

DEPARTMENT OF CIVIL ENGINEERING

SEMINAR

Construction Digitalisation and Decarbonisation through MetaBIM and EasyCarbon

Prof. Jun WANG Western Sydney University

Date: Jan 10, 2025 (Friday)
Time: 3:00 p.m. to 4:00 p.m.
Venue: Room 632C, 6/F Haking Wong Building, The University of Hong Kong

Abstract

The construction industry is at the forefront of a dual revolution: digitalisation and decarbonisation. This presentation explores how MetaBIM and EasyCarbon, two transformative platforms, are redefining industry practices by integrating advanced technologies with sustainability goals. The session begins with an introduction to BIM model conditioning and data enrichment, where unstructured, incomplete, and inaccurate BIM data is transformed into structured, actionable insights. By bridging gaps in data integrity, this process enables seamless integration across project phases, setting the foundation for advanced applications. Next, we delve into BIM-enabled generative scheduling, leveraging Deep Reinforcement Learning (DRL) to create intelligent, adaptive construction schedules. Drawing inspiration from AI breakthroughs like AlphaGo, this approach not only optimises scheduling efficiency but also offers real-time adaptability, ensuring projects remain resilient to on-site challenges. Finally, the presentation highlights elemental-based carbon estimation and tracking, a groundbreaking methodology for decarbonisation. By integrating BIM with EasyCarbon, we demonstrate how carbon assessments move beyond material-level calculations to focus on project elements, enabling precise monitoring and actionable insights throughout the project lifecycle. This innovative approach supports informed decision-making, aligning construction projects with global sustainability targets.

About the Speaker

Dr. Jun Wang is a Senior Lecturer at Western Sydney University and the Director of the Digital Engineering Lab. He serves as the Associate Editor of the International Journal of Construction Management and is the Vice President of the International Society for Smart Construction and Production (ISSCP). Dr. Wang's research expertise spans Building Information Modeling (BIM), intelligent construction, and construction automation. He has an extensive publication record with over 75 peer-reviewed SCI/SSCI journal articles, including 8 ESI Highly Cited or Hot Papers, amassing more than 8,500 citations and achieving an H-index of 41. Acknowledged as a global leader in his field, he was named one of the Top 10 BIM researchers worldwide in 2017. Dr. Wang has been the Chief Investigator on multiple high-impact research projects, including four funded by the Australian Research Council, focusing on areas such as asset intelligence, sustainable construction, construction robotics, and human-robot collaboration. He has also led two CRC-P grants supported by the Australian Department of Industry, Science and Resources, covering modern construction techniques and waste recycling innovations. In addition to his academic achievements, Dr. Wang has significantly influenced industry practice by leading the development of critical national guidelines, including the Australian BIM Guidelines for Infrastructure and the Australian Digital Asset Management Guidelines and Standards. His work continues to bridge academic innovation and practical application, driving the digital transformation of the construction industry.

- ALL ARE WELCOME -