香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

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港科大智能建造實驗室

CEI

The 6th International Conference on Civil and Building Engineering Informatics (ICCBEI 2025)

https://iccbei2025.hkust.edu.hk/

Constructing the Future: Digital Transformation in Smart and Sustainable Built Environment

Dates: 8 - 11 Jan 2025 (Wed - Sat)
Location: Crowne Plaza Hong Kong Kowloon East Hotel
(Tower 5, No. 3 Tong Tak Street, Tseung Kwan O, Hong Kong, China)

Guest of Honor :
Ir Ricky Chun-kit LAU, JP

Opening Keynote Speaker :
Ir Prof. Thomas On-sing HO, JP

The 6th International Conference on Civil and Building Engineering Informatics (ICCBEI 2025) is a key platform for researchers, practitioners, and industry leaders to explore the intersection of civil engineering and informatics. This year's focus is on innovative technologies that enhance the design, construction, and maintenance of civil infrastructure. As urbanization, climate change, and resource constraints challenge the built environment, integrating informatics into civil engineering practices becomes essential. ICCBEI 2025 will feature keynotes from experts, technical sessions, and workshops that highlight research in areas such as digital twin, generative design, and smart infrastructure. Participants will engage in discussions, share insights, and foster collaborations that drive the future of civil and building engineering. Join us in addressing these vital topics and seeking solutions to global infrastructure challenges, as we push the boundaries of knowledge and innovation in civil and building engineering informatics.

Conference Highlights:

- Keynote presentations from Senior Academics & Industry Leaders
- Full Papers and Short Papers
- Presentations of Over 100 Accepted Papers
- Technical Visits (Hong Kong & Macau)
- Networking Sessions and Conference Dinner Banquet

Conference Themes:

- Architecture, Engineering, Construction and Operation (AECO)
- Artificial Intelligence (AI), Blockchain & Digital Twin
- Building / City Information Modeling (BIM/CIM)
- Computational Mechanics and Engineering
- Construction Management and Informatics
- Construction Safety and Sustainability
- Facility / Asset / Infrastructure Management
- IoT Sensors and Robotics
- Laser Scanning and Photogrammetry
- Smart Cities and Disaster Management
- Visualization (VR/AR/MR/XR)

Enjoy > 10% Early Bird Discount by 2 Jan 2025
(for Local Practitioner Registration)
Registration Open NOW!

Local Practitioner Registration*:
*CPD hour: 7 hours / day
https://bit.ly/3AZi8FT

Full / Student Registration:
https://bit.ly/4g8tiXS

Prof. Jack CHENG
ICCBEI 2025 Chair

Prof. Nobuyoshi YABUKI
ICCBEI 2025 Co-chair

Prof. Yantao YU
ICCBEI 2025 Co-chair

PROGRAM

Day 1 – 8 January 2025 (Wednesday)	
Time (HKT)	**Technical Visits to HKUST & CIC**
13:45-14:00	Registration (Lobby of Crowne Plaza Kowloon East Hotel)
14:00-18:00	Technical Visits to HKUST & CIC (HKUST, CIC CITAC, CIC-Zero Carbon Park, MiC Resources Centre and CIC Digital Twin Hub)
Time (HKT)	**Venue: 47/F, Cielo Restaurant and Bar, Crowne Plaza Kowloon East Hotel**
18:00 – 19:00	Registration (1/F, Crowne Plaza Kowloon East Hotel)
18:00 – 20:00	**Pre-Conference Welcome Reception**

Day 2 – 9 January 2025 (Thursday)	
Time (HKT)	**Venue: Grand Ballroom II-III (1/F)**
08:30 – 09:00	Registration
09:00 – 09:30	**Welcome Speeches** - *Ir John KWONG Ka-Sing, BBS* (Vice-President for Development, HKUST) - *Prof. Hong Kam LO, JP* (Dean of Engineering, HKUST) - *Prof. Jack CHENG* (Conference Chair; Professor and Associate Head, HKUST) - *Prof. Nobuyoshi YABUKI* (Conference Chair; President of AGCEI, Professor, Osaka University)
09:30 – 09:45	**Opening Speech by Guest of Honor** - *Ir Ricky LAU Chun-kit, JP* (Permanent Secretary for Development (Works), HKSAR)
09:45 – 10:00	Group Photos
10:00 – 10:15	**Opening Keynote Presentation** "Future of Construction" - *Ir Prof Thomas HO, JP* (Chairman, Construction Industry Council, Hong Kong)
10:15 – 10:25	**Networking Break with Coffee**
10:25 – 12:15	**Keynote Presentations (Chairs: Prof. Nashwan DAWOOD, Prof. Markus KONIG)** "Opportunities and Trends of Computing in Civil and Building Engineering" - *Prof. Kincho H. LAW* (Stanford University, USA) "Enhancing Construction Safety with CBS and AI" - *Prof. Dongping FANG* (Tsinghua University, China) "Let's Build a Better World, and Future-proof Our Smart Cities Through Digital Transformation!" - *Ar Prof. Ada FUNG* (Hong Kong, China Chapter of buildingSMART International) "Transforming Construction: The Shift from Traditional Practices to Intelligent Systems" - *Prof. Xiangyu WANG* (Curtin University, Australia) **Q&A Session for Keynote Speakers**

The exact time and program may be adjusted based on the actual situation.

