports in water: Development and Design</td>
<td>Adapted sports</td>
<td>Injury</td>
<td>Lounge</td>
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<td>20:40</td>
<td>Exploring the effect of pacing plan feedback for professional road cycling</td>
<td>Optimization of the internal structure and shape of a 470 dinghy centerboard</td>
<td>Conceptual design of a new multi-component test bench for the dynamic characterization of running specific prostheses</td>
<td>Are UCL injuries a matter of bad luck? The role of variability and fatigue quantified</td>
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<td>Maximilian Bauer</td>
<td>Radoslaw Dukalski</td>
<td>Max Forkman</td>
<td>Nicola Petrone</td>
<td>Bart van Trigt</td>
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<td>21:00</td>
<td>2K-reality and the compliant sports augmentation framework for grassroots sports</td>
<td>Cyclist reynolds number effects and drag crisis distribution</td>
<td>Modern surfboards and their structural characterization: towards an engineering approach</td>
<td>Collection of structural loads acting on instrumented Running Specific Prostheses during field tests on elite athletes</td>
<td>Defining the individual injury profile of recreational runners: Integrating off-training and subjective factors into the assessment of non-professional athletes</td>
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<td>Timothy Ryan</td>
<td>Wouter Terra</td>
<td>Luca Oggiorno</td>
<td>Nicola Petrone</td>
<td>Juan Restrepo-Vilamizar</td>
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<td>21:20</td>
<td>Are you for real? Engineering a virtual lab for the sports sciences using wearables and IoT</td>
<td>Drafting effect in cycling: on-site aerodynamic investigation by the 'Ring of Fire'</td>
<td>Parametric shape and manufacturing optimization of customized kitesurf hydrofoils</td>
<td>Shape optimization of running specific prosthesis based on force-displacement characteristics</td>
<td>Efficacy of density in predicting the protective properties of padded clothing in rugby</td>
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<td>Joel Banesha</td>
<td>Alexander Spoelstra</td>
<td>Jakob Schmidt</td>
<td>Cem Guzelbulut</td>
<td>Syed Adil Imam</td>
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<td>Toward Augmented Reality displays for sports spectators: a preliminary study</td>
<td>Investigation of influence of adjustments in cyclist arm position on aerodynamic drag using computational fluid dynamics</td>
<td>A new measurement system for performance analysis in Flatwater Sprint Kayaking</td>
<td>Measurement of dynamic behavior of running- Specific prostheses by an impact test</td>
<td>Effect of football size and mass in youth football head impacts Marcus Dunn</td>
<td>Free conversation</td>
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<td>Clara Hertzog</td>
<td>Koutl Erik Teigen Gliathus</td>
<td>Vincenzo Bonaiuto</td>
<td>Hiroki Nakayama</td>
<td>Marcus Dunn</td>
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<td>Improving numerical estimation of cyclist drag-area in static conditions using unsteady RANS</td>
<td>Numerical simulation of mutual influence in 470 sailing hull and rudder at different hull speeds</td>
<td>Evaluation of operability for a competition wheelchair using manipulability</td>
<td>Brain pressure wave propagation during baseball impact</td>
<td>Yusuke Miyazaki</td>
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<td>Ardalan Javadi</td>
<td>Shijie Lin</td>
<td>Kazuki Taira</td>
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<td>Understanding the aerodynamic benefits of drafting in the wake of cyclists</td>
<td>Water ski binding release characteristics in forward lean</td>
<td>Analysis of swimming motion for a swimmer with unilateral transradial deficiency to develop better training paddles</td>
<td>Applicability of thermoplastic elastomers to impact load reduction in sports</td>
<td>Akihiro Matsuda</td>
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<td>Christopher Brown</td>
<td>Bethany Suderman</td>
<td>Motomu Nakashima</td>
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<td>Improving road bike leaning skills on downhill corners (Developing a system for detecting curvature change points and the angle of a road bike while riding)</td>
<td>Naosuke Uchida</td>
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<td>20:00</td>
<td>Running, Walking: Development and Design</td>
<td>Education</td>
<td>FIFA Special Session</td>
<td>Backup</td>
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<td>Lounge</td>
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<tr>
<td>20:40</td>
<td>Measuring running workload and key points during treadmill running using a custom build 'NODES' system Jos Goudsmit</td>
<td>The role of technology in promoting physical activity: a case-study of parkrun Steve Haake</td>
<td>Backup</td>
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<td>21:00</td>
<td>The influence of backpack-design on thermophysiological parameters during simulated hiking efforts Julia Wilfling</td>
<td>Use of video for teaching sports mechanics John Goff</td>
<td>FIFA Special Session (TBD)</td>
<td>Backup</td>
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<td>21:20</td>
<td>Collection of kinematic and kinetic data of young &amp; adult, male &amp; female subjects performing periodic and transient gait tasks for gait pattern recognition Paolo Mistretta</td>
<td>STEMfit: Student centric innovation to improve STEM educational engagement using physical activity, wearable technologies and lean methodologies Daniel James</td>
<td>Backup</td>
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<td>21:40</td>
<td>The IART system for race-walking: experience with world-class Olympic race walkers Teodorico Caporaso</td>
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<td>22:00</td>
<td>Use of inertial measurement system to calculate maximal power during running sprint acceleration: comparison with radar system Jean Slawinski</td>
<td>Education meet up</td>
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<td>22:20</td>
<td>Evaluation of 3-axial knee joint torques produced by compression sports tights in running motion Taisei Mori</td>
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<td>22:40</td>
<td>Conference closing ceremony (Webinar)</td>
<td>- Awards ceremony</td>
<td>- ISEA2022 announcement</td>
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