

IPC2025

11th International Conference on Innovative Production and Construction



Conference Program

7-8 August 2025

Room **5& 6**, Level 2

Perth Convention and Exhibition Centre

Perth, Australia

Organization

Host: International Society for Smart Construction and Production (SCP)

Organizer: East China Jiao Tong University

State Key Laboratory of Safety and Resilience of Mountain Civil Engineering

Co-Organizer:

Nanjing Institute of Technology

Shandong University

Tongji University

Hunan City University

Henan Polytechnic University

Chongqing University

Hunan University of Science and Technology

Jiangxi Communications Investment Group Co., Ltd.

Jiangsu Langqi High-tech Co., Ltd.

Australia-China Friendship Association

North China University of Water Resources and Electric Power

Western Australia Chinese Engineers Association

Alpha Solar Technologies Ltd

Australian KHG Group (Karratha Hedland Group)

Australian APD&C Pty Ltd

Australian Hanred Pty Ltd

Xiamen Zhichuangchi Technology Co., Ltd.

BIM College Students Forum

Journal of Building Design and Environment International Journal

General Chair

Junbo Sun, Curtin University

Honorary Chair

Xiangyu Wang, East China Jiaotong University

Organising Committee

Jun Li, Curtin University

Jun Wang, Western Sydney University

Shengping Li, Curtin University

Tao Fang, East China Jiaotong University

Danqi Li, Curtin University

Lei Hou, RMIT University

Kai Ren, Curtin University

Zhiyang Lin, Technical University of Munich

Wensu Chen, Curtin University

Qian Li, Curtin University

Wen Yi, The Hong Kong Polytechnic University

Yongze Song, Curtin University

Brian Guo, University of Canterbury

Honglei Xu, Curtin University

Wenchi Shou, Western Sydney University

Bo Huang, Hunan University of Science and Technology

Kevin Wang, KHG (karratha hedland group)

International Scientific Committee

Ning Gu, University of South Australia

Benson Lim, University of New South Wales

Farzad Pour-Rahimian, Teesside University

Lucio Soibelman, University of South California

Makarand Hastak, Purdue University

Roger Flanagan, Reading University

Mani Golparvar Fard, University of Illinois

Rahinah Ibrahim, Universiti Putra Malaysia

Raymond Issa, University of Florida

Robert Amor, University of Auckland

Po-Han Chen, National Taiwan University

Shang-Hsien Hsieh, National Taiwan University

Tomohiro Fukuda, Osaka University

Nobuyoshi Yabuki, Osaka University

Hyun Woo Lee, University of Washington

Nuria Forcada, Universitat Politècnica de Catalunya

Ghang Lee, Yonsei University

Inhan Kim, Korea Kyung Hee University

Chan-Sik Park, Chung-Ang University

Huajun Li, Ocean University of China

Dongping Fang, Tsinghua University

Nan Li, Tsinghua University

Albert Chan, Hong Kong Polytechnical University

Jack Cheng, Hong Kong University of Science and Technology

IPC2025 Australian Main Forum Program

Tencent Meeting ID: 890-2896-5300 Password: 2025

DAY 1 7 August Room 5	8:00 – 9:00	Registration
	9:00 – 9:05	Opening Speech 1 Bruce Reynolds, Deputy Lord Mayor Representative of City of Perth
	9:05 – 9:10	Opening Speech 2 Guannan Liu, Consul Representative of Consulate-General of the PR China in Perth
	9:10 – 9:15	Opening Speech 3 Prof. Changjie Xu President of East China Jiao Tong University
	9:15 – 9:20	Opening Speech 4 Prof. Vijay PAL Singh, Fellow of US National Academy of Engineering Founding President of International Society for Smart Construction and Production
	9:20 – 9:25	Opening Speech 5 Sr. Res. Junbo Sun Chair of 11 th International Conference on Innovative Production and Construction
	9.25-9.30	Photo Group
	9:30 – 10:15	Keynote Speech I Water Security and Production and Manufacturing Processes Prof. Vijay PAL Singh Fellow of US National Academy of Engineering, Texas A&M University
	10.15 – 10:35	Morning Tea
	10:35 – 11:20	Keynote Speech II New Research Challenges for Construction 5.0 Prof. Mirosław Skibniewski Fellow of Russian Academy of Engineering, University of Maryland
	11:20 – 12.05	Keynote Speech III Advanced Urban Aerial Mobility: Infrastructure, Vehicle and Systems Prof. Xiaobo Qu Fellow of Academy of Europe, Tsinghua University
	12.05 – 13:30	Lunch (Corridor in front of Room5)

