

ANCRiSST2025 & ZHITU2025

**The 16th International Workshop on Advanced Smart Materials
and Smart Structures Technology**

The 4th ZHITU Symposium on Advances in Civil Engineering

July 20 – 22, 2025

Hong Kong, China

PROGRAM



Organizers

Guangdong-Hong Kong Joint Laboratory for Marine Infrastructure

Department of Civil and Environmental Engineering

Joint Research Centre for Marine Infrastructure

The Hong Kong Polytechnic University



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**The 16th International Workshop on Advanced Smart Materials
and Smart Structures Technology**

The 4th ZHITU Symposium on Advances in Civil Engineering

July 20 – 22, 2025

Hong Kong, China

Chair

Yong Xia

Co-Chairs

Yi-Qing Ni, Songye Zhu, You Dong

Editors

Fei Wang, Xiaoming Lei, Chenyue Wang

Yan Ma, Haoliang Zhao, Peng Ni

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Part 1. Overview

Organizers

The Hong Kong Polytechnic University
Joint Research Centre for Marine Infrastructure
Guangdong-Hong Kong Joint Laboratory for Marine Infrastructure

Date

21–22 July 2025 (Registration: 14:00–20:00 HKT, 20 July 2025)

Venue

Building TU (Yip Kit Chuen Building), The Hong Kong Polytechnic University

About the Conference

The Joint 16th International Workshop on Advanced Smart Materials and Smart Structures Technology (ANCRiSST2025) and 4th ZHITU Symposium on Advances in Civil Engineering (ZHITU2025) is organized by The Hong Kong Polytechnic University. The objectives of the joint event are to assess the current progress of smart materials and structures technologies and to develop synergies among researchers in various disciplines from different countries that will facilitate joint research projects that are of such scope and magnitude that cannot be easily carried out by individuals.

Themes

Smart materials and smart structures in AI era

About the Organizer

The history of The Hong Kong Polytechnic University (PolyU) can be traced back to 1937 with the establishment of the Government Trade School, the first publicly funded post-secondary technical institution in Hong Kong. It was renamed the Hong Kong Technical College in 1947 and later became the Hong Kong Polytechnic in 1972. In 1994, it was officially granted university status and adopted its current name. Currently, PolyU has a student population of more than 32,000, with over 3,800 research personnel. The university comprises ten faculties and schools, and 29 academic departments. In the QS World University Rankings 2026, PolyU is ranked 54th globally.

The Department of Civil and Environmental Engineering was established in 1973 under the name Department of Civil and Structural Engineering and was officially renamed to its current title in 2012. The department currently has over 50 academic staff members, including one Academician of the Chinese Academy of Sciences, three Fellows of the Hong Kong Academy of Engineering Sciences, and seven recipients of the prestigious Chang Jiang Scholars Award.



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The department has consistently ranked first globally in terms of both the number of SCI journal publications and total citations in the field of Civil and Structural Engineering. In the QS World University Rankings by Subject, the department has been ranked within the top 10–20 worldwide in the discipline of Civil and Structural Engineering.

Sponsors

Construction Innovation and Technology Fund (CITF)

Research Institute for Artificial Intelligence of Things (RIAIoT)

Faculty of Construction and Environment (FCE), The Hong Kong Polytechnic University

International Scientific Committee

Yozo Fujino	Josai University & Yokohama National University
Billie F. Spencer	University of Illinois
Chung Bang Yun	Zhejiang University
Jiping Ou	Harbin Institute of Technology
You-lin Xu	Southwest Jiaotong University
Tommy Chan	Queensland University of Technology
Hong Hao	Guangzhou University
Hui Li	Harbin Institute of Technology
Limin Sun	Tongji University
Satish Nagarajaiah	Rice University
Jerome P. Lynch	University of Duke
Shirley Dyke	Purdue University
Hoon Sohn	The Korea Advanced Institute of Science and Technology
Hyung-Jo Jung	The Korea Advanced Institute of Science and Technology
Tomonori Nagayama	The University of Tokyo
Chul-Woo Kim	Kyoto University
Myoungsu Shin	Ulsan National Institute of Science and Technology
Yuanfeng Duan	Zhejiang University
Eleni Chatzi	ETH Zurich
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Co-Chairs

Yi-qing Ni The Hong Kong Polytechnic University



Songye Zhu The Hong Kong Polytechnic University
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Xiaoming Lei	The Hong Kong Polytechnic University
Fei Wang	The Hong Kong Polytechnic University
Xiaoyou Wang	The Hong Kong Polytechnic University
Haoliang Zhao	The Hong Kong Polytechnic University