Day 2 – 9 January 2025 (Thursday)

12:15 – 13:20	Luncheon (The Chef's Table, 1/F)		
Time (HKT)	**Grand Ballroom I (1/F)**	**Grand Ballroom II (1/F)**	**Grand Ballroom III (1/F)**
13:20 – 15:05	Technical Paper Presentation Session 1 **Digital Twins and BIM Technologies**	Technical Paper Presentation Session 2 **Construction Safety and Worker Well-being**	Technical Paper Presentation Session 3 **Innovations for Operation and Maintenance**
15:05 – 15:15	Networking Break with Coffee		
15:15 – 17:00	Technical Paper Presentation Session 4 **XR (VR/AR/MR), Visualization, and Simulation**	Technical Paper Presentation Session 5 **Advancing Construction through Robotics and Human-Machine Collaboration**	Technical Paper Presentation Session 6 **Large Model and Intelligent Building Operation and Maintenance**
17:15 – 18:15	Bus Tour to Conference Banquet Dinner		
18:30 – 21:00	Conference Banquet Dinner (Western Market)		

Day 3 – 10 January 2025 (Friday)

Time (HKT)	**Venue: Grand Ballroom II-III (1/F)**
08:30 – 09:00	Registration
09:00 – 09:05	**Opening by** *- Prof. Nobuyoshi YABUKI* (Conference Co-chair) and *Prof. Yantao YU* (Conference Co-chair)
09:05 – 10:55	**Keynote Presentations (Chairs: Prof. Koji MAKANAE, Prof. Veerasak LIKHITRUANGSILP)** "Construction 5.0 in the Age of Digital Transformation: Current Trends and Future Research" *- Prof. Mirosław SKIBNIEWSKI* (University of Maryland, USA) "AI-based Digital Twinning the Built Environment" *- Prof. Ioannis BRILAKIS* (Cambridge University, UK) "From Blueprint to Greenprint: Challenges and Opportunities in the Digital Transformation of Construction Industry for Sustainability" *- Prof. Shang-Hsien HSIEH* (National Taiwan University, Taiwan) "Integrated BIM, Blockchain, and Multimodal Data-Driven Digital Twins for AEC Industry Digitalization" *- Prof. Farzad RAHIMIAN* (Teesside University, UK) **Q&A Session for Keynote Speakers**
10:55 – 11:05	Networking Break with Coffee

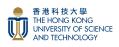The exact time and program may be adjusted based on the actual situation.

Day 3 – 10 January 2025 (Friday)

11:05 – 12:55	**Keynote Presentations (Chairs: Prof. Guangbin WANG, Prof. Calvin KAM)**
	
	"Intelligent Safety Assurance for Scaffold Systems"
	   - *Prof. Hyoungkwan KIM* (Yonsei University, Korea)
	
	"Navigating Complexity: Advanced Robotics for Dynamic Construction Environments"
	   - *Prof. Yong-Kwon CHO* (Georgia Institute of Technology, USA)
	
	"Formalizing Complex Engineering Knowledge with Computational Methods - Art or Science"
	   - *Prof. Timo HARTMANN* (Technische Universität Berlin, Germany)
	
	"AI Meets Geospatial: Transforming Building Operations and Management"
	   - *Prof. Yelda TURKAN* (Oregon State University, USA)
	
	Q&A Session for Keynote Speakers

12:55 – 14:10	**Luncheon (Grand Ballroom I, 1/F)**

Time (HKT)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 3 (2/F)
14:10 – 15:25	Technical Paper Presentation Session 7 **Sustainable Construction and Development**	Technical Paper Presentation Session 8 **OpenBIM and Generative Design**	**AGCEI Board Meeting [14:10-15:50]**

Time (HKT)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
14:10 – 15:25	Technical Paper Presentation Session 9 **AI for Safety and Health in Building Environment**	Technical Paper Presentation Session 10 **Information Management in Design and Maintenance**

