

ENGINEERING AI - TOWARDS FUTURE ENGINEERS

Speaker

Prof. Haijiang Li

Cardiff University, United Kingdom



Abstract

The talk will focus on the fundamental theory for engineering AI, engineering application framework and examples, including:

Part 1: Concept and Theory: Where to Start?

Part 2: Framework How to? (DIKW pyramid)

Part 3: Applications and Visions

3.1 PINNs – Physics Informed Neural Networks (AI Physics / Engineering Explainable)

3.2 Knowledge & Data Mining

3.3 Domain specific AI – Ontology as RAG

3.4 Engineering AI Agent – automation and autonomy

Part 4: Conclusion – Towards Smart Engineering & Smart Engineers

Part 5: Call for participation

Engineering AI ISO IFC development working group (buildingSMART & ISO)

Engineering AI EG-ICE white paper development

Biography

Prof. Haijiang Li (PhD, FHEA, FBCS, FICE) is a Chair Professor in Cardiff University, United Kingdom. He is the current Chair of EG-ICE – European Group of Intelligent Computing in Engineering and Maritime Domain Committee Chair of buildingSMART. For more than 20 years, Prof. Li has been working towards a new generation smart computational engineering platform underpinned by super power computing, big data and machine learning, inter-linked domain knowledge, artificial intelligence algorithms and BIM based standardization across sectors throughout project life cycle, to support large scale engineering data / information / knowledge processing, smart engineering optimization and holistic decision making to help to achieve sustainable and resilient infrastructure system and built environment. Prof. Li has secured significant research funds from UK, EU and China, as a Principal/Co-Investigator, the total project value is about £50M (£9M as PI, funding sources include EPSRC, NERC, EU FP7/H2020, InnovateUK, WEFO and industry funding). He has established the BIM for Smart Engineering research theme in Cardiff University since 2006, leading the BIM for Smart Engineering Research Group, Centre, Lab (focusing on HPC, BIM, VR/AR/MR, Digital Twins) and MSc programme, working with a team of more than 130 research fellows/associates/PhDs in total since 2006. Prof. Li has produced more than 250 publications (papers, books, patents and official reports), delivered 100+ invited / keynote speeches in UK, EU, China and USA.



**23 August 2025
Saturday**



10:00 am – 11:00 am



**Room 3574 (Lift 27/28)
Civil Engineering
Conference Room**

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