2ND BIOMECHANICS IN SPORT AND AGEING SYMPOSIUM

ARTIFICIAL INTELLIGENCE

BUDAPEST, 15-16 OCTOBER 2024

SCIENTIFIC PROGRAM

Day 1 - Tuesday, 15 October 2024, Athens lecture hall, Level -1, K1 building

09.00–15.00 Registration: main entrance reception, Central K Building

10.00–12.00 Social program options:

A. Campus tour: meet at registration area or

B. Opportunity to exercise at the Dr. Koltai Jenő Sports Centre, the state-of-the-art venue for university education and a practice site for the 2023 World Athletics Championship. Meet at entrance of Sports Center at Csörsz utca or

C. Castle walking tour. Meet at registration area.

12.00–13.30 Lunch (on your own, area restaurants, university cafeteria)

Student award candidates mount their poster in the Aula for attendees and members of the jury to view during the Symposium

14.00–14.15 Opening — prof. dr. Tamás Sterbenz, rector, symposium patron

THE BASICS
Chairs: Alan Godfrey, Tibor Hortobágyi | Discussion leader: Melissa Boswell

14.15–15.00 Lead keynote: The world of AI in health care: Past, present, and the future — Peter van Ooijen, Machine Learning Lab Coordinator, Data Science Center in Health, University Medical Center Groningen, The Netherland

15.00–15.15 Questions

15.15–16.00 Opening keynote 1: AI in the biomechanics of sport science: An overview — Neil Cronin, Neuromuscular Research Centre, Faculty of Sport and Health Sciences, University of Jyvaskyla, Finland

16.00–16.15 Questions

16.15–17.00 Opening keynote 2: AI in the biomechanics of aging research: An overview — Claudine Lamoth, Department of Human Movement Sciences, University Medical Center Groningen, The Netherland

17.00–17.15 Questions

17.15–17:30 Set 1 of students deliver their 3-minute-long poster, pitches followed by 2 minutes of questions

17.30–19.30 Free program or guided city tour. Meet at registration area.

19.30 Dinner (on your own)

19.30 Speakers' dinner. C201 Rome seminar room. Sponsor: Human Movement Consulting, Ltd.

HUNGARIAN UNIVERSITY OF SPORTS SCIENCE

08.00–15.00 Registration: main entrance reception, K1 Building

BODY STRUCTURE AND EXERCISE PRESCRIPTION
Chairs: Márta Szmodis, Rita Kiss | Discussion leader: Claudine Lamoth

09.00–09.20 Machine learning on prediction of relative physical activity intensity using medical radar sensor and 3D accelerometer — Attila Biró, Department of Physiotherapy, University of Malaga, Spain

09.20–9.40 Implementation and evaluation of machine/deep learning algorithms for physical activity recognition in older adults — Luis Francisco Sigcha, Data-Driven Computer Engineering Group, Department of Electronic and Computer Engineering, Health Research Institute, University of Limerick, Ireland

09.40–10.00 Assessment of exercise capacity in patients with pulmonary hypertension with actigraphy: on a journey of development of a novel endpoint — Dzmitry Kaliukhovich, Data Science and Digital Health, Johnson & Johnson Innovative Medicine, Beerse, Belgium

10.00–10.20 AI-aided muscle-tendon analysis in sports biomechanics research — Neil Cronin, Neuromuscular Research Centre, Faculty of Sport and Health Sciences, University of Jyvaskyla, Finland

10.20–10.40 Questions

10.40–11.00 Refreshment break outside Athens lecture hall. Set 2 of students deliver 3-minute-long poster pitches followed by 2 minutes of questions.

MOTOR-COGNITIVE FUNCTION AND AI IN AGING
Chair: János Négyesi, Ádám Lelbach | Discussion leader: Peter M.A. van Ooijen

11.00–11.20 Brain connectome age as an intelligent tool for understanding risk factors in healthy aging — Jesus Cortes, Computational Neuroimaging Group, Biocruces-Bizkaia Health

11.20–11.40 Comparison of the diagnostic accuracy of resting-state fMRI driven machine learning algorithms in the detection of mild cognitive impairment — Gergő Bolla, Neurocognitive Research Center, National Institute of Mental Health, Neurology and Neurosurgery, Budapest, Hungary

11.40–12.00 Differentiation of patients with mild cognitive impairment and healthy controls based on computer assisted hand movement analysis —Attila András Horváth, Neurocognitive Research Center, National Institute of Mental Health, Neurology and Neurosurgery, Budapest, Hungary

12.00–12.30 Questions

12.30–14.00 Lunch provided for all registrants in the University Cafeteria

INJURY AND DISEASE
Chair: Attila András Horváth, András Hegyi | Discussion leader: Neil Cronin

14.00–14.20 AI-aided automated recognition of asymmetric and fatigued gait — Gusztáv Fekete, Savaria Institute of Technology, Eötvös Loránd University, Szombathely, Hungary

14.20–14.40 What AI can (not) tell us about ACL re-injury — Chris Richter, Data and Technologies, Bavarian Digital Agency

14.40–15.00 AI-aided characterization of knee function — Melissa Boswell, Department of Bioengineering, Stanford University, Stanford, CA, USA

15.00–15.30 Questions

15.30–16.00 Refreshment break outside Athens lecture hall. Set 3 of students deliver 3-minute-long poster pitches followed by 2 minutes of questions.

PERFORMANCE ASSESSMENT AND PREDICTION WORKSHOP
Chairs and discussion facilitators: Annamária Péter, Leonidas, Petridis, Chris Richter, Jesus Cortes

16.00–16.45 Sensor-based activity recognition in health and disease — Alan Godfrey and Connor Wall, Department of Computer and Information Sciences, Northumbria University, Newcastle upon Tyne, UK

16.45 Social program options:

A. Campus tour: meet at registration area or

B. Opportunity to exercise at the Dr. Koltai Jenő Sports Centre, the state-of-the-art venue for university education and a practice site for the 2023 World Athletics Championship. Meet at entrance of Sports Center at Csörsz utca or

C. Castle walking tour. Meet at registration area.

19.30 Closing dinner for all attendees and speakers together. Location: Aula.