15:25 – 15:35	**Networking Break with Coffee**

Time (HKT)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)
15:35 – 16:50	Technical Paper Presentation Session 11 **AI in Construction: Innovations, Risks, and Best Practices**	Technical Paper Presentation Session 12 **Digital Twins for Building and Infrastructure Maintenance**

Time (HKT)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
15:35 – 16:50	Technical Paper Presentation Session 13 **Education and Training in Construction**	Technical Paper Presentation Session 14 **Digital Campus**

16:50 – 17:10	**Networking Break with Coffee**
17:10 – 17:25	Closing Ceremony and Presentation of Best Student Presentation Award and Best Paper Award

Day 4 – 11 January 2025 (Saturday)

Time (HKT)	Technical Visit / Excursion in Macau (Optional)
08:45 – 09:00	Registration Venue: Lobby of Crowne Plaza Kowloon East Hotel
09:00 – 18:00	(Optional) Excursion – Hong-Kong-Zhuhai-Macau Bridge, Macau University of Science and Technology, etc.

The exact time and program may be adjusted based on the actual situation.

TECHNICAL SESSION

Day 2 – 9 Jan 2025, Thursday (13:20PM - 15:05PM)

Start	End	Duration	Grand Ballroom I (1/F)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)
			Technical Paper Presentation Session 1 **Digital Twins and BIM Technologies** *(Prof. Jun Wang, Prof. Ahn Changbum)*	Technical Paper Presentation Session 2 **Construction Safety and Worker Well-being** *(Prof. Hung Lin Chi, Prof. Jun Ma)*	Technical Paper Presentation Session 3 **Innovations for Operation and Maintenance** *(Prof. Yang Zou, Prof. Xinming Li)*
13:20	13:30	0:10	ID: 125 Topic: A Digital Twin-Driven Approach for Detecting Overbreak and Underbreak in Drill-and-Blast Tunnels Author: *Zhiyang Pan*, Yichong Zhang, Yujie Lu and Bing Tang	ID: 60 Topic: Back Exoskeletons for Construction Workers: Investigation of Human-Exoskeleton Interaction Forces Author: *Ting Lei*, Kelvin Holam Heung and Joon Oh Seo	ID: 69 Topic: Semantic-Enriched Image Retrieval for Bridge Damage Assessment. Author: *Chengzhang Chai*, Jiucai Liu, Yan Gao, Guanyu Xiong and Haijiang Li
13:30	13:40	0:10	ID: 33 Topic: BIM to FEM Model Conversion of Low-Rise Residential Buildings for Debris Flow Damage Analysis Author: *Xuhong Huang* and Yantao Yu	ID: 85 Topic: EEG Technology in Construction Safety Research: Current Trends, Challenges, and Future Directions. Author: *Tanghan Jiang*, Jiayu Chen and Yihai Fang	ID: 94 Topic: A Study on the Performance Comparison of Sediment Movement Detectors Using Unet-based Models and the Sliding Partitioning Method. Author: *Xiaosong Liu*, Makoto Oda, Kei Kawamura and Tsuyoshi Wakatsuki
13:40	13:50	0:10	ID: 42 Topic: BIM Adoption and Implementation Challenges in Mongolia Author: *Khuvilai Erdene*, Sung Hoon Kim and Sang-Ho Lee	ID: 90 Topic: Enhancing Traffic Safety in Smart Cities Through Perceived Risk Analysis for Vulnerable Road Users Author: *Yuting Zhang*, Xinyu Pan and Jiayu Chen	ID: 23 Topic: Lightweight Transfer Learning for Water Body Segmentation Using Adaptor-Based Fine-Tuning Author: *Jiapei Zhao*, Nobuyoshi Yabuki and Tomohiro Fukuda
13:50	14:00	0:10	ID: 24 Topic: Heterogeneous Graph Neural Networks-Based Paper Drawings Automatic Layering Method Author: *Xun Lu* and Yantao Yu	ID: 4 Topic: Creation of a Web-Based Tool for the Visual Inspection of Building Equipment. Author: *Angelina Aziz* and Markus Koenig	ID: 131 Topic: Intelligent Design for Component Size of Reinforced Concrete Frame Structures Using Diffusion Models. Author: Yi Gu, Sizhong Qin, Wenjie Liao, *Siqi Chen* and Xinzheng Lu

The exact time and program may be adjusted based on the actual situation.

