



International Conference on Artificial Intelligence in Sports (ICAIS 2026)

12-13 October 2026

United Arab Emirates University, Al Ain, UAE

Conference Program and Information Booklet



Invited Speakers

Session Chair: Dr. Dr. Shaima Alkaabi - CCAI

AI for Team Sports Analytics

Prof. Keisuke Fujii

Graduate School of Informatics, Nagoya University, Japan

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Biography



Keisuke Fujii is an Associate Professor at Nagoya University, Japan. His research focuses on AI and machine learning for human movement and team sports, including multi-agent modeling, computer vision, and data-driven decision support. He works on translating advanced analytics into practical tools for sports science and coaching.

AI-Based Analysis of Muscle Activity in Karate Experts Using Wearable Sensors

Prof. Shingo Shimoda

Graduate School of Medicine, Nagoya University, Japan

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Biography



Shingo Shimoda received his Ph.D. in Engineering from the University of Tokyo in 2005. After spending time as a visiting student at MIT, he joined the RIKEN Brain Science Institute in 2008 as a Unit Leader. In 2023, he was Professor at the Graduate School of Medicine at Nagoya University.

Session Chair: Hanane LAMAAZI - CCAI

Winning Trust Before Winning Games: Bridging the Court and the Code in Elite Sport

Prof. Keita Watanabe

Faculty of Human Development, Kokugakuin University

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Biography



Keita Watanabe is a pioneer of sports analytics in Japan. In 2006, he became the first full-time performance analyst for Japan's national volleyball teams, supporting the women's team for a decade. He introduced an iPad-based real-time match-analysis system, contributing to bronze medals at the 2010 FIVB World Championship and London 2012 Olympics. He later served as Team Leader at Tokyo 2020 and Paris 2024. Watanabe co-founded and leads the Japan Sports Analyst Association and chairs Sports Analytics Japan. An Associate Professor at Kokugakuin University, he researches sports data professionals and leads the Japan Volleyball Association's analyst development and certification redesign.

AI-Driven Transformation in Sports in UAE

Eng. Noora Darwish

Ministry of Sports, UAE

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Biography



Eng. Noora is the Chief Artificial Intelligence Executive Officer and Head of the IT Section at the Ministry of Sports, UAE, where she leads AI and information technology initiatives supporting digital transformation



From Movement to Context: Ball and Event Inference from Player Tracking Data in Soccer

Eng. Hyunsung Kim

Korea Advanced Institute of Science and Technology (KAIST), Graduate School of Data Science, Korea
hyunsung.kim@kaist.ac.kr

Biography



Hyunsung Kim is a PhD student in the Graduate School of Data Science at KAIST and a data scientist at Fittogether. His research applies AI to soccer, modeling player trajectory data to infer game context, analyze tactics, and evaluate players. His work has appeared at KDD, CIKM, ECML PKDD, and the MIT Sloan Sports Analytics Conference.

Guest Speakers

Session Chair: Dr. Abdulmalik Alwarafy - CCAI

The Autonomous Football Club: From Data to Agentic AI

Dr. Abrar Abdulnabi

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Abstract

Artificial Intelligence is rapidly transforming football from a data-rich sport into an intelligence-driven ecosystem. The next competitive advantage for clubs will not come simply from collecting more data, but from their ability to transform multimodal information such as video, player tracking, medical, performance, and operational data; into timely and actionable intelligence. This keynote explores the evolution of AI in football from computer vision and performance analytics toward Generative AI, predictive intelligence, and Agentic AI. It highlights emerging applications including real-time tactical copilots, automated opponent analysis, player tracking and positioning, injury-risk prediction, workload and fatigue monitoring, AI-powered scouting, talent development, and executive decision intelligence. Looking toward 2030, the keynote introduces the concept of the Autonomous Football Club: a unified AI ecosystem where intelligent agents support coaches, analysts, medical teams, scouts, and executives while continuously learning from every training session and match. The presentation will also explore the opportunity for the UAE to advance sovereign sports AI capabilities, develop AI-powered smart academies, and establish itself as a global hub for AI-enabled sports innovation. The central message is that AI is not replacing human expertise; rather, the future belongs to organizations that successfully combine trusted AI with human judgment to make faster, smarter, and more informed decisions.

