

## Day 1 (Monday, 22 June UTC)

20:00	Conference Opening Ceremony (Webinar) - Opening remarks from the conference chair - Remarks from the President of ISEA					
20:20	Keynote Lecture (Recorded) Statistical biomechanical models of running Prof. John Rasmussen					
	<b>Room 1</b>	<b>Room 2</b>	<b>Room 3</b>	<b>Room 4</b>	<b>Room 5</b>	<b>Room 6</b>
	<b>Running: Motion Analysis</b> Chair: Daniel James	<b>Cycling: Vibration, Control, Heat</b> Chair: Akihiro Matsuda	<b>Winter sports: On ice</b> Chair: Yuji Ohgi	<b>Archery, Pentathlon, Gymnastics</b> Chair: Hiroki Yokota	<b>Sports in water: Biomechanics</b> Chair: Hugo Espinosa	<b>Lounge</b>
21:00	Comparison between indoor sled tests on the skillrun treadmill and outdoor field tests at increasing sledge loads Alessandro Volpe	<del>A study of skin close heat and moisture with different types of backpacks in cycling</del> Robert Klauer --> <b>went to Backup session (Day 5)</b>	Enhancing performance of elite speed skaters using skateview, a new device to measure performance in speed skating Jeroen van der Eb	Optimal shooting cadence in the laser-run trial of modern pentathlon Tom Maddalena	Fully coupled modeling of athlete force application and power transfer in rowing ergometry Stephen Tullis	Free conversation (You may ask the administrator to make a private talking room)
21:20	Plantar pressure distribution under uniform and gradient foam during running and jumping Olly Duncan	Exposure of children in a bicycle trailer to whole-body vibration Stefan Schwanitz	2D video analysis system to analyze the performance model of figure roller skating: a pilot study Cristian Romagnoli	Use of acceleration sensors in archery Markus Eckelt	Association between changes in swimming velocity, vertical center of mass position, and projected frontal area during maximal 200-m front crawl Sohei Washino	
21:40	Force pattern and acceleration waveform repeatability of amateur runners Thomas Provot	Understanding the effect of gloves on hand-arm vibrations in road cycling Giuseppe Sanseverino	Comparing broom conditions in curling: measurements using ice topography Megan Balsdon	Experimental and computational study of archery arrows fletched with straight vanes Julio Ortiz	Simulation model of flip turn in swimming Motomu Nakashima	
22:00	Features observed using multiple inertial sensors for running track and hard-soft sand running: a comparison study Matthew Worsey	Bicycle disc brake thermal performance: combining dynamometer tests, bicycle experiments, and modeling Ioan Feier	Multi-technology correction based 3d human pose estimation for jump analysis in figure skating Limao Tian	Development of an archery robot for the selection of arrows Masashi Ohara	The difference of propulsive force between water surface and underwater conditions in flutter kick swimming Hiroshi Ichikawa	
22:20	Mechanical advantages and disadvantages of lower limb using forefoot to heel strike landing Takayuki Koike	On the effectiveness of suspension stems in reducing vibration transmitted to a cyclist's hands in road cycling Jean-Marc Drouet		Motion and muscle activity of synchronized rolling-type double-leg circles on a pommel horse Motoyuki Nawa		
22:40		Development of a feedback system to control power in cycling Patrick Mayerhofer		Investigation of the athlete's motion using the gymnastics apparatus' motion Naoki Arakawa		