Day 2 — 9 Jan 2025, Thursday (13:20PM - 15:05PM)

Start	End	Duration	Grand Ballroom I (1/F)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)
14:00	14:10	0:10	ID: 58 Topic: Intelligent Geometric Quality Inspection of Multiple Prefabricated Components in Large-Scale Spaces Based on BIM-LiDAR-UAV/UGV. Author: *Limei Chen*, Zhigang Guo, Yi Tan and Penglu Chen	ID: 40 Topic: Effects of a Passive Back Support Exoskeleton on Balance While Walking Author: *Masood Khan*, Joonoh Seo, Maxwell Fordjour Antwi-Afari and Yuan Zhou	ID: 99 Topic: Development of 'Voices of Bridges' for Infrastructure Management. Author: *Yota Chinen*, Kei Kawamura and Shuji Sawamura
14:10	14:20	0:10	ID: 28 Topic: Investigating Solutions to the Shortage of Construction Site Managers in Japan: A Research Study on the Introduction of Young BIM Engineers from China Author: *Sucheng Rui*, Koji Makanae, Jun Liu, Makoto Fujiu and Yuma Morisaki	ID: 101 Topic: An Improved Safety Management Method for Welding Operations Based on Gaze Estimation and Object Detection Author: *Ying Liang*, Yi Tan and Dong Jia	ID: 120 Topic: Developing a Markov decision process model to support ESG decision-making in the international construction market. Author: *Yuting Duan*, Meng Ye and Penglin Dai
14:20	14:30	0:10	ID: 89 Topic: BIM-Based Discrete Event Simulation for Embodied Carbon Assessment Author: *Yuqing Xu*, Xingbo Gong, Helen H.L. Kwok and Jack C.P. Cheng	ID: 27 Topic: Automatic Ergonomic Assessment Considering Awkward Posture and External Load Author: *Fei Tian* and Yantao Yu	ID: 82 Topic: Advancing Blockchain and Smart Contracts from Academia to Industry: Insights into the Construction Sector. Author: *Xuling Ye*, Liu Liu and Markus König
14:30	14:40	0:10	ID: 96 Topic: Enhancing Scan-To-BIM In Bridge Engineering Through Point Cloud Completion Author: *Tao Yang*, Yang Zou and Enrique del Rey Castillo	ID: 132 Topic: Approaching an Interactive Resolution on New Citizens' Job–Housing Balance and Vacant Housing Reduction in Guangzhou Author: *Ziyao Dong*, Yangbing Zhang, Yuejiang Su, Yingqiao Fang, Yilin Huang and Siyang Zheng	ID: 115 Topic: CB-YOLOV5: Streetlight Detection Based on Low-Light Images in High-Interference Environment Author: *Shiqi Zhang*, Jingyuan Tang and Jingke Hong
14:40	14:50	0:10	ID: 104 Topic: Developing Defect Embedded Masonry H-Bim Using Deep Learning-Based Detection and Segmentation. Author: *Xinyu Tong*, Jingyu Zhou, Cheng Zhang and Yiping Dong	ID: 97 Topic: Enhancing the Performance of Multi-Object Tracking in Traffic Stream Videos Through Initial Velocity and Frame-Skipping Strategies Author: *Chia-Chun Lin* and Albert Y. Chen	ID: 133 Topic: Constructability-Based Multi-Objective Optimization for Reinforcing Bar Design in Rectangular Concrete Beams Author: *Luis Fernando Verduzco Martinez* and Jack C.P. Cheng
14:50	15:05	0:15	Q&A	Q&A	Q&A
15:05	15:15	0:10	Networking Break with Coffee		

The exact time and program may be adjusted based on the actual situation.

Day 2 — 9 Jan 2025, Thursday (15:15PM - 17:00PM)