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Jiannong Cao	The Hong Kong Polytechnic University
Yat Sze Choy	The Hong Kong Polytechnic University
Yongchun Fan	Guangdong Electric Power Design Institute
Zhihong Fan	CCCC Fourth Harbor Engineering Institute Co. Ltd.
Yuguang Fu	Nanyang Technological University
Qiang Jing	Hong Kong-Zhuhai-Macau Bridge Authority
S.K. Lai	The Hong Kong Polytechnic University
Heung Fai Lam	City University of Hong Kong
Qiusheng Li	City University of Hong Kong
Zhongqing Su	The Hong Kong Polytechnic University
Jiaji Wang	The University of Hong Kong
Xuguang Wang	The University of Hong Kong
Gangyan Xu	The Hong Kong Polytechnic University
Ka-veng Yuen	University of Macau
Shipeng Zhang	The Hong Kong Polytechnic University
Kai Zhou	The Hong Kong Polytechnic University
Jie He	Nanjing Hydraulic Research Institute

Helpers

Hongyu Chen Jinlu Chen Siqi Ding Xurui Fang
Chenhao Gao Binggui Huang Jiaxin Huang Zifeng Huang
Keyu Lai Yankun Lei Yixian Li Qi Liao
Huanzi Liu Tian Lu Lanxin Luo Qiucheng Lv



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Yida Pu	Jingxi Qin	Xiong Sha	Yushi Shan
Haien Tang	Yuchen Tang	Wei Tian	Hao Wang
Lue Wang	Yanjia Wang	Sixiang Wen	Jingbo Wu
Renjie Wu	Zhaozhi Wu	Qingsong Xiong	Guangda Xu
Liehao Zhang	Lu Zhang	Deming Zhu	



Part 2. Schedule

20 July 2025 (Sunday)

14:00-20:00	Registration (Harbour Plaza Metropolis Hotel)
18:30-20:30	Reception (Palace Wedding Banquet, Metropolis)

21 July 2025 (Monday)

Time	Event
08:00-18:00	Registration (TU201)
08:30-08:45	Opening Ceremony (TU201)
08:45-09:00	Group Photo
09:00-10:30	Keynote Lectures I (TU201)
10:30-10:45	Coffee Break
10:45-12:15	Keynote Lectures II (TU201)
12:20-14:00	Lunch (Ju Yin House)

Parallel Sessions

	TU201	TU103	TU101	TU107
14:00-16:05	ZHITU S1 AI-Enhanced SHM	ANCRiSST S1 Advanced Signal Processing	ANCRiSST S2 Structural Monitoring and Assessment I	ANCRiSST S3 CV-Enhanced SHM
16:05-16:20	Coffee Break			
16:20-18:25	ZHITU S2 Intelligent Materials and Control	ANCRiSST S4 AI and Data-Driven Methods I	ANCRiSST S5 Structural Monitoring and Assessment II	ANCRiSST S6 Structural Control and Monitoring I
18:30-21:00	Banquet (Choi Fook Royal Banquet, Metropolis)			



ANCRiSST2025 & ZHITU2025

22 July 2025 (Tuesday)

Time	Event				
Parallel Sessions					
	TU201	TU103	TU101	TU107	
09:00-10:35	ZHITU S3 Intelligent Operation and Construction	ANCRiSST S7 AI and Data-Driven Methods II	ANCRiSST S8 Smart Structures and Materials	ANCRiSST S9 Structural Control and Monitoring II	
10:35-10:50	Coffee Break				
10:50-12:10	ZHITU S4 Disaster Simulation and Monitoring	ANCRiSST S10 Infrastructure Smart Assessment	ANCRiSST S11 Infrastructure Smart Management	ANCRiSST S12 BIM and Digital Twin	
12:20-14:00	Lunch (Ju Yin House)				
14:00-15:30	Keynote Lectures III (TU201)				
15:30-15:45	Coffee Break				
15:45-17:15	Keynote Lectures IV (TU201)				
17:15-17:30	Closing Ceremony (TU201)				
18:30-21:00	Dinner (Choi Fook Royal Banquet, Metropolis)				



Part 3. Program

21 July 2025 (Monday)

Registration (08:00 – 18:00)

Venue: TU201

Opening Ceremony (08:30 – 09:00)

Venue: TU201

Chair: Yong Xia

08:30-08:45

Opening Ceremony

Professor Xiang-dong Li, Dean of Faculty of Construction and Environment,
The Hong Kong Polytechnic University

Professor Hui Li, President of ANCRiSST, Member of Chinese Academy of
Science, Harbin Institute of Technology

Ir Eric Jiang, Senior Manager, Industry Development Construction
Productivity, Construction Industry Council, HKSAR

08:45-09:00

Group Photo

Keynote Lectures

Keynote Lectures I (09:00 – 10:30)

Venue: TU201

Chairs: Songye Zhu and Tomonori Nagayama

09:00-09:30 Autonomous post-earthquake damage estimation augmented by graphics-based digital twin

B.F. Spencer Jr., University of Illinois Urbana-Champaign

09:30-10:00 Digital twin-empowered analysis of structural temperature field of a long-span suspension bridge

