

IPC2024

International Conference on Innovative Production and Construction



Conference Program

Free WIFI: PCEC_Wireless, no password

11-12 July 2024

Perth Convention and Exhibition Centre

Perth, Australia

IPC2024 Conference Program

DAY 1 - Thursday 11 July 2024

Venue: Meeting Room 8, PCEC

Online: MS Teams

link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NTFjZmRkZWYtZDI4OC00ZTJiLWI5ZjEtZDFkY2JiYmE3MmU2%40thread.v2/0?context=%7b%22Tid%22%3a%225a740cd7-5768-4d09-ae13-f706b09fa22c%22%2c%22Oid%22%3a%2211e89445-361d-49fc-bfc8-8fba2ba5591a%22%7d

Meeting ID: 461 385 276 092

Passcode: XByrDK

8:00 – 9:00

Registration

9:00 – 9:10

Welcome to Country

9:10 – 9:14

Opening Speech

Professor Chris Rawson, Deputy Pro Vice-Chancellor, Faculty of Science and Engineering, Curtin University

9:14 – 9:18

Welcome Speech

Professor Kate Brooks, Head of School of Electrical Engineering, Computing and Mathematical Sciences, Curtin University

9:18 – 9:20

International Society for Smart Construction and Production Launch Ceremony

Professor Xiangyu Wang, President of International Society for Smart Construction and Production

9:20 – 10:05

Keynote Speech Session I

Professor Xianzhong Zhao
Tongji University

AI-driven Design of Building Structures

10:05 – 10:30

Group Photo & Morning Tea

10:30 – 12:45

Keynote Speech Session II

10:30 – 11:15

Professor Konrad Bergmeister
University of Natural Resources
and Life Sciences, Vienna

Decarbonisation of Infrastructure Constructions

11:15 – 12:00 **Professor Kerry London**
Torrens University Professionalising the Residential Sector Workforce to Respond to Industrialised Approaches: Collaborative Working over the Asset Life Cycle

12:00 – 12:45 **Professor Tuan Ngo**
University of Melbourne Solving the Productivity Challenge of the Construction Industry: Key Challenges and Opportunities

12:45 – 13:30 Lunch

13:30 – 15:45 Parallel Session I: *Public Transport, Digital Twins and Smart City*

Venue: Meeting Room 8, PCEC | Chair: Yongze Song and Hannah Salzgeber

13:30 – 13:45 Using Vision and AI Techniques for Digital Twins Applications in Civil Engineering
Jun Li, Curtin University

13:45 – 14:00 From Digital Model to Digital Twin in Tunnel Construction
Hannah Salzgeber, University of Innsbruck (online)

14:00 – 14:15 Developing an Accident-Enabled Virtual Reality Training System: A Digital Coach for Tower Crane Operators
Hung-Lin Chi, Hong Kong Polytechnic University

14:15 – 14:30 Unification of Design Calculation and Drawing of Foundation Pit Retaining Structure: One Model Multi-purpose Method
Qiwei Wan, East China Jiaotong University

14:30 – 14:45 Research Hotspots and Trends in Smart City Construction in China: A Systematic Literature Review
Ziduan Zheng, Curtin University

14:45 – 15:00 Performance Assessment of Public Transport Networks: An AHP-ANP Approach
Gang Lin, East China Jiaotong University

15:00 – 15:15 Toward a High-performance and Secure Digital Twin Framework Using Enhanced Blockchain Technology
Xingyu Tao, Hong Kong University of Science and Technology

15:15 – 15:30 Development of Governmental Subsidy Policy for the Promotion of Prefabrication
Huiwen Wang, Hong Kong Polytechnic University

15:30 – 15:45 Enhancing Construction Efficiency through Automated Crane Cameras: A Novel Approach to Monitoring Concrete Pouring Process
Songbo Hu, Western Sydney University

13:30 – 15:45 Parallel Session II: *Smart City Construction and Advances in Construction Material*

Venue: Meeting Room 9, PCEC | Chair: Jun Li and Junbo Sun

13:30 – 13:45 Fresh and Hardened Properties of 3D-printed Mortar Containing Coral Sand
Di Wang, East China Jiaotong University

13:45 – 14:00 Spatiotemporal Analysis on Material Stock and Environmental Impact of Residential Buildings: towards a Circular Economy
Shengping Li, Curtin University

14:00 – 14:15 Prediction of Mechanical Performance of 3D Printed Concrete in Steam Curing Condition
Yufei Wang, Curtin University

14:15 – 14:30 Research on the Crater of Explosion in Calcareous Sand Foundation
Changchun Li, Curtin University