Start	End	Duration	Grand Ballroom I (1/F)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)
			Technical Paper Presentation Session 4 **XR (VR/AR/MR), Visualization, and Simulation** *(Prof. Mingzhu Wang, Prof. Sang-Ho Lee)*	Technical Paper Presentation Session 5 **Advancing Construction through Robotics and Human-Machine Collaboration** *(Prof. Long Chen, Prof. Charinee Limsawasd)*	Technical Paper Presentation Session 6 **Large Model and Intelligent Building Operation and Maintenance** *(Prof. Jiarui LIN, Prof. Yujie Lu)*
15:15	15:25	0:10	ID: 17 Topic: Automatic Detection of Building Equipment Using Laser Intensity of MLS Point Cloud Author: *Arisa Kobayashi* and Tomohiro Mizoguchi	ID: 19 Topic: An Experimental Study for Multi-Robot Coordination in Multi-Story Building Construction site Author: *Haojun Luo* and Yantao Yu	ID: 83 Topic: An LLM Agent–Based Approach for Calculating Floor Areas via BIM IFC Files Author: *Xueying Zhu* and Jun Ma
15:25	15:35	0:10	ID: 46 Topic: 3D Indoor Reconstruction Based on Spatial Layout Estimation Using Panoramic Inspection Video from Building Sites Author: *Shuo Wang*, Yujie Lu, Tao Zhong, Lijian Zhong and Yufan Chen	ID: 66 Topic: Towards Higher Information Density in Image Transmission: Learned Image Compression for Construction Site Monitoring Author: *Jiucai Liu*, Chengzhang Chai, Linghan Ouyang and Haijiang Li	ID: 134 Topic: Heritage Building Information Management and Intelligent Querying by Multimodal Large Language Models and Knowledge Graph. Author: *Jiaying Zhang*, Jeff Chak Fu Chan, Ziyu Zhao and Jack Cheng
15:35	15:45	0:10	ID: 63 Topic: Semantic Segmentation of MEP With Deep Learning and Synthetic Point Clouds Author: *Hongzhe Yue* and Qian Wang	ID: 73 Topic: Teaching Robot End Effectors to Grasp Construction Tools Based on Deep Reinforcement Learning Author: Xiaohu Yu, Yantao Yu and *Zaolin Pan*	ID: 108 Topic: An Interactive LLM-Based Framework for Spatial Relationship Query on OpenBIM Elements with IFC4 Schema Author: *Ang Li*, Peter Kok-Yiu Wong, Xingyu Tao and Jack C.P. Cheng
15:45	15:55	0:10	ID: 128 Topic: Virtual Scanning Method Based on BIM and Ray Tracing for Occlusion Evaluation and Geometry Extraction. Author: *Siwei Lin*, Liping Duan, Bin Jiang and Jincheng Zhao	ID: 79 Topic: Multi-Objective Optimization of Tower Crane Layout Planning in Modular Integrated Construction Considering Efficiency, Cost, And Lifting Safety Author: *Fangzheng Li*, Hung Lin Chi, Rongyan Li, Roy Dong Wang, Tarek Zayed and Bo Xiao	ID: 9 Topic: Enhancing Knowledge Capture and Reuse for Offsite Construction Through a Container-Based Knowledge Approach Author: *Zhen Zhang*, Yang Zou, Brian H.W. Guo, Lixin Jiang, Johannes Dimyadi and Roy Davies

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Day 2 − 9 Jan 2025, Thursday (15:15PM - 17:00PM)

Start	End	Duration	Grand Ballroom I (1/F)	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)
15:55	16:05	0:10	ID: 61 Topic: A Real-world Visual SLAM Dataset for Indoor Construction Sites. Author: *Wenyu Li*, Xinyu Chen and Yantao Yu	ID: 48 Topic: Assessment of Automation Potential in Construction Tasks. Author: *Bing Sun*, Chao Mao, Wen Yi and Tingpeng Wang	ID: 117 Topic: Optimized Language-Embedded 3DGS for Realistic Modeling and Information Storage of Historical Buildings Author: *Zhenyu Liang*, Jeff Chak Fu Chan, Jiaying Zhang, Zhaolun Liang, Boyu Wang, Mingzhu Wang and Jack C.P. Cheng
16:05	16:15	0:10	ID: 45 Topic: Enhanced Curtain Wall Construction Progress Monitoring via Tower Crane Perspective and Integrated 3D Reconstruction. Author: *Tao Zhong*, Yujie Lu, Shuo Wang and Xuanjun Li	ID: 59 Topic: A Simulation-based Genetic Algorithm Schedule Optimization Method for Bridge Construction. Author: *Yuan Yao*, Vivian Tam, Jun Wang, Khoa Le, Anthony Butera and Wenchi Shou	ID: 137 Topic: Sustainable Development Management Method for Construction Projects Using Large Language Model Author: *Xingbo Gong*, Yuqing Xu, Helen H.L. Kwok, Xingyu Tao and Jack C.P. Cheng
16:15	16:25	0:10	ID: 80 Topic: HTunnel-HLS: A 3D Point Cloud Dataset for Benchmarking Construction Highway Tunnel Segmentation Methods Author: *Lizhuang Cui*, Lei Kou, Hanming Zhang, Yusen Wang, Feng Guo and Jian Liu	ID: 91 Topic: A Study of Human-robot Collaborative Construction Task Allocation Problem Considering the Level of Task Danger Author: *Yilin Wang*, Chao Mao and Tingpeng Wang	ID: 100 Topic: Human-UAV Collaboration for Bridge Inspection Using a Multi-Modal Vision Language Model Author: *Zhengxing Chen*, Yang Zou, Vicente González, Jason Ingham and Liam Wotherspoon
16:25	16:35	0:10	ID: 98 Topic: A Scan-to-BIM Approach for Renovating Existing Building Rooms using Surface Reconstruction and Deep Learning. Author: *May Thin Zar Soe*, Nobuyoshi Yabuki, Tomohiro Fukuda and Yoshiro Hada	ID: 44 Topic: Understanding Workers' Acceptance of Robotics in Construction Author: *Zhida Zhang*, Fanfan Meng, Munon Wong and Mi Pan	ID: 20 Topic: Automated Text Classification of Construction Inspection Report: A Small Samples Training Approach. Author: *Kai Li*, Chao Dong, Xueqing Fang and Da Li
16:35	16:45	0:10	ID: 18 Topic: BIM-AR Driven Collaborative Management of Complex MEP Equipment Installation Author: *Youde Zheng*, Liyun Yao, Silin Li, Yugui Zhou and Yi Tan	ID: 102 Topic: Energy Consumption Modeling for A Robot Arm in 3D Concrete Printing. Author: *Tong Liu*, Song Du, Fei Teng and Yiwei Weng	ID: 145 Topic: Automatic Compliance Checking of BIM Models for Architecture and Fire Protection Based on Knowledge Graphs and Machine Learning Author: *Sihao Li*, Guangyao Chen, Yangze Liang and Zhao Xu
16:45	17:00	0:15	Q&A	Q&A	Q&A

