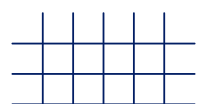# AI for Science, 3rd April

Smart materials and neuromorphic devices, mathematical and physical principles for advanced information processing

Prof. Sergey Saveliev

Graduate Moscow Engineering Physics Institute with PhD in Mathematical and Theoretical Physics in 1996. After several years working at All-Russian Electrical Engineering Institute on large-scale application of superconductivity as a researcher, Sergey moved to the University of Tsukuba (Japan) where worked on superconducting vortex dynamics as a Research Fellow. In 2022, Sergey moved to the Institute of Physical and Chemical Research (Tokyo Japan), where he worked on quantum and nanodevices for different applications including quantum computing. Sergey Saveliev started his work at Loughborough in 2006 and was promoted to a Pfofessor of Theoretical Physics in 2012. Sergey was the Head of Physics, followed by Associate Dean for Research and Associate Dean for Research and Innovation for the School of Science. The School includes departments of physics, chemistry, computer science, mathematics and math education. Sergey is the Academic Lean of pan-University Initiative in AI and Cognitive Technology. Sergey is also co-leading regional (Midlands) network in AI. Sergey if Fellow of America Physical Society and Institute of Physics (UK), Sergey was awarded by EPSRC Advanced Research Fellowship and received the prestigious Humboldt Bessel Award. He is currently Principle Researcher of £1M EPSRC grant about neuromorphic memristive systems. Sergey's current research is focused on neuromorphic devices and materials, neuroscience, and application of AI for economics, climate and net zero, and health.

Loughborough University

AI for Science, 3rd April

AI and Robotics: From Fundamental Research to Applications

I am a Professor of Robotics and Artificial Intelligence in the Department of Computer Science, Loughborough University. Before joining Loughborough University, I worked as a postdoctoral research associate for 4 years in bio-inspired robotics/developmental robotics in University of Wales, Aberystwyth(UWA), UK. I obtained my PhD from the Department of Computer Science, UWA in the area of AI and robotics. Before I came to the UK, I did one year RA in City University of Hong Kong. Before that, I was working in Intelligent Machine Institute at Tianjin University for several years in the area of intelligent robotics.

I have relatively wide research interests in robotics, unmanned aerial vehicles, driverless vehicles, networked systems, ambient assisted living, computer vision, AI and pattern recognition, machine learning and deep learning, both in theory and applications.

Prof. Qinggang Meng

- Fellow of HEA, Senior Member of IEEE, PhD, MSc, BSc
- Professor of Robotics and Artificial Intelligence
- Department Director of Research
- REF2021 UoA11 (Computer Science and Informatics) Submission Lead
- Theme Leader of Vision, AI, Autonomous and Human Centred Systems

Loughborough University
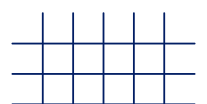
AI for Science, 3rd April

Intelligent optical manipulation and sensing of bioparticles

Yuzhi Shi received his Ph.D. degree in mechanical engineering from Xi'an Jiaotong University in 2018. He joined Nanyang Technological University in 2013 and was a research fellow in School of Electrical and Electronic Engineering from 2018 to 2021. He has been a professor in School of Physical Science and Engineering, Tongji University since 2022. He has innovated many optofluidic manipulation techniques, and published more than 50 papers in prestigious journals. His research interests include optical tweezers, bioparticle manipulation and sensing, machine learning, optical computing, etc. His research has been highlighted by over 30 global media, including Nature Review Materials. He obtained Excellent Young Scientists Fund Program (Overseas) and Shanghai Pilot Program for Basic Research in 2022.

Prof. Yuzhi Shi
Tongji University

Loughborough University
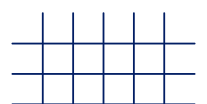
AI for Science, 3rd April

Computational Psychophysiology Based Emotion Analysis for Mental Health

Prof. Bin Hu received his Ph. D. degree in computer science from the Institute of Computing Technology, Chinese Academy of Science in 1998. He is a National Distinguished Expert, the Chief Scientist of 973 as well as the National Advanced Worker in 2020, who was elected as a IEEE/IET/AAIA Fellow. He is a Member of the Steering Council of the ACM China Council and the Vice-Chair of the China Committee of the International Society for Social Neuroscience. He serves as the Editor-in-Chief for the IEEE Transactions on Computational Social Systems. He is also the TC Co-Chair of computational psychophysiology in the IEEE Systems, Man, and Cybernetics Society (SMC). He is a Member of the Steering Committee of Computer Science at the Chinese Ministry of Education, Science and Technology Commission at the Chinese Ministry of Education. His awards include the 2014 China Overseas Innovation Talent Award, the 2016 Chinese Ministry of Education Technology Invention Award, the 2018 Chinese National Technology Invention Award, and the 2019 WIPO-CNIPA Award for Chinese Outstanding Patented Invention. He is a Principal Investigator for large grants such as the National Transformative Technology "Early Recognition and Intervention Technology of Mental Disorders Based on Psychophysiological Multimodal Information", which have greatly promoted the development of objective, quantitative diagnosis and non-drug interventions for mental disorders.

Prof. Bin HU
Lanzhou University

Loughborough University