14:30 – 14:45	Performance Investigation of Rubberized Concrete Reinforced with Fibres for 3D Printing Weichen Tang , East China Jiao Tong University
14:45 – 15:00	Solar Energy Applications in Buildings and Urban Environment Chengyang Liu , RMIT University
15:00 – 15:15	Review of Computational Optimization Techniques in Cement-based Materials Jiajie Shang , Curtin University
15:15 – 15:30	Optimisation and Automatic Modelling of Window Layouts on Façade Walls: A Bim-based Generative Design Method Wei Ma , Curtin University
15:30 – 15:45	Generating a Dataset of 3D Bim Models of Condominium Units Using Deep Learning Liang Xing , Osaka University

16:30 – 19:30 Conference Dinner

DAY 2 - Friday 12 July 2024

Venue: Meeting Room 8, PCEC

Online: MS Teams

link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_NTFjZmRkZWYtZDI4OC00ZTJiLWI5ZjEtZDFkY2JiYmE3MmU2%40thread.v2/0?context=%7b%22Tid%22%3a%225a740cd7-5768-4d09-ae13-f706b09fa22c%22%2c%22Oid%22%3a%2211e89445-361d-49fc-bfc8-8fba2ba5591a%22%7d

Meeting ID: 461 385 276 092

Passcode: XByrDK

8:30 – 10:00 Keynote Speech Session III (Online)

8:30 – 9:15	Professor Ioannis Brilakis University of Cambridge	Digital Twinning the Built Environment
9:15 – 10:00	Professor Mirosław J. Skibniewski University of Maryland	Blockchain Technology and “Smart” Contracts for Automated Supply Chains in Disaster Recovery Projects

10:00 – 10:30 Morning Tea

10:30– 12:00 Keynote Speech Session IV

10:30 – 11:15	Professor Heng Li Hong Kong Polytechnic University	Smart Site Safety System in Hong Kong
11:15 – 12:00	Professor Lili Du University of Florida	Robust CAV Coordinated In-Vehicle Routing Leveraging Game Theories, Machine Learning, and Distributed Optimization

12:00 – 12:45	Professor Kamal Alameh Chief Technical Officer, Alpha Solar Tech	Building-Integrated Photovoltaics (BIPV) for Future Zero-Net-Energy Buildings
---------------	---	--

12:45 – 13:30 **Lunch**

13:30 – 15:45 **Parallel Session III: AI, Machine Learning, and Digital Innovations in Construction (I)**

Venue: Meeting Room 8, PCEC | Chair: Dalei Wang and (Brian) Hongwei Guo

13:30 – 13:45	How Knowledge is Represented in AEC Industry: A Systematic Review Zhekai Xia , Zhejiang Sci-Tech University
---------------	---

13:45 – 14:00	Exploring the Interplay of Bottom-up and Top-down Attention in Hazard Perception: Insights from Electroencephalogram and Eye-Tracking Methods (Brian) Hongwei Guo , University of Canterbury
---------------	--

14:00 – 14:15	Performance Evaluation of In-service Bridge Expansion Joints Using Transformer-Based Deep Learning Approaches Dalei Wang , Tongji University
---------------	--

14:15 – 14:30	Enhancing Deep Reinforcement Learning with Neuro-Evolution for Adaptive Mining Fleet Management Xiaolei Xiang , Curtin University
---------------	---

14:30 – 14:45	Dynamic Knowledge Graph-based Accident Causal Analysis and Warning: A Case Study of Bridge Foundation Construction Juntong Zhang , Tongji University
---------------	--

14:45 – 15:00	Graph-based Multi-action HVAC Control: A Hierarchical Reinforcement Learning Strategy Yilong Jia , Deakin University and Western Sydney University
---------------	--

15:00 – 15:15	Automatic Classification for Construction Waste Using Deep Learning Models Based on Feature Fusion Yiqun Zhang , Curtin University
---------------	--

15:15 – 15:30	High-rise Modular Buildings Design Guidelines: A Literature Review Yanhui Sun , Curtin University
---------------	---

15:30 – 15:45	Applications of LLMS in Construction: Case Studies in China Xinyu Zhao , Shanghai University
---------------	--

13:30 – 15:45 **Parallel Session IV: Multi-disciplinary Collaboration in Construction (I)**

Venue: Meeting Room 9, PCEC | Chair: Hung-Lin Chi and Shengping Li

13:30 – 13:45	A Simulation-based Genetic Algorithm Schedule Optimization Method for Multi-line Precast Production Yuan Yao , Western Sydney University
---------------	--

13:45 – 14:00	Multi-reference Images Based on AI Identification to Complete Automatic Assembly Fasteners by Robot Wenyang Chang , National Formosa University
---------------	---

14:00 – 14:15	Drivers and Barriers for Digital Twin Application in Water Infrastructure: A Text Mining Approach Yubo Guo , City University of Hong Kong
---------------	---

14:15 – 14:30	Automatic Inspection Strategy for Underground Utilities Based on BIM Zihan Yang , Zhejiang University
---------------	---