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Day 3 – 10 Jan 2025, Friday (14:10PM - 15:25PM)

Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
			Technical Paper Presentation Session 7 **Sustainable Construction and Development** *(Prof. Jingyuan TANG, Prof. Wen Yi)*	Technical Paper Presentation Session 8 **OpenBIM and Generative Design** *(Prof. Brian Guo, Prof. Chao Mao)*	Technical Paper Presentation Session 9 **AI for Safety and Health in Building Environment** *(Prof. Vincent Gan, Prof. Albert Y. Chen)*	Technical Paper Presentation Session 10 **Information Management in Design and Maintenance** *(Prof. Yi Tan, Prof. Yiwei WENG)*
14:10	14:20	0:10	ID: 62 Topic: Developing GNN-based surrogate models for multi-objective sustainable performance predictions of residential blocks Author: *Zhaoji Wu*, Wenli Liu, Jack C. P. Cheng, Zhe Wang, Helen H. L. Kwok, Cong Huang and Fangli Hou	ID: 146 Topic: The Role of Digital Economy in The High-quality Development of The Construction Industry: Evidence from China Author: *Aoqi Huang*, Hongjuan Wu and Taozhi Zhuang	ID: 118 Topic: Visual-Driven Inspection for Collecting the Status of Fire Safety Equipment Status in Building Spaces Author: *Fangzhou Lin*, Zhengyi Chen, Xiao Zhang, Boyu Wang and Jack C.P. Cheng	ID: 47 Topic: Probability Map Guided Point Rendering Technique for Refined Segmentation of High-Resolution Crack Images. Author: Honghu Chu, *Weiwei Chen* and Lu Deng
14:20	14:30	0:10	ID: 77 Topic: Geospatial Graph Attention Network for High-Resolution Building Façade Photovoltaic Potential Prediction Author: *Zheng Li* and Jun Ma	ID: 139 Topic: IFC-Based Indoor Space Extraction with Topological Graph Modeling Author: *Zheng Zhao*, Zhiyuan Guo, Weiya Chen and Wenming Jiang	ID: 56 Topic: A Self-Attention Fusion-Based Bi-LSTM Framework for Occupant-Centric Prediction of Indoor Environmental Factors Author: *Min Jae Lee* and Ruichuan Zhang	ID: 136 Topic: Exploring Construction 5.0 Paradigms in the AEC Sector of New Zealand: Conceptual Foundations and Implications for Practice. Author: *Xichen Chen*, Ali Ghaffarianhoseini and Amirhosein Ghaffarianhoseini

The exact time and program may be adjusted based on the actual situation.

Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
14:30	14:40	0:10	ID: 110 Topic: Mapping Air Pollution Concentrations on Sidewalks in Central Business Districts Based on Mobile Monitoring Author: *Xujing Yu* and Jun Ma	ID: 87 Topic: Multi-Story Floor Plan Generation from Building Volumetric Design Using Graph Neural Network Author: *Atsuya Ogura*, Tomohiro Fukuda, Nobuyoshi Yabuki and Taro Narahara	ID: 149 Topic: A Knowledge Graph Based Common Data Environment Solution for Building Seismic Loss Estimation Author: *Zeyu Pan* and Jianyong Shi	ID: 122 Topic: Maintenance Management - A Module in Asset Management in A Medium-sized German City as An Example. Author: *Alexander Buttgereit* and Stefan Gomolluch
14:40	14:50	0:10	ID: 84 Topic: Real-Time Sensor-Based Characterization of Recycled Coarse Aggregates (RCA): Advancing Sustainable Construction Through Automated Quality Assessment Author: *Cheng Chang*, Francesco Di Maio and Peter Rem	ID: 52 Topic: Efficient Accessibility Integrated Multi-Occupancy Building Layout Generation Using Constrained Diffusion Models Author: *Haolan Zhang* and Ruichuan Zhang	ID: 78 Topic: Integrated Framework for Compliance Checking and Performance Evaluation in Building Design Author: *Jin Han*, Zhe Zheng, Zhen Xu, Xin-Zheng Lu and Jia-Rui Lin	ID: 147 Topic: Research on A Methodology of AI-driven Substation Layout Design Based on Large Language Model Author: *Jianyong Shi*, Zeyu Pan, Longfei Pan and Junpeng Hu
14:50	15:00	0:10	ID: 103 Topic: Exploring Riverine Litter Detection by Developing Comprehensive Dataset and Deep Learning Author: *Xiaohan Xu*, Cheng Zhang, Yunfei Xia, Xiaohui Zhu and Peter Burgess	ID: 31 Topic: Leveraging Transformers for Improved Decision-Making in Road Maintenance Author: *Rui Kang*, Stephen Green and Ioannis Brilakis	ID: 54 Topic: Trajectory Forecasting for Worker Safety in Construction using Transformer and Graph Attention Networks Author: Mohammed Alduais, *Xinming Li* and Qipei Mei	ID: 124 Topic: Examining Factors of Human-AI Trust: Comparing Human- and AI-Related Factors Author: Xinyue Zhou and *Sheng Xu*

The exact time and program may be adjusted based on the actual situation.

Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
15:00	15:10	0:10	ID: 135 Topic: Blockchain-Driven Transparency in Construction Tenders: Smart Contracts and Sustainable Waste Management Author: Silvia Meschini, Daniele Accardo, *Lavinia Chiara Tagliabue*, Stefano Rinaldi, Andrea Bracciali, Rosa Meo and Giuseppe Martino Di Giuda	ID: 1 Topic: Streamlining Sensor Registration and Updating Process in a BIM-based Digital Twin Author: *Cheng-Wen Fu*, Tzong-Hann Wu, Yun-Tsui Chang and Shang-Hsien Hsieh	ID: 138 Topic: Vision LLM-Driven Operational Hazard Recognition for Building Fire Safety Compliance Checking. Author: Dayou Chen, *Long Chen*, Yiheng Zeng, Craig Hancock, Russell Lock and Simon Sølvsten	ID: 86 Topic: A Domain Knowledge-Enhanced Large Vision-Language Model for Construction Site Safety Monitoring. Author: *Chak-Fu Chan*, Xiaowen Guo, Peter Kok-Yiu Wong, Jolly Pui-Ching Chan, Jack C.P. Cheng, Pak-Him Leung and Xingyu Tao
15:10	15:25	0:15	Q&A	Q&A	Q&A	Q&A
15:25	15:35	0:10	Networking Break with Coffee			

The exact time and program may be adjusted based on the actual situation.

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Day 3 – 10 Jan 2025, Friday (15:35PM - 16:50PM)

Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
			Technical Paper Presentation Session 11 **AI in Construction: Innovations, Risks, and Best Practices** *(Prof. Bo Xiao, Prof. Jiayu Chen)*	Technical Paper Presentation Session 12 **Digital Twins for Building and Infrastructure Maintenance** *(Prof. Weiwei Chen, Prof. Botao Zhong)*	Technical Paper Presentation Session 13 **Education and Training in Construction** *(Prof. Jingfeng Yuan, Prof. JoonOh SEO)*	Technical Paper Presentation Session 14 **Digital Campus** *(Prof. Jack C.P. Cheng, Prof. Lavinia Chiara Tagliabue)*
15:35	15:45	0:10	ID: 141 Topic: Exploring the Risks of Integrating Generative Artificial Intelligence into Construction Risk Management: Insights from A Systematic Literature Review Author: *Mohamed Mohamed*, M.K.S Al-Mhdawi, Farzad Rahimian, Udechukwu Ojiako, Alan O'Connor and Charf Mahammedi	ID: 12 Topic: Optimizing Hydropower Operations: A Tailored Digital Twin Framework for Hydropower Plant Author: *Weiwei Chen* and Yang Su	ID: 119 Topic: Enhancing Tower Crane Operation Skills in Aerial Construction Factories through Virtual Reality Training: A Controlled Study. Author: *Jingfeng Yuan*, Lingxiao Wang, Feixiang Hu, Yang Su, Chen Li, Hao Tian and Weidong Lin	ID: 34 Topic: A Scheme and Application of a Digital Twin-based Road Pavement Management System. Author: *Koji Makanae*, Yugo Kurokawa, Kiyotaka Suda, Jevica and Nurulnajwa Binti Khamis
15:45	15:55	0:10	ID: 95 Topic: Trans-Dimensional Bayesian Inversion for Estimating Earth Pressures on In-Service Underground Structures Author: *Zhiyao Tian* and Xianfei Yin	ID: 13 Topic: Proposal for a Simple Inspection Tool Using HoloLens2 Author: *Tomohiro Mizoguchi*	ID: 106 Topic: Evaluating the Impact of Problem-Based Learning and Digital Models on Civil Engineering Education. Author: *Hamidreza Alavi*, Brian Sheil and Ioannis Brilakis	ID: 65 Topic: Development and Validation of the Game Engine-Based Digital Twin App "CONNECTIA" for Practical Use in the Construction Phase Author: *Tomohide Yuasa* and Kodai Yamamoto