You-lin Xu, Southwest Jiaotong University

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10:00-10:30 Spectral analysis of a bridge cable with a viscous inertial mass damper under random wind loads using a generalized state-space formulation
Chung-Bang Yun, KAIST / UNIST

10:30-10:45 Coffee Break

Keynote Lectures II (10:45 – 12:15)

Venue: TU201

Chairs: Jian Guo and Jae Eun Oh

10:45-11:15 PZT based structural damage detection and applications
Hongping Zhu, Huazhong University of Science and Technology

11:15-11:45 Application of physics-assisted machine learning to data assimilation structural analysis
Mayuko Nishio, University of Tsukuba

11:45-12:15 Advanced energy solutions: transforming waste energy into sustainable power through innovative harvesting and conversion technologies
Tong Guo, Southeast University

12:20-14:00 Lunch (Ju Yin House)

Parallel Sessions

Session 1A: (ZHITU S1) AI-Enhanced SHM (14:00-16:05)

Venue: TU201

Chairs: Yasutaka Narazaki and Chuan Zhang

14:00-14:20 [Invited Speech]
Image acquisition of critical bridge components using vision-guided autonomous vehicle
Yasutaka Narazaki, Zhejiang University - University of Illinois Urbana-Champaign Institute

14:20-14:35 Output-only modal identification and finite-element model updating for an in-service bridge
Sanghoon Song, University of Illinois Urbana-Champaign

14:35-14:50 Development of displacement monitoring and prediction system for short- and mid-span bridges
Sooyoung Oh, Ulsan National Institute of Science and Technology



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|-------------|--|
| 14:50-15:05 | Image scale calibration of submerged planar surfaces with a camera-laser system
<i>Ray Ausan</i> , University of Illinois Urbana-Champaign |
| 15:05-15:20 | Autonomous UAV path planning and 3D reconstruction with gaussian splatting for bridge inspection
<i>Shuo Wang</i> , Zhejiang University - University of Illinois Urbana-Champaign Institute |
| 15:20-15:35 | Predictive models for depth to rock using the microtremor and geospatial information
<i>Seongnoh Ahn</i> , Ulsan National Institute of Science and Technology |
| 15:35-15:50 | Multi-scale impacts of climate change on turbulent wind fields
<i>Jinlu Chen</i> , The Hong Kong Polytechnic University |
| 15:50-16:05 | Benchmark vibration testing for a high-rise building
<i>Yiwei Dong</i> , Zhejiang University |

Session 1B: (ANCRiSST S1) Advanced Signal Processing (14:00-15:50)

Venue: **TU103**

Chairs: **Shun Weng and Zhilu Lai**

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|-------------|---|
| 14:00-14:20 | [Invited Speech]
Parametric model condensation for the vibration response calculation
<i>Shun Weng</i> , Huazhong University of Science and Technology |
| 14:20-14:35 | Development and experimental validation of a coupled fpm-dem approach for membrane-granular interaction analysis
<i>Yiyang Su</i> , Zhejiang University |
| 14:35-14:50 | Vibration prediction for subway-adjacent structures incorporating vertical acceleration transmission
<i>Xin Qi</i> , Harbin Institute of Technology (Shenzhen) |
| 14:50-15:05 | Dual-reference KLT for structural displacement measurement using time-varying Kalman filter
<i>Geonyeol Jeon</i> , Chungbuk National University |
| 15:05-15:20 | Dynamic displacement estimation of railway beam bridge based on integration of strain and acceleration
<i>Ke Gao</i> , Huazhong University of Science and Technology |
| 15:20-15:35 | A constrained numerical integration method for displacement estimation under noisy acceleration data
<i>Wen Huang</i> , Xiamen University |



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- 15:35-15:50 Response prediction of target nodes using POD basis based on tailored inputs
Namsu Jeon, Korea Advanced Institute of Science and Technology

Session 1C: (ANCRiSST S2) Structural Monitoring and Assessment I (14:00-16:05)

Venue: TU101

Chairs: Yong Huang and Sunjoong Kim

- 14:00-14:20 [Invited Speech]
Adaptive meta-learning stochastic gradient Hamiltonian Monte Carlo simulation for Bayesian updating in structural health monitoring
Yong Huang, Harbin Institute of Technology
- 14:20-14:35 Tunnel lining defect segmentation based on UNet with multi-level feature fusion
Minjie Qiao, Southwest Jiaotong University
- 14:35-14:50 Semi-supervised damage detection in wind turbine components under environmental variability
Maria E. Quiroz, City St George's, University of London
- 14:50-15:05 Evaluating bridge conditions under earthquakes with minimal sensors from an observability and Bayesian perspective
Hiroto Yamada, Tohoku University
- 15:05-15:20 Multi-channel feature fusion for corrosion damage detection of tunnel using wave propagation method
Zhengyu Xiong, Southwest Jiaotong University
- 15:20-15:35 Sparse Bayesian learning for joint load-damage-response identification
Lanxin Luo, The Hong Kong Polytechnic University
- 15:35-15:50 Bayesian sequential updating for anti-interfering bridge influence line identification
Long Zhao, Xiamen University
- 15:50-16:05 Real-time identification of bridge influence lines under multi-vehicle flow without traffic closure
Yuanhao Zhang, Xiamen University