DAY 1 7 August Room 5	Parallel Session I	<i>AI and Digital Innovations in Construction</i> Chair: A/Prof. Lei Hou, RMIT University
	13:30 – 14:15	Keynote Speech IV Pathways for Net-Zero Distinguished Professor, Vivian Tam Fellow of Australian Academy of Technological Sciences and Engineering , ARC College of Expert, Western Sydney University
	14:15 – 14:50	Keynote Speech V Structural Assembly for Modular Construction and Robotic Construction Prof. Yu Bai, Monash University
	14:50 – 15:10	Generative AI Techniques for Vibration-based Structural Health Monitoring Prof. Jun Li, Curtin University
	15:10 – 15:30	Afternoon Tea
	Parallel Session II	<i>Geotechnical Engineering and Smart Mining Technologies</i> Chair: Prof. Danqi Li, Curtin University
	15:30 – 15:50	AI-Driven Mine Safety and Fleet Management Dr. Qian Li, Curtin University
	15:50 – 16:10	Hovermap in Geotechnical Engineering: Enhancing Mapping, Monitoring and Design in Mining Bental Muvirimi, Northern Star Resources
	16:10 – 16:30	Rock Bolts Detection through 4D Point Cloud Data PhD Candidate, Zhen Han, Curtin University
	16:30 – 16:50	Crack Propagation and Induced Seismicity During Energy Exploitation and CO ₂ Geological Storage A/Prof. Xiao Yan (Online), Tongji University
	16:50 – 17:10	Trends and Keyphrase Analysis in Construction and Demolition Waste Sorting Research (2019 – 2025) Research fellow, Mingxue Ma, Western Sydney University
	19.00 – 21.00	Conference Banquet&Awards Ceremony for SCP (Room 5 , INVITED ONLY)

Parallel Session III		1st International Forum on Future-Ready Construction Management Education Chair: Snr. L. Jun Wang, Western Sydney University
DAY 1 7 August Room 6	13:30 – 13:50	Exploring Innovation and Entrepreneurship Education in Application-Oriented Undergraduate Institutions Prof. Aiwu Sun , Nanjing Institute of Technology
	13:50 – 14:30	Introduction of the Forum: Objectives and Future Directions Snr. L. Jun Wang , Western Sydney University & Prof. Yu Yang , Chongqing University
	14:30 – 15:10	Educating the Next Generation of Construction Management Professionals Prof. Chao Mao , Chongqing University
	15:10 – 15:30	Afternoon Tea
	15:30 – 16:15	Roundtable 1: What core competencies should future construction management professionals possess? Prof. Guangbin Wang , Tongji University Prof. Chao Mao , Chongqing University Prof. Qiucheng Lu , UCL Dr. Yang Zou , The University of Auckland A/Prof. Bo Xu , Chongqing University
	16:15 – 17:00	Roundtable 2: How can we leverage generative AI technologies in our teaching practices? Dr. Wenchi Shou , Western Sydney University Prof. Dezhi Li , Southeast University A/Prof. Daizhong Tang , Tongji University Dr. Yan Liu , Nanjing University
	19.00 – 21.00	Conference Banquet&Awards Ceremony for SCP (Room 5 , INVITED ONLY)