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Day 3 – 10 Jan 2025, Friday (15:35PM - 16:50PM)

Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
15:55	16:05	0:10	ID: 140 Topic: The Great Misalignment in Construction Contracting: Best Practices and Software Author: Matt Stevens, *Wei Zhou* and Babatunde Ogunbayo	ID: 70 Topic: A Practice in China for Computer Aided Design and Construction of Prefabricated Enclosure Walls Author: *Wei Shen*, Tao Liu, Guangjian Wang, Hu Yu, Hang Gao	ID: 41 Topic: Limited Data-oriented Worker Intent Recognition Method in Worker-Robot Collaboration for Construction Author: *Zhaoxin Zhang*, Zaolin Pan, Yantao Yu and Liang Liu	ID: 107 Topic: Real-Time On-Site Indoor Modeling and Quality Visualization Using Mixed Reality Device with ToF Sensor Author: Norihiko Goto, *Hiroaki Date* and Satoshi Kanai
16:05	16:15	0:10	ID: 127 Topic: Proposal of the Use of Differential Render in Rebar Inspections Author: *Yoshihiro Yasumuro*, Youta Tanaka, Takeshi Takai, and Satoshi Kubota	ID: 126 Topic: A Distributed Twin System for Managing Asset-process Interactions in Highway Infrastructure Systems Author: *Mengtian Yin*, Tom Kelly, Pieter Pauwels, Liming Xu, Brian Sheil, Junxiang Zhu, Yue Xie and Ioannis Brilakis	ID: 121 Topic: Cybersecurity-Aware Decentralized Machine Learning Framework for Construction Equipment Motion Recognition Using Blockchain Author: Chengliang Zheng, Xingyu Tao, Moumita Das, *Wenchi Shou* and Jack Cheng	ID: 92 Topic: Design Strategies for Enhancing Spatial Vitality through the Integration of Sports Venues and Commercial Spaces. Author: *Xuefei Yuan*, Benchen Fu, Shan Man and Yuanyuan Wei
16:15	16:25	0:10	ID: 129 Topic: Rubberized Concrete Reinforced with Fibres: Performance Analysis and Prediction for 3D Printing Applications. Author: *Junbo Sun*, Yufei Wang, Xianda Liu, Jiajie Shang and Xiangyu Wang	ID: 143 Topic: Finite Element Model Updating Enhanced by Deep Learning for Reinforced Concrete Containment Vessel Digital Twin Author: *Jiaji Wang*, Si Fu and Chawit Kaewnuratchadasorn	ID: 93 Topic: Simulation of Response Time Reduction of OHCA Considering Drone Base Selection for AED Delivery Author: *Yu Wu*, Kuan-Chen Chin, Jen-Tang Sun, Ying-Chih Ko, Wen-Chu Chiang, Matthew Huei-Ming Ma and Albert Y. Chen	

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Start	End	Duration	Grand Ballroom II (1/F)	Grand Ballroom III (1/F)	Diamond Room 1-2 (2/F)	Diamond Room 5-6 (2/F)
16:25	16:35	0:10	ID: 88 Topic: Cloud Type Classification Through Semantic Segmentation for Analysis of Earth's Radiative Balance Author: *Yu-Wen Wu*, Nofel Lagrosas, Sheng-Hsiang Wang and Albert Chen	ID: 72 Topic: A BIM Component-centered Bridge Digital Twin for Smart and Practical Bridge Maintenance Author: *Guanyu Xiong*, Yan Gao, Chengzhang Chai, Haijiang Li and Kehong Chen	ID: 148 Topic: Building Decay in Hong Kong: Assessing and Mapping Building Condition Index using ChatGPT and Airborne Point Clouds Author: *Wai Hung Lee* and Fan Xue	
16:35	15:50	0:15	Q&A	Q&A	Q&A	Q&A

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Special Thanks to

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