## Day 2 (Tuesday, 23 June UTC)

Keynote Lecture (Webinar) Lessons of the past, prospects for the future Prof. Kazuya Seo						
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
20:00	Keynote Lecture (Webinar) Lessons of the past, prospects for the future Prof. Kazuya Seo					
	<b>Fluid Dynamics: Ball, Shuttle</b> Chair: Firoz Alam	<b>Golf</b> Chair: Paul Wood	<b>Football, Basketball</b> Chair: Takeo Maruyama	<b>Running: Shoes</b> Chair: Katsumasa Tanaka	<b>Sports surface</b> Chair: Paul Fleming	<b>Lounge</b>
20:40	Comparing the aerodynamic behaviour of real footballs to a smooth sphere using tomographic PIV Matthew Ward	Effect of horizontal ground reaction forces during the golf swing: implications for the development of technical solutions of golf swing analysis Maxime Bourgain	Introducing a new activity-based balance index using accelerometer data and evaluate it as a predictor of skill level among elite junior soccer players Shahram Lenjannejadian	Perception of running shoe cushioning: objective and subjective measurements in short-distance running Bahador Keshvari	Impact of alternative synthetic turf infills on athlete performance and safety Kyley Dickson	Free conversation (You may ask the administrator to make a private talking room)
21:00	Numerical investigation of the flow around a feather shuttlecock with rotation John Hart	Just noticeable differences in the length of golf irons Josh Sumner	Development and verification of a highly accurate and precise passing machine for american football Bernhard Hollaus	Influence of running shoes and running velocity on 'ride' during running Franziska Mally	Impact of brushing and infill maintenance on field safety of third generation synthetic turf Kyley Dickson	
21:20	Investigation of aerodynamic drag of baseballs with gyro spin Bin Lyu	<del>Investigating the influence of shaft balance point on clubhead speed: a simulation study</del> William McNally --> went to Backup session (Day 5)	Peak compression force physics in rugby union scrum Benjamin Lallemand	In-shoe plantar pressure measurement – influence of insole placement on selected parameters during running Franziska Mally	A penetrometer for quantifying the surface stiffness of sport sand surfaces David Thiel	
21:40	Influence of surface properties on soccer-ball trajectories John Goff	Influence of grip mass on driving performance Sasho Mackenzie	Non-parametric shape optimization of a football boot bottom plate Jeongro Lee	Running shoes - possible correlations of biomechanical and material tests Markus Eckelt	Influence of ambient temperature on tvoc released from polyurethane athletics track Gan Liu	
22:00	Comparison of aerodynamic properties of badminton feather and synthetic shuttlecocks Kenichi Nakagawa	Clustering golfers through force plate analysis Jonathan Shepherd	Simulation-driven design of a portable basketball hoop system Drew Burkhalter	Effect of rest periods on mechanical ageing of running shoes Tom Allen		
22:20	Serve ball trajectory characteristics of different volleyballs and their causes Takehiro Tamaru	Proposal of golf swing analysis method using singular value decomposition Kenta Matsumoto	Analysis of arm joint torques at ball-release for set and jump shots in basketball Hiroki Okubo	Classification of the runner's preferences in running shoes based on equilibrium-point-based muscle synergies Daisuke Kogawa		
22:40	Difference of Reynolds crisis aspects on soccer balls and their panels Yuki Sakamoto					