Biography



Abrar Abdulnabi is the Director of Artificial Intelligence at Saal.ai, where she leads the strategy, development, and delivery of advanced AI solutions across government and enterprise sectors in the UAE and MENA region. She holds a PhD in Artificial Intelligence from Nanyang Technological University (NTU), Singapore, specializing in deep learning, computer vision, and natural language processing, and was awarded the prestigious A*STAR scholarship. Her work spans Generative AI, Large Language Models, Agentic AI, computer vision, speech intelligence, and sovereign AI architectures. Dr. Abdulnabi has led AI initiatives across sectors including sports, education, healthcare, smart cities, finance, and public safety. She also contributes to academia and industry as an adjunct professor, advisor, and international speaker, with a particular focus on translating cutting-edge AI research into scalable, real-world intelligent systems.

The Embodied Athletic AI: RoboCup and the Road to 2050

Dr. Hamad Karki

Department of Mechanical Engineering at Khalifa University.

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Abstract

Artificial intelligence in sports is usually presented as a technology that observes human athletes, analyzes performance, and supports coaching decisions. This keynote explores a complementary possibility: AI becoming the athlete. RoboCup was established as a grand challenge for artificial intelligence and robotics, with the long-term goal of developing a fully autonomous humanoid football team capable of defeating the human World Cup champions by 2050. Football was chosen because it brings many difficult problems together in one understandable setting. A robotic player must perceive a changing environment, maintain balance, move and act in real time, respond to uncertainty, and cooperate with teammates against an intelligent opponent. The presentation traces RoboCup's development from its first official competition in 1997 to the first physical 11-versus-11 humanoid robot match in 2026. It examines current capabilities, the considerable gap that remains between robotic and human athletes, and the increasing focus on humanoid football as RoboCup moves toward its 2050 objective.

Biography



Hamad Karki is an Associate Professor at Khalifa University, Department of Mechanical & Nuclear Engineering. With a background in robotics, artificial intelligence, and autonomous systems, he has been actively involved in robot football through his RoboCup team, contributing to areas including perception, control, and localization. His recent work explores how intelligent robots can perceive their environment, make decisions under uncertainty, and cooperate as teams. Drawing on experience in competitions and education, he is particularly interested in using robot football as a test bed for embodied intelligence and in transferring the resulting technologies to applications that benefit the industry.



Building Foundations for Sport: AI in Physical Activity Interventions for Children and Adolescents

Dr. Arto Grasten

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Abstract

Despite the clear benefits of physical activity for children and teens, most do not meet global guidelines. Traditional methods often use one-size-fits-all strategies that overlook individual motivation and physiological responses. Artificial Intelligence (AI) provides a promising solution by enabling tailored, data-driven interventions. This review explored current evidence on AI in physical activity programs for school-aged children. A systematic search of databases like Google Scholar, PubMed, Web of Science, and Scopus identified six relevant studies from 2020 to 2026. Participants aged 6–17 were involved in studies that employed AI techniques such as machine learning, motion recognition, and computer vision in school-based settings. Interventions lasted from 3 to 14 weeks. Results indicate AI interventions can enhance activity levels and fitness outcomes, especially when personalized and interactive. Nevertheless, the evidence is limited and varied, with differences in study design, intervention features, and outcome measures. Moreover, existing systems may not fully account for social and contextual behavioural factors. AI shows great potential as a supplement to traditional methods, but more rigorous research is needed to confirm its effectiveness and practical use.

Biography



Dr. Arto Gråstén Dr. Arto Gråstén holds a PhD in Sport Sciences and a Master of Education. He serves as an Associate Professor and Chair of the Physical Education Department at the College of Education, United Arab Emirates University. Additionally, he is an Adjunct Researcher in Sport Pedagogy at the Faculty of Sport and Health Sciences, University of Jyväskylä, Finland. His professional background includes working as an elementary school teacher and a secondary school health and physical education teacher in Finland. After earning his PhD from Jyväskylä, he lectured in health and physical education at the University of Tasmania, Australia. He also has coaching experience with U12 and U14 children's ice hockey. His research interests are promoting youth participation in physical activity, developing physical education programs, improving motor skills, and fostering self-motivated learning. He has published over 150 works on physical activity, motor competence, health-related fitness, and motivational determinants among children and adolescents.