Session 1D: (ANCRiSST S3) CV-Enhanced SHM (14:00-16:05)

Venue: TU107

Chairs: Xiao Pan and Jiazhan Su

- 14:00-14:20 [Invited Speech]
AI and computer vision-driven structural damage inspection: recent advances



and future vision

Xiao Pan, The Hong Kong University of Science and Technology

- 14:20-14:35 Study on hard negative sample augmentation for improved accuracy of concrete crack detection
Deogwon Kang, University of Seoul
- 14:35-14:50 Perceptual prior-guided segmentation of bridge components in 3D point clouds from UAV imagery
Jonghwa Hong, Sungkyunkwan University
- 14:50-15:05 Detection and evaluation of railway sleepers using Neural Radiance Fields and zero-shot models
Iljun Kim, Sungkyunkwan university
- 15:05-15:20 Binocular stereovision and CAD-assisted PointNet deep learning for real-time bolt loosening monitoring
Ngoc-Lan Pham, Pukyong National University
- 15:20-15:35 FF-COLMAP: efficient bridge 3D reconstruction based on semantic segmentation and non-LiDAR UAV
Jiazheng Cao, Zhejiang University
- 15:35-15:50 Quantification of pavement surfacing aggregate texture using low-cost close-range photogrammetry
Cheng Peng, Purdue University
- 15:50-16:05 The UAV motion correction strategy based on similarity transformation
Zhang Zheng, Xiamen University

16:05-16:20

Coffee Break

Session 2A: (ZHITU S2) Intelligent Materials and Control (16:20-18:10)

Venue: TU201

Chairs: Ruihong Xie and Xiaoming Lei

- 16:20-16:40 [Invited Speech]
Direct physics-informed design of hydrodynamic metamaterial
Yuanye Zhou, The Hong Kong Polytechnic University
- 16:40-16:55 Tesla-valve-inspired acoustic metamaterial for broadband noise mitigation
Seungjin Ju, Ulsan National Institute of Science and Technology
- 16:55-17:10 Self-monitoring performance of smart concrete structures embedded with cement-based piezoresistive sensors
Ruoyan Pan, Zhejiang University

- 17:10-17:25 A dynamic homogenization method for elastic wave band gap and initial-boundary value problem analysis of piezoelectric composites with elastic and viscoelastic periodic layers
Mengyuan Gao, Zhejiang University
- 17:25-17:40 Effect of rapid-cooling electric arc furnace oxidizing slag on self-heating cementless composite
Goeun Jun, Ulsan National Institute of Science and Technology
- 17:40-17:55 Cementless binder developed solely from oyster shell powder and sodium aluminate
Hyun Ji Lyu, Ulsan National Institute of Science and Technology
- 17:55-18:10 Corrosion progression assessment of a historic steel truss bridge using modal updating
Konstantin Kotelnikov, University of Illinois Urbana-Champaign

Session 2B: (ANCRiSST S4) AI and Data-Driven Methods I (16:20-18:25)

Venue: TU103

Chairs: **Zhen Sun and Christian Tutiven**

- 16:20-16:40 [Invited Speech]
Health condition assessment of modular expansion joints in cable-supported bridges
Zhen Sun, Southeast University
- 16:40-16:55 Deep learning for dam monitoring: anomaly detection with Siamese networks and 1D CNNs
Christian Tutiven, ESPOL Polytechnic University
- 16:55-17:10 An active learning method based on Monte Carlo dropout neural network for reliability analysis
Huabin Sun, Harbin Institute of Technology
- 17:10-17:25 A feasibility study on system identification of dynamical systems using Kolmogorov-Arnold networks
Jeongmin Lee, University of Seoul
- 17:25-17:40 Deep learning-based hypothesis generation from knowledge graph in civil engineering domain
Sangbin Lee, Seoul National University
- 17:40-17:55 A hybrid attention hierarchical network-based extreme event detection method for structural health monitoring
Qiuyue Pan, Harbin Institute of Technology
- 17:55-18:10 Intelligent stiffness inversion method for high-rise buildings based on limited



monitoring data
Xinyi Tan, Harbin Institute of Technology (Shenzhen)

18:10-18:25 Aerothermoelastic analysis via physics-informed neural networks
Zhaolin Chen, The Hong Kong Polytechnic University

Session 2C: (ANCRiSST S5) Structural Monitoring and Assessment II (16:20-18:10)