DAY 2 - Friday 5 August 2025

Tencent Meeting ID: 890-2896-5300 Password: 2025

DAY 2 8 August Room 5	Parallel Session IV	<i>Multi-disciplinary Collaboration in Construction</i> Chair: Prof. Ning Gu , University of South Australia , Adelaide University
	9:00 – 9:40	Keynote Speech VI : Empathic Computing: Creating Shared Understanding Prof. Mark Billingham Fellow of the Royal Society of New Zealand The University of South Australia
	9:40 – 10:20	Keynote Speech VII : Smart Safe Sustainable City and Construction Leveraging Digital Twin, Agentic AI, and Robotics/Drones Prof. Jack Chin Pang CHENG Hong Kong University of Science and Technology
	10:20-10:40	Morning Tea
	Parallel Session V	<i>Advances in Geo-technical Technology</i> Chair: Prof. Jack Chin Pang CHENG , Hong Kong University of Science and Technology
	10.40– 11:20	Keynote Speech VIII : Novel Interface and Interaction for Computational Design & IVE Prof. Ning Gu, Member of ARC College of Experts University of South Australia, Adelaide University (launch in 2026)
	11:20 – 11:40	Research on Seismic Performance of Concrete-filled Steel Tube Columns with Multiple- Chamber Rectangular Section Prof. Jin Liu , Hunan City University
	11:40 – 12:00	Thermal-Mechanical Behavior of Emergency Anchors A/Prof. Genbao Zhang , Hunan City University
	12:00 – 13:30	Lunch (Corridor in front of Room5)

DAY 2 8 August Room 6	Parallel Session VI	<i>Smart Material and Advanced Structures</i> Chair: A/Prof. Yongze Song, Curtin University
	9.00 – 9.20	Effects of Low Heat Portland Cement on the Hydration and Microstructure Characteristics of Ultra-High Performance Concrete (UHPC) A/Prof. Bo Huang, Hunan University of Science and Technology
	9.20 – 9.40	FRP-Reinforced Steel Structures and Automatic Reinforcement Technology A/Prof. Lili Hu (Online, Invited Speech), University of Science and Technology Beijing
	9.40 – 10.00	Application of Digital Image Correlation in Tensile Tests and Fatigue Tests A/Prof. Zhao Fang, Nanjing Institute of Technology
	10:00 – 10:20	Application and Technologies for Additive Construction of Municipal Landscape Project Prof. Sr. Eng Xiaofei Yao (Online, Invited Speech), CCCC First Highway Consultants Co .Ltd
	10:20 – 10:40	Morning Tea
	Parallel Session VII	<i>Smart Public Transport and Structural Monitoring</i> Chair: Prof. Dongchu Jiang, Hunan City University
	10:40 – 11:00	GeoAI for Addressing Global Resources and Sustainability Challenges A/Prof. Yongze Song, Curtin University
	11:00 – 11:20	Towards an Intergrative Framework: Neuro-Physiological Approaches to Mental Health in Construction Dr Qinjun Liu, Western Sydney University
	11:20 – 11:40	Deep learning-based image translation for the evolution of the microstructure in cement A/Prof. Xupei Yao (Online), Zhengzhou University
	11:40 – 12:00	Research on Key Technologies for Intelligent and Digital Construction of Steel Bridge Structures Dr. Hang Yin (Online), Shenzhen University
	12:10 – 13:30	Lunch (Corridor in front of Room5)