## Day 3 (Wednesday, 24 June UTC)

Keynote Lecture (Webinar) Of Bats and Balls Prof. Lloyd Smith						
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
20:00						
	<b>Impact</b> Chair: Jeffrey Kensrud	<b>Fluid dynamics: Hydrodynamics, Ski</b> Chair: John Eric Goff	<b>Measurement system</b> Chair: Jonathan Shepherd	<b>Winter sports: On snow</b> Chair: Motomu Nakashima	<b>Baseball, Cricket</b> Chair: Patrick Drane	<b>Lounge</b>
20:40	The role of friction and tangential compliance on the resultant launch angle of a golf ball Erik Henrikson	A customised finn dinghy rudder for optimal olympic performance Martin Fagerström	How to assess repeatability and reproducibility of a mechanical test? an example for sports engineers Dominik Krumm	A novel approach for a faster prototyping of winter sport equipment using digital image correlation and 3D-printing Martino Colonna	Effects of a disturbed kinetic chain in the fastball pitch on elbow kinetics and ball speed Ton Leenen	Free conversation (You may ask the administrator to make a private talking room)
21:00	Adjusting a momentum-based golf clubhead-ball impact model to improve accuracy Behzad Danaei	Hydrodynamic characterization of planing surfboards using CFD Domenic D'Ambrosio	Assessment of measurement uncertainty in optical marker tracking of high-speed motion Paul Lückemann	Comparing the performance of the biathlon rifles with wooden and titanium frames Andrey Koptuyug	Novel experimental protocol to capture movement data and predict shot execution in cricket batting Pubudu Dias	
21:20	Exploration of center of gravity, moment of inertia, and launch direction for putters with ball speed normalizing face properties Jacob Lambeth	The hydrodynamics of high diving Caroline Cohen	Can we trust inertial and heart rate sensor data from an apple watch device? Hugo G. Espinosa	Modelling bending stiffness and vibration characteristics to enable simulation-driven ski design Martin Fagerström	Wood bat durability as a function of bat profile and slope of grain Blake Campshure	
21:40	A review of equestrian polo and a methodology for testing the mechanical properties of the mallet Paul Ewart	Numerical CFD investigation of shortboard surfing: fin design vs. cutback turn performance David Shormann	Quantifying topographical changes in muscle activation: a statistical parametric mapping approach Patricio Pincheira	Effect of surrogate surface compliance on the measured stiffness of snowboarding wrist protectors Gemma Leslie	Comparison of two methods to estimate the maximal velocity of a ball during an overhand throw Alanna Weisberg	
22:00	Effects of pimple height of a table tennis rubber on ball rebound behavior Yoshiya Miyazawa	Field research and numerical CFD analysis of humpback whale-inspired shortboard fins David Shormann	Evaluation of a framework for visual-feedback training based on a modified self-organizing map using sensing information including muscle activity Hiroki Yokota	Comparative study of ski damping technologies by accelerance maps Philippe Gosselin	Spin rate measurements in cricket bowling using magnetometers Aswath Kumar	
22:20	A study on the mechanical characteristics of string planes of badminton racquets by nonlinear finite element analysis Masatomo Takizawa	Flow behavior caused by air permeability of ski jumping suit fabric Yuki Kataoka	Dynamic motion analysis using a wearable sensor system in a stabilometer installed with generation function of disturbance from a floor Yasuhiro Nakamichi	Historical trends in alpine ski design: how skis have evolved over the past century Jonas Truong	Standard of the initial ball velocity for a fly ball in baseball hitting Hirotaka Nakashima	
22:40	Impact characteristics of a badminton racket with realistic finite element modeling Shih-Rong Yin			Convenient method for detecting ski-turn features with inertial and plantar pressure sensors Seiji Matsumura	Quantification of ball-speed generating mechanism of baseball pitching by using IMUs Sekiya Koike	

## Day 4 (Thursday, 25 June UTC)

Keynote Lecture (Webinar) Gymnastics Judgement Support System Dr. Takashi Honda						
	Room 1	Room 2	Room 3	Room 4	Room 5	Room 6
20:00	<b>VR/AR, Feeling</b> Chair: Simon Choppin	<b>Cycling: Aerodynamics, Planning, Training</b> Chair: Takeshi Asai	<b>Sports in water: Development and Design</b> Chair: Stephen Tullis	<b>Adapted sports</b> Chair: David Thiel	<b>Injury</b> Chair: Toshimasa Yanai	<b>Lounge</b>
20:40	Rapid sensory profiling of tennis rackets Maximilian Bauer	Exploring the effect of pacing plan feedback for professional road cycling Radoslaw Dukalski	Optimization of the internal structure and shape of a 470 dinghy centerboard Max Forkman	Conceptual design of a new multi-component test bench for the dynamic characterization of running specific prostheses Nicola Petrone	Are UCL injuries a matter of bad luck? The role of variability and fatigue quantified Bart van Trigt	Free conversation (You may ask the administrator to make a private talking room)
21:00	2K-reality and the compliant sports augmentation framework for grassroots sports Timothy Ryan	Drafting effect in cycling: on-site aerodynamic investigation by the 'Ring of Fire' Alexander Spoelstra	Modern surfboards and their structural characterization: towards an engineering approach Luca Oggiano	Collection of structural loads acting on instrumented Running Specific Prostheses during field tests on elite athletes Nicola Petrone	Defining the individual injury profile of recreational runners: Integrating off-training and subjective factors into the assessment of non-professional athletes Juan Restrepo-Villamizar	
21:20	Are you for real? Engineering a virtual lab for the sports sciences using wearables and IoT Joel Benesha	Investigation of influence of adjustments in cyclist arm position on aerodynamic drag using computational fluid dynamics Knut Erik Teigen Giljarhus	Parametric shape and manufacturing optimization of customized kitesurf hydrofoils Jakob Schmidt	Shape optimization of running specific prosthesis based on force-displacement characteristics Cem Guzelbulut	Efficacy of density in predicting the protective properties of padded clothing in rugby Syed Adil Imam	
21:40	Toward Augmented Reality displays for sports spectators: a preliminary study Clara Hertzog	Cancelled	A new measurement system for performance analysis in Flatwater Sprint Kayaking Vincenzo Bonaiuto	Measurement of dynamic behavior of running- Specific prostheses by an impact test Hiroki Nakayama	Effect of football size and mass in youth football head impacts Marcus Dunn	
22:00		Understanding the aerodynamic benefits of drafting in the wake of cyclists Christopher Brown	Numerical simulation of mutual influence in 470 sailing hull and rudder at different hull speeds Shijie Lin	Evaluation of operability for a competition wheelchair using manipulability Kazuki Taira	Brain pressure wave propagation during baseball impact Yusuke Miyazaki	
22:20		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) Naosuke Uchida	Water ski binding release characteristics in forward lean Bethany Suderman	Analysis of swimming motion for a swimmer with unilateral transradial deficiency to develop better training paddles Motomu Nakashima	Applicability of thermoplastic elastomers to impact load reduction in sports Akihiro Matsuda	
22:40						