14:30 – 14:45	Research on Defect Detection of Grout Sleeve and Intelligent Grouting Technology Xiushu Qu , Beijing University of Civil Engineering and Architecture
14:45 – 15:00	Investigation of Quality Monitoring System for 3D Printing Concrete Hongyu Zhao , East China Jiaotong University
15:00 – 15:15	Ecological Influence of Oasisization on Adjacent Regions Xueyuan Zhang , Curtin University
15:15 – 15:30	Intelligent Monitoring of the Long-Span Cable System Bridge Based on Machine Vision Hao Zhu , CCCC Second Harbor Engineering Company Ltd
15:30 – 15:45	Resource Optimisation in Construction Projects: Exploring Synergies Between Artificial Intelligence and Building Information Modelling Alashwal Ali , Western Sydney University

15:45 – 16:00 Afternoon Tea

16:00 – 17:30 Parallel Session V: AI, Machine Learning, and Digital Innovations in Construction (II)

Venue: Meeting Room 8, PCEC | Chair: Yanhui Sun

16:00 – 16:15	CELM-based Carbon-Neutral City Definition and Assessment: A Novel Social-ecological Driving Mechanism for Sustainable Urban Climate Mitigation Baoming Yang , Tongji University (online)
16:15 – 16:30	Adaptive Rescheduling Framework for Prefabricated Production Under Dynamic Environment Hui Lu , China University of Geosciences (online)
16:30 – 16:45	University Detection Algorithm for Wearing Safety Helmet in Low Light Scenarios Based on YOLOv8 Zhiliang Zhu , East China Jiaotong University (online)
16:45 – 17:00	ChatBIM: Interactive Data Retrieval and Visualization from BIM Jiarui Lin , Tsinghua University (online)
17:00 – 17:15	Fire Recognition on Construction Sites Based on the SE-DSOD Jie Fu , East China Jiaotong University (online)
17:15 – 17:30	Predictive Modelling of Road Deterioration Using Bayesian Belief Networks Aljasm Hamad , UAE University (online)

16:00 – 17:30 Parallel Session VI: Multi-disciplinary Collaboration in Construction (II)

Venue: Meeting Room 9, PCEC | Chair: Wenchi Shou

16:00 – 16:15	DDIM sampling for Generative AIBIM, a faster intelligent structural design framework Zhili He , Hong Kong University of Science and Technology
16:15 – 16:30	Integrating Artificial Intelligence with Building Information Modelling: A Novel Approach for Spatial Point Dataset Generation Sang Du , RMIT University
16:30 – 16:45	Augmenting Construction Progress Tracking and Digital Information Modeling Utilizing Computer Vision and BIM Wei Wei , Tongji University
16:45 – 17:00	Research on Prediction and Optimization of Tunneling Parameters for Large-Diameter Slurry Balance Shield Machines Using Machine Learning Techniques Tugen Feng , Jiangxi University of Science and Technology

17:00 – 17:15 Research on the Working and Mechanical Properties of Tannic Acid-doped Green 3D Printed Mortar
Qian He, Yangzhou University

17:15 – 17:30 Optimizing Human-robot Collaboration in Off-Site Modular Structure Assembly Using Deep Reinforcement Learning
Yizhe Wang, Monash University

14:30 – 16:15 **Parallel Session VII: Multifunctional Concrete in Smart Construction**
Venue: Huang Hunan University of Science and Technology | Chair: Jianqun Wang

14:30 – 14:45 The Key Technologies for Intelligent Construction of the Non-Navigable Span Bridges of the Shenzhen-Zhongshan Tunnel
Jianqun Wang, Huang Hunan University of Science and Technology

14:45 – 15:00 Research and Application of High Performance Ceramsite Concrete
Zaihua Zhang, Hunan City University

15:00 – 15:15 Study on Static and Seismic Performance of Concrete-filled Steel Tube Column with Multiple Cavities and Round-ended Cross-section
Jin Liu, Hunan City University

15:15 – 15:30 Afternoon tea

15:30 – 15:45 Interface Shear Behavior of Prefabricated Splicing Joints of Ultrahigh-performance Concrete
Hui Zheng, Hunan University of Technology

15:45 – 16:00 Sustainability Assessment of 3D-printed Ultra-high-performance Concrete (UHPC) Modified
Bo Huang, Hunan University of Science and Technology

16:00 – 16:15 Noncontact Cable Vibration Identification based on Semantic Segmentation and Deep Learning Dehazing Algorithms
Chunjun Hu, Changsha University of Science & Technology

Conference Dinner Event, Thursday 11 July 2024

The conference dinner event will be held on the MV River Lady Cruise from 4:30pm to 7:30pm on Thursday, 11 July 2024. The route from Meeting Room 8, PCEC to the departure location Barrack Street Jetty can be found on the following map. It is estimated that the walking distance is 750m and walking time will be 11 minutes. Please arrive at Barrack Steet Jetty before 4:15pm and give the IPC2024 dinner event ticket to the reception to board.

Time Schedule

4:15pm: Guest Boarding

4:30pm: Cruise Departure

7:30pm: Return to Barrack Steet Jetty