DAY 2 8 August Room 5	Parallel Session VIII	<i>Smart Monitoring Technology in Construction</i> Chair: ARC Early Career Industry Fellow, Zhen Peng, Curtin University
	13:30 – 13:50	Vision-Based Monitoring of Drowning Risks in Coastal Waters through Rule-Based Temporal Inference PhD Candidate, Haosen Chen, Royal Melbourne Institute of Technology University
	13:50 – 14:10	Pathways Towards Life Cycle Net-Zero Emissions in Australian Residential Buildings Dr. Shengping Li, Curtin University
	14:10 – 14:30	Assessing locally explained heterogeneity in determinants of Groundwater storage PhD Candidate, Xiaoyan Cao, University of Jinan/Curtin university
	14:30 – 14:50	Research on Theory and Application Methods of Tolerance Control for Prefabricated Concrete Structures Dr. Hao Long, Hunan City University
	14:50 – 15:10	Numerical Analysis of Phase Change on Fracture Propagation During CO ₂ Fracturing PhD Candidate, Gai Zhang (Online), Tongji University
	15:10 – 15:30	Afternoon Tea
	Parallel Session IX	<i>AI and Digital Twins in Construction Technology</i> Chair: Prof. Zhao Fang, Nanjing Institute of Technology
	15:30 – 15:50	Extraction of Damage-Sensitive Features from Drive-By Vehicle Measurements ARC Early Career Industry Fellow, Zhen Peng, Curtin University
	15:50 – 16:10	Irregular anisotropy of surface urban heat island footprint PhD Candidate, Xinyue Yang, Curtin University
	16:10 – 16:30	Structural Modal Identification based on Deep Learning-based Motion Magnification and Frame Matching PhD Candidate, Chiyuan Lin, Curtin University
	16:30 – 16:50	Physics-guided Deep Learning for Damage Identification of Large-scale Bridge Structures PhD Candidate, Yongzhi Lei, Curtin University
	16:50 – 17:10	Intelligent Tunnel Operation and Maintenance with Retrieval-Augmented Generation and Knowledge Graph PhD Candidate, Yafei Sun, The University of New South Wales
	17:10 – 18.00	Conference Closure& Award Ceremony (Room 5)

DAY 2 8 August Room 6	Parallel Session X	<i>Forum for Graduate Students</i> Chair: Prof. Bo Huang, Hunan University of Science and Technology
	13:30 – 13:50	Advances in Smart Industrialization Technologies for Precast Component Plants of Prefabricated Buildings PhD Candidate, Jing Zou, East China Jiao Tong University
	13:50 – 14:10	Quantitative Analysis of Internal Microcracks in 3D Printed Concrete Using Dual Deep Learning Models Xianda Liu, East China Jiao Tong University
	14:10 – 14:30	Automated personal protective equipment safety inspection for work at height based on UAV and computer vision PhD Candidate, Wenyu Xu(Online), The Hong Kong Polytechnic University
	14:30 – 14:50	Spatiotemporal Adaptive Multiscale Ttransformer for Prediction PhD Candidate, Lai Chen, China University of Geosciences (Wuhan)
	14:50 – 15:10	A Constructability-Aware Physics-Informed Graph Neural Network for Surrogate-Assisted Optimization Design or Rebar in Concrete Beams PhD Candidate, Luis Fernando, Hong Kong University of Science and Technology
	15:10 – 15:30	Afternoon Tea
	15:30 – 15:50	An Automated Constructability Issue Checking System for MEP Cross Section Integrating LLM and Graph Method PhD Candidate, Ang Li, Hong Kong University of Science and Technology
	15:50 – 16:10	Autonomous Robot-Assisted Scheduling and Path Optimization for Construction Resource Handling PhD Candidate, Fangzhou Lin, Hong Kong University of Science and Technology
	16:10 – 16:30	Performance Investigation of Rubberized Concrete Reinforced with Fibres for 3D Printing Haihong Wang, East China Jiao Tong University
	16:30 – 16:50	Excavator identification method based on computer vision technology in nighttime scenes Meng Zhang, East China Jiao Tong University
	16:50 – 17:10	Predicting Sustainable High-Strength Concrete's Mechanical Performance with a Bio-Inspired Neural Network Han Liu, East China Jiao Tong University
	17.10 – 18.00	Conference Closure& Award Ceremony (Room 5)

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