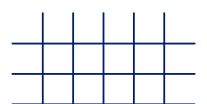# AI for Sport and Health Science, 18th April

Prof. Eef Hogervorst

Eef Hogervorst (Chair of Biological Psychology, Loughborough University , since 2005). Eef studied health sciences and worked as neuropsychologist and epidemiologist at Oxford and Cambridge University as well as in the USA analysing dementia diagnoses and risk and protective factors for dementia. For this, while at Oxford she worked with AI, developing computerised decision trees to support reliability and validity of dementia diagnostics in OPTIMA (Hogervorst et al., 2003) as well as published on ANN and cluster analyses to investigate the main drivers predicting dementia and dependency outcomes (Bandelow and Hogervorst, 2006), Bandelow et al., 2016). She also investigated whether hormone therapy could prevent dementia in older women, using ANN to investigated characteristics of responders and non responders to treatment (Hogervorst, Bandelow, Lehmann, 2009). Using visual perceptual issues in early dementia she investigated non invasive laser pupil scanning as an early diagnostic (Bandelow, vd Wardt and Hogervorst, 2011) as well as use AI in sensoried resistance bands (Ma et al., 2018), to investigate this as a treatment to improve memory in older people with and without dementia. Eef has published over 200 peer reviewed international peer reviewed papers and several books as well as obtained over £10M for her research with collaborators. Eef is regularly invited to give keynotes on her work worldwide as well as to provide public lectures.

Loughborough University

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Dr. Qi Liu is the professor in Life Science college of Tongji University, China. His group has been actively applied AI and omics analysis technology for precision medicine study. His group has published a series of papers in Nature Mahcine Intelligence, Science Advances, Nature Communications etc., and developed softwares for omics data analysis and precision medicine applications.

Prof. Qi Liu
Tongji University

Loughborough University
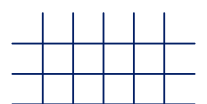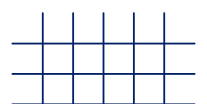
AI for Sport and Health Science, 18th April

Prof.Tomas Jun

Thomas is a design educator/system scientist/participatory design facilitator and an award-winning animation/film producer working in the fields of human-centred design, healthcare system design and system safety. His expertise is in applying systems thinking approaches to the design of complex healthcare systems and integrating new technologies (e.g. digital health, machine learning, wearables) into healthcare systems.

He is an Engineer by training and a Chartered Ergonomist and Human Factor Specialist. He has been an interdisciplinary researcher with the intention of bridging various disciplines (system science, behaviour science and implementation science) into healthcare system design. Thomas holds a bachelor degree (1995) and master's degree (1997) in mechanical engineering, both from Yonsei University, South Korea, and a PhD in engineering design (2007) from Engineering Design Centre, University of Cambridge. Prior to his academic career, he worked at Samsung Electronics as a R&D engineer (1997-2000) and an internal innovative design consultant (2001-2003).

He co-founded a Human Factors and Complex Systems Research Group and leads a Systemsthinking lab. He served various boards and committees in an advisory capacity including Safe Complex Systems Programme at Royal Academy of Engineering (2020-22), World Innovation Summit for Health (2015) and Korean Society of System Safety (2019-onwards). He also serves as Scientific Advisory Board/Reviewer for various design, human factors, healthcare-related journals and conferences including Ergonomics, Safety Science, BMJ, Relating Systems Thinking and Design (RSD), Design Research Society (DRS) and more.

Loughborough University

AI for Sport and Health Science, 18th April

Dr. Hanshu Cai is an Associate Professor at the School of Information Science and Engineering, Lanzhou University, China. He also serves as the Deputy Secretary-General of the Neurofeedback Treatment and Intervention Branch of the China Association for Disaster & Emergency Rescue Medicine. Dr. Cai also serves as Associated Editor for IEEE Transactions on Computational Social Systems and Guest Editor for Frontiers in Neuroscience and Frontiers in Psychology. He has been the Principal Investigator for multiple research projects funded by the National Natural Science Foundation of China and the Ministry of Science and Technology of China. He has co-authored more than 40 publications in peer-reviewed journals and conference proceedings, having received more than 1k citations.

Dr. Hanshu Cai
Lanzhou University

Loughborough University
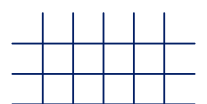
AI for Sport and Health Science, 18th April

Understanding brain design using physical principles

I received the B.E. degree and the Ph.D. degree from Lanzhou University in 2003 and 2009, respectively. I joined the School of Physical Science and Technology, Lanzhou University in 2009. I received the postdoctoral training in the Matter and Complex Systems laboratory of the CNRS and University Paris-Diderot from 2011-2012, focusing on the fMRI data analysis and computational modelling of neural activity from human respiratory systems and its abnormality in COPD patients. My overall research goal is to use models from computational neuroscience and techniques for analyzing neuroimaging data analysis to understand how the brain's functions emerges from neural networks from the perspectives of statistical physics and complex systems.

Dr. Lianchun Yu
Lanzhou University

Loughborough University