Venue: TU101

Chairs: Ki Young Koo and Zhongxiang Liu

16:20-16:40 [Invited Speech]
eNodes: novel WIFI meshed time-synchronised accelerometer nodes for OMA of civil infrastructures
Ki Young Koo, University of Exeter

16:40-16:55 SHM-driven abnormal vibration diagnosis and intelligent warning of long-span bridges
Zhongxiang Liu, Southeast University

16:55-17:10 A computationally efficient multi-scale simulation approach for joint behavior analysis in precast bridge slab system
Qiliang Zhao, Zhejiang University

17:10-17:25 Bayesian active learning for evaluating response uncertainty via a Gaussian process surrogate model
Daichi Masuda, The University of Tokyo

17:25-17:40 Sequential transfer learning for pointwise detection of vortex-induced vibrations in long-span bridge
Sunho Lee, University of Seoul

17:40-17:55 Physics-encoded neural operator for solving elastodynamic problems
Xiaoge Tian, The University of Hong Kong

17:55-18:10 Influence of pore water freezing on natural frequencies of concrete girder bridges
Gui-Tao Li, Xiamen University

Session 2D: (ANCRiSST S6) Structural Control and Monitoring I (16:20-18:10)

Venue: TU107

Chairs: Soojin Cho and Hao Luo

16:20-16:40 [Invited Speech]
A comprehensive framework for automated vision-based crack inspection using deep learning models considering practical conditions



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Soojin Cho, University of Seoul

- 16:40-16:55 Feasibility of a smart passive rate-independent negative stiffness damper for the seismic protection of long-period structures
Hao Luo, Huazhong University of Science and Technology
- 16:55-17:10 How to tackle class-imbalance issues in deep learning-driven SHM?
Qingsong Xiong, The Hong Kong Polytechnic University
- 17:10-17:25 Experimental investigation of constrained layer damper for vibration mitigation
Mona Shaheen, The University of Kansas
- 17:25-17:40 Performance evaluation of an inertial mass electromagnetic transducer with MMR under DCM control
Takumi Konishi, University of Tsukuba
- 17:40-17:55 Optimal seismic design of unidirectional rocking isolation bearing system for bridge structures
Ruihong Xie, Tohoku University
- 17:55-18:10 Experimental evaluation of an adaptive inertial mass damper for cable vibration control
Yixuan Rao, Zhejiang University

18:30-21:00

Banquet (Choi Fook Royal Banquet, Metropolis)



22 July 2025 (Tuesday)

Parallel Sessions

Session 3A: (ZHITU S3) Intelligent Operation and Construction (09:00-10:35)

Venue: TU201

Chairs: Xiaoyou Wang and Youngjoo Lee

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|-------------|---|
| 09:00-09:20 | [Invited Speech]
Improving machine learning adaptability and generalizability for population-based structural health monitoring
<i>Xiaoyou Wang</i> , The Hong Kong Polytechnic University |
| 09:20-09:35 | Assessing bridge inspection procedures: challenges and opportunities
<i>Aniston Cumbie</i> , University of Illinois Urbana-Champaign |
| 09:35-09:50 | Buildability of 3D printed concrete with cellulose microfibers: influence of fiber length
<i>Eunsan Cho</i> , Ulsan National Institute of Science and Technology |
| 09:50-10:05 | Numerical investigation on seismic behaviour of corroded BP A steel bridge bearings under foreshock
<i>Wafula Dominic Mugeni</i> , The University of Tokyo |
| 10:05-10:20 | Improving buildability and compressive strength of 3D printable CaO-activated slag concrete
<i>Jun Kim</i> , Ulsan National Institute of Science and Technology |
| 10:20-10:35 | SHM-informed maintenance strategies of offshore wind turbine blades
<i>Weihao Hong</i> , The Hong Kong Polytechnic University |

Session 3B: (ANCRiSST S7) AI and Data-Driven Methods II (09:00-10:35)

Venue: TU103

Chairs: Yiming Zhang and Xinhao He

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| 09:00-09:20 | [Invited Speech]
Probabilistic fault diagnosis for expansion joints of small and medium bridges using acoustic signal
<i>Yiming Zhang</i> , Southeast University |
| 09:20-09:35 | Acoustic control via integration of coding metasurface and triboelectric nanogenerator
<i>Zoe Yaw</i> , The Hong Kong Polytechnic University |

- 09:35-09:50 BMC: an image dataset for building material counting with zero-code AI development using EasyDL
Qian Huang, Tongji University
- 09:50-10:05 Edge computing for acceleration-based sudden damage detection on resource-constrained IoT sensors
Shuaiwen Cui, Nanyang Technological University
- 10:05-10:20 Crack development in nuclear concrete containment structure subjected to internal pressure
Chanyoung Kim, Ulsan National Institute of Science and Technology
- 10:20-10:35 FE model updating of structures with partial damage using a novel GA based approach
Shu Li, The University of Edinburgh

Session 3C: (ANCRiSST S8) Smart Structures and Materials (09:00-10:35)