The AI Coach of the Future in Sports

Prof. Nazar Zaki

Professor Computer Science & Software Eng- CCAI

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Abstract

Artificial intelligence in sports is rapidly evolving from descriptive analytics and performance prediction toward intelligent systems capable of reasoning, simulation, and autonomous decision support. This keynote explores the next generation of sports intelligence through the convergence of agentic AI, world models, multimodal foundation models, and digital twins. Rather than simply analyzing what has already happened, future AI systems will continuously observe athletes, teams, and competitions; reason over multimodal data such as video, tracking information, biometrics, wearables, and historical performance; and recommend actions in real time. Agentic AI can enable specialized autonomous agents to collaborate on tasks including tactical analysis, player performance monitoring, workload management, injury-risk assessment, scouting, and coaching support. A particularly transformative direction is the emergence of world models capable of learning representations of players, opponents, tactics, and game dynamics and using them to simulate possible future outcomes. Combined with digital twins of athletes and teams, such systems could allow coaches to explore counterfactual scenarios asking not only what is happening, but what is likely to happen if a particular decision is made. The keynote presents a forward-looking vision in which sports AI progresses from measuring and predicting performance to simulating possible futures and supporting human decision-makers in choosing the most promising course of action.

Biography



Nazar Zaki is a Professor of Computer Science at the United Arab Emirates University (UAEU), specializing in Artificial Intelligence, Machine Learning, Data Science, and intelligent digital systems. He is the founding director of the Big Data Analytics Center, which has evolved into the Center for Artificial Intelligence and Digital Innovation, with a broader focus on advanced AI, agentic systems, digital innovation, and real-world AI deployment. Professor Zaki's research spans artificial intelligence, machine learning, data mining, bioinformatics, agentic AI, and intelligent decision-support systems, with applications in healthcare, biology, education, government services, and digital transformation. His recent interests include agentic AI, small and large language models, world models, digital twins, and AI systems capable of reasoning, simulation, and autonomous decision support. He has authored more than 250 publications in international journals and conferences and is recognized among the top 2% of scientists worldwide. His scholarly contributions have received numerous awards. His current work focuses on translating advances in artificial intelligence into practical, high-impact solutions and exploring the next generation of intelligent systems that can understand complex environments, simulate possible futures, and support human decision-making.

Football Player Rating Systems: A Comprehensive Survey of Mathematical Models, Evaluation Methods, and Commercial Platforms

Prof. Abdessamad Tridane

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Abstract

Football analysis is one of the fields that has seen the most progress in recent years. It relies primarily on player ratings, which inform decisions regarding training, recruitment, tactical analysis, performance tracking, and talent scouting. Access to event data tracking systems and advanced analytics has led to the emergence of several methods for quantifying individual player performance. However, the literature remains fragmented, with existing studies primarily focusing on specific methodologies or applications rather than comparing methods across the field. This paper presents a systematic survey of football player rating methods published between 2000 and 2026. Following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, we selected and analyzed 197 publications from the Scopus database using a dual bibliometric and qualitative approach. The classification of the methods examined highlights five mathematical families: additive linear scoring models, plus-minus and regression-adjusted models, Markov-chain possession-value models, probabilistic action-value models, and machine-learning weighted-sum models. The study then compares the valuation of philosophies adopted by major commercial platforms and discusses current advances in data-driven player valuation. This analysis reveals a progressive shift away from descriptive statistics toward models that leverage tactical and spatial context for a more nuanced assessment of performance. This survey classifies existing methods, synthesizes literature, discusses current trends and open problems, and can serve as a reference point for future work in this area.

Biography



Abdessamad Tridane is a full professor in the Department of Mathematical Sciences. He joined the United Arab Emirates University (UAEU) in Fall 2013. Prior to his current position at UAEU, he was an Assistant Professor at Arizona State University in the U.S., where he had previously served as an Assistant Research Professor. He has also worked as an industrial consultant. Dr. Tridane has contributed to undergraduate training programs such as the Mathematical Theoretical Biology Institute (MTBI) and the Undergraduate Research Experiences in Mathematical Biology program (UBM). In addition, he has served as PI and Co-PI on research grants funded by NSF, ARO, NRO, and USAID. Dr. Tridane has published mathematical modeling of communicable and non-communicable diseases. His current research focuses on mathematical and computational modeling of diseases in the Middle East, Public Health data analytics, and infectious disease surveillance and control.