## Day 5 (Friday, 26 June UTC)

20:00	Keynote Lecture (Webinar) Research and development of high value-added sports products based on Mechanical Engineering Dr. Takeshi Naruo					
	<b>Room 1</b>	<b>Room 2</b>	<b>Room 3</b>	<b>Room 4</b>	<b>Room 5</b>	<b>Room 6</b>
	<b>Running, Walking: Development and Design</b> Chair: Yusuke Miyazaki	<b>Education</b> Chair: Stefan Litzenberger	<b>FIFA Special Session</b> Chair: Johsan Billingham	<b>Backup session</b> Chair: Kiyoshi Hirose	<b>Backup</b>	<b>Lounge</b>
20:40	Measuring running workload and key points during treadmill running using a custom build 'NODES' system Jos Goudsmit	The role of technology in promoting physical activity: a case-study of parkrun Steve Haake	FIFA Special Session "The research journey from Russia 2018 to Qatar 2022" Key research projects, future challenges, FIFA research grants and ways to get involved Organized by Johsan Billingham, Research Manager, FIFA	A study of skin-close heat and moisture with different types of backpacks in cycling Robert Klauer	Backup	Free conversation (You may ask the administrator to make a private talking room)
21:00	The influence of backpack-design on thermophysiological parameters during simulated hiking efforts Julia Wilfling	Use of video for teaching sports mechanics John Goff		Investigating the influence of shaft balance point on clubhead speed: a simulation study William McNally	Backup	
21:20	Collection of kinematic and kinetic data of young & adult, male & female subjects performing periodic and transient gait tasks for gait pattern recognition Paolo Mistretta	STEMfit: Student centric innovation to improve STEM educational engagement using physical activity, wearable technologies and lean methodologies Daniel James		Backup	Backup	
21:40	The IART system for race-walking: experience with world-class Olympic race walkers Teodorico Caporaso	"Education meet up" Organized by Stefan Litzenberger (Technikum Wien) and Stefan Schwanitz (TU Chemnitz)		Backup	Backup	
22:00	Use of inertial measurement system to calculate maximal power during running sprint acceleration: comparison with radar system Jean Slawinski	- Sports Engineering Education world wide - ISEA activities. How to contribute and how to profit from ISEA funding: - student grants - engaging grants - 2020 student project competition - Winterschools/Summerschools around the globe		Backup	Backup	
22:20	Evaluation of 3-axial knee joint torques produced by compression sports tights in running motion Taisei Mori	- Project: Alliance for Sports Engineering Education - Bringing together industry and academia		Backup	Backup	
22:40	Conference closing ceremony (Room 3) - Closing remarks from the conference chair - Award ceremony - ISEA fellow announcement - ISEA2022 announcement - Group photo (video)					