Venue: TU101

Chairs: Jun Li and Zhiwei Chen

- 09:00-09:20 [Invited Speech]
Generative AI techniques for structural health monitoring
Jun Li, Curtin University
- 09:20-09:35 Dynamic/static sensing based on piezoelectric/piezoresistive smart sensing concrete
Xing Chen, Southeast University
- 09:35-09:50 A rapid testing scheme for dynamic properties of building clusters using smart portable devices
Yang Li, Tongji University
- 09:50-10:05 Review of quality control practices on road construction projects in Kenya
Wendy Aduma, Toyo University
- 10:05-10:20 Influence and mechanism of CaSO₄-modified SAP on the performances of solid waste-based sulfoaluminate cement
Ziliang Zhang, Southeast University
- 10:20-10:35 Combined FE-VFIFE analysis for complex structural systems with localized nonlinearity
Jinzheng Liu, Zhejiang University



Session 3D: (ANCRiSST S9) Structural Control and Monitoring II (09:00-10:35)

Venue: TU107

Chairs: Zhouquan Feng and Zimo Zhu

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|-------------|--|
| 09:00-09:20 | [Invited Speech]
Advancing damping identification through noise-robust methods using ambient and free vibration data
<i>Zhouquan Feng, Hunan University</i> |
| 09:20-09:35 | Asynchronous virtual sensing technique for wind turbines – an experimental validation
<i>Zimo Zhu, Jinan University</i> |
| 09:35-09:50 | Latched mass damper for the vibration control of ultra-low frequency structures
<i>Hao Wang, The Hong Kong Polytechnic University</i> |
| 09:50-10:05 | Physics-informed neural operator for forecasting vehicle-induced bridge vibrations
<i>Rongxiu Chen, Kyoto University</i> |
| 10:05-10:20 | Data-driven approach to safety analysis of a mining shaft under seismic shake
<i>Qiaozhi Sang, Tongji University</i> |
| 10:20-10:35 | Numerical simulation of static responses of bridge modular expansion joints under vehicle loading
<i>Yuanfeng Fan, South China University of Technology</i> |

10:35-10:50

Coffee Break

Session 4A: (ZHITU S4) Disaster Simulation and Monitoring (10:50-12:10)

Venue: TU201

Chairs: Binbin Li and Fei Wang

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|-------------|---|
| 10:50-11:10 | [Invited Speech]
Sequential multiple importance sampling for high-dimensional Bayesian inference
<i>Binbin Li, Zhejiang University - University of Illinois Urbana-Champaign Institute</i> |
| 11:10-11:25 | Maintenance optimization model for railway asset management with preventive maintenance delays
<i>Yu Wu, The University of Tokyo</i> |

- 11:25-11:40 Interpretable and machine learning-based interfacial strength estimation of concrete-filled steel tube
Hengyang Li, Zhejiang University
- 11:40-11:55 Literature review on carbonation and chloride degradation mechanism of different hydration products
Hyejin Yu, Ulsan National Institute of Science and Technology
- 11:55-12:10 Ground motion model considering topographic effects in japan
Jangsoo Lee, Ulsan National Institute of Science and Technology

Session 4B: (ANCRiSST S10) Smart Infrastructure Assessment (10:50-12:10)

Venue: TU103

Chairs: Linren Zhou and Dongfang Zhang

- 10:50-11:10 [Invited Speech]
Numerical simulation and field measurement of the time-varying temperature of the supporting tower of offshore wind turbines
Linren Zhou, South China University of Technology
- 11:10-11:25 Research and applications of durability monitoring and assessment technology in marine infrastructures
Dongfang Zhang, CCCC Fourth Harbor Engineering Institute Co. Ltd.
- 11:25-11:40 Ultrasonic guided waves for characterizing buildability of 3D printed concrete
Geetanjali Chandam, Ulsan National Institute of Science and Technology
- 11:40-11:55 Automated Bayesian analysis of long-term SHM data with sensor malfunctions
Zhanyu Huang, Zhejiang University - University of Illinois Urbana-Champaign Institute
- 11:55-12:10 Buildability prediction in 3D concrete printing based on two-stage numerical simulation framework
Mukhammed Rais, Ulsan National Institute of Science and Technology

Session 4C: (ANCRiSST S11) Infrastructure Smart Management (10:50-12:10)

Venue: TU101

Chairs: Hyungchul Yoon and Lijun Liu

- 10:50-11:10 [Invited Speech]
Smart technologies for improving the safety at construction sites
Hyung-Jo Jung, Korea Advanced Institute of Science & Technology



- 11:10-11:25 Fatigue crack detection and prediction based on computer vision
Zongmou Li, The Hong Kong Polytechnic University
- 11:25-11:40 Road safety early warning method based on mixed-precision quantization of vision large models
Feiyuan Long, Harbin Institute of Technology
- 11:40-11:55 Virtual pre-assembly of cable-stayed bridge closure segment integrating temperature effect analysis and 3D laser scanning technology
Xin-ping Ye, Southeast University
- 11:55-12:10 Neural operators for digital twin of structures
Chawit Kaewnuratchadasorn, The University of Hong Kong

Session 4D: (ANCRiSST S12) BIM and Digital Twin (10:50-12:10)

Venue: TU107

Chairs: Takehiko Asai and Jing Yu

- 10:50-11:10 [Invited Speech]
Human-machine interfaces for structural health monitoring
Fernando Moreu, University of New Mexico
- 11:10-11:25 FE model construction from bridge point cloud data using template models
Tomoya Nakamizo, University of Tsukuba
- 11:25-11:40 Digital twin development of a truss bridge using Scan-to-FEM techniques
Jaehyuk Lee, Chungbuk National University
- 11:40-11:55 Hybrid structure from motion for the digital transformation of pedestrian suspension bridges
Yeongseo Park, Chungbuk National University
- 11:55-12:10 Finite element modelling and calibration of a 60-year-old steel truss bridge
Sudanna Borjigin, NingboTech University

12:20-14:00

Lunch (Ju Yin House)

Keynote Lectures

Keynote Lectures III (14:00-15:30)

Venue: TU201

Chairs: You Dong and Fernando Moreu

14:00-14:30 Damping identification of long-span bridges from ambient and forced vibration measurements

Xugang Hua, Hunan University

14:30-15:00 AI-augmented shape sensing in prefabricated bridge construction

Sung-Han Sim, Sungkyunkwan University

15:00-15:30 [Online] Toward self-aware infrastructure: a physics-enhanced learning framework

Eleni Chatzi, ETH Zürich

15:30-15:45

Coffee Break

Keynote Lectures IV (15:45-17:15)

Venue: TU201

Chairs: Ying Lei and Hyung-Jo Jung

15:45-16:15 Fatigue life evaluation for hangers of tied arch high-speed rail bridge considering train-bridge interaction and steel wire corrosion

Yuanfeng Duan, Zhejiang University

16:15-16:45 Machine learning-based structural health diagnosis

Yuequan Bao, Harbin Institute of Technology

16:45-17:15 AI-powered concrete dam monitoring

Jian Li, University of Kansas

17:15-17:30

Closing Ceremony (TU201)

18:00-20:00

Dinner (Choi Fook Royal Banquet, Metropolis)



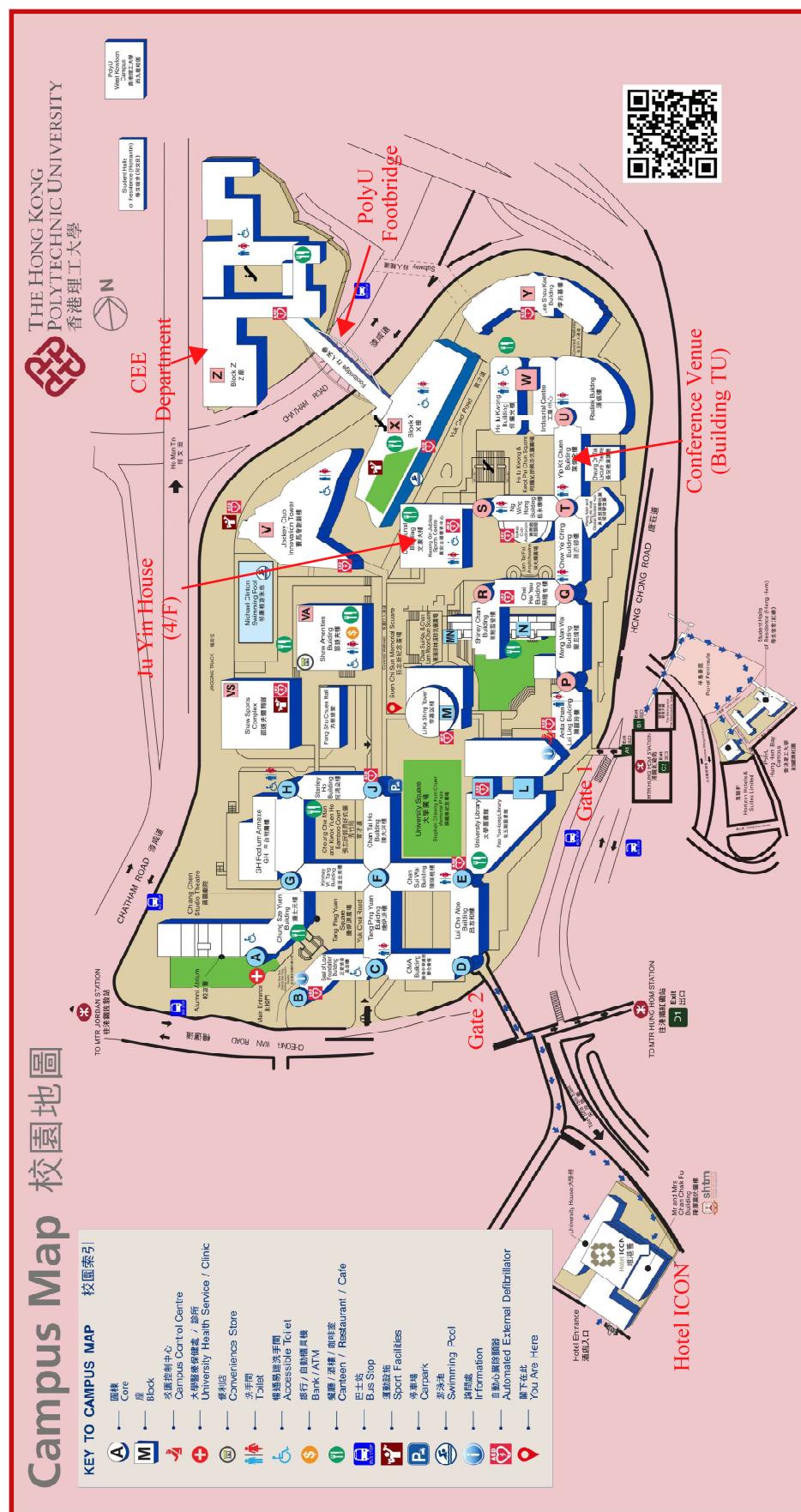
Part 4. Location

Conference Venue

The conference will be held in **Building TU (Yip Kit Chuen Building)** on the campus of **The Hong Kong Polytechnic University**. This academic building is well-equipped with modern teaching and presentation facilities, making it an ideal setting for academic exchange and collaboration. Rooms TU101, TU103, TU107, and TU201 are well-prepared for the conference.



Building TU (Yip Kit Chuen Building)





Part 5. Accommodation

Accommodation suggestion

Accommodation expenses are self-funded by participants. The following hotels are recommended for conference participants.

1. Harbour Plaza Metropolis (4 Star, ~HKD1200/night)

Distance: ~600 meters (8-minute walk).

Overview: Located near Hung Hom MTR station, this hotel offers comfortable rooms with harbor views and convenient access to transportation.

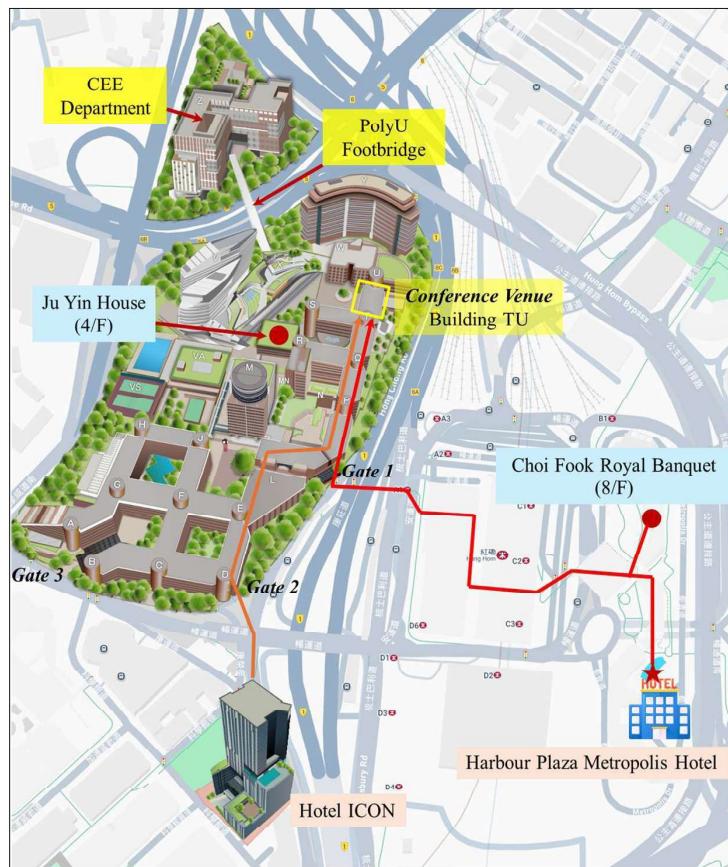
Amenities: Free Wi-Fi, outdoor pool, fitness center, shuttle service to Tsim Sha Tsui.

2. Hotel ICON (5 Star, ~HKD1600/night)

Distance: ~500 meters (7-minute walk).

Overview: A modern hotel designed by local architects and operated in partnership with HKPolyU. It features spacious rooms, a rooftop pool, and eco-friendly amenities.

Amenities: Free Wi-Fi, rooftop infinity pool, fitness center, multiple dining options.





Part 6. Transportation

Transportation to hotel

- **From Hong Kong International Airport to Harbour Plaza Metropolis