Technical Program (Poster Session)

Tuesday, 13 October 2026| Female Auditorium Room, 09:00 – 11:00 (UAE Time)

Poster Exhibition: 09:00–11:00 (UAE Time) Female Auditorium Room

Session ICAIS -1-Track I: Performance 13:00–15:00 (UAE Time) Female Auditorium Room

Session Chair: Dr. Yasir Mahmood - CCAI

Paper ID	Title	Presenter	Affiliation
ICAIS-2614	Machine Learning for Individualized Taper Duration and Peak Performance Prediction in Competitive Swimming	Mohammed Ibrahim Elrakhawy	University of Sharjah, UAE
ICAIS-2629	Forecasting Football Players' Transfermarkt-Estimated Market Values One Season Ahead: A Chronological Evaluation of Machine-Learning Models	Fatima Alblooshi	UAE University, UAE

Session ICAIS-2 — Track II: Health 13:00–15:00 (UAE Time) Female Auditorium Room

Session Chairs: Dr. Mustaqeem Khan & Dr. Omar El Harouss - CCAI

Paper ID	Title	Presenter	Affiliation
ICAIS-2602	A Machine Learning Framework for Predicting Sports Injury Risk Using Athlete Training and Recovery Data	Amna Alraeesi	UAE University, UAE
ICAIS-2604	InjuryLens: An Explainable AI Mobile Application for Football Injury-Risk Prediction and Coach-Friendly Insights Using Machine Learning, LLM, and SHAP	Rawan Elabyad	UAE University, UAE
ICAIS-2611	Do Gait Kinematics Add Value Beyond Metadata in Running-Related Injury Classification?	Nada Masood Mirza	UAE University, UAE
ICAIS-2612	Detecting Absence of Purposeful Recovery After Athlete Floor Contact: An Edge AI Framework Using a Single Overhead Camera	Jasmine Abdul Rasheed	SGS Gulf Limited, UAE
ICAIS-2622	Adaptive Personalized Agentic Edge AI for Multimodal Athlete Health and Readiness Monitoring	Minaha Basheer Melaveettil	UAE University, UAE
ICAIS-2623	Artificial Intelligence Applications for Balancing Relaxation and Physical Activity to Enhance Mental Health Among University Students in the United Arab Emirates	Maged Shaheen	UAE University, UAE
ICAIS-2630	Intelligent Athlete Fatigue Monitoring from Video for Sports Safety, Performance, and Fair Play	Mohammad Shahid	UAE University, UAE
ICAIS-2633	Multi-Modal Detection of Burnout Risk in Esports Athletes: Fusing Wearable Physiological Signals, Voice, and Facial Expression Data with Machine Learning	Mujtaba Shaikh	Ascend Esport, UAE



Session ICAIS-3 —Track III: Innovation 13:00–15:00 (UAE Time) Female Auditorium Room
Session Chair: Dr. Mohamed Masud - CCAI

Paper ID	Title	Presenter	Affiliation
ICAIS-2606	AI and Sensor Fusion in Real-Time Officiating: The Connected Ball and Semi-Automated Offside Technology at the FIFA World Cup 2026	Aliya Nujum Navaz	Al Ain Juniors School, UAE
ICAIS-2607	Explainable Multimodal Artificial Intelligence for Personalizing Exercise Programs and Supporting Functional Independence, Mobility, and Well-Being Among Older Adults	Ahmed Ali	Al-Arish University, UAE
ICAIS-2609	Grounded Arabic-English Personalization of Football Match Narratives Using Generative Artificial Intelligence	Doula Isham Rashik Hasan	Georgia Institute of Technology, UAE
ICAIS-2610	From Non-Fan to Fan: An AI System for Personal Sports Discovery	Hiad Khaldoun Al Hariri	UAE University, UAE
ICAIS-2628	TT-TRAIN: Wrist-Based Table-Tennis Stroke Recognition and Skill Profiling	Abdullah Aamir Hayat	UAE University, UAE

Session ICAIS-4 —Track IV: Sustainability 13:00–15:00 (UAE Time) Female Auditorium Room
Session Chair: Dr. Yasir Mahmood - CCAI

Paper ID	Title	Presenter	Affiliation
ICAIS-2603	Artificial Intelligence-Based Heat-Stress Risk Estimation for Athletes in Hot-Climate Environments Using Wearable Sensor and Weather Data	Abdallah Abu Zaid	UAE University, UAE
ICAIS-2605	Smart Digital Twin for Predictive and Autonomous Thermal Homeostasis in Athletes: A Wearable Cooling Patch Blueprint	Maria Adnan	UAE University, UAE

ICAIS-10 — Competition Award Announcements 15:30–16:00 (UAE Time) Female Auditorium Room

Judge Members:

- ***Dr. Yasir Mahmood, Dr. Mustaqeem Khan, Dr. Mohamed Masud, Dr. Omar El Harouss***

Closing 16:00-16:15 (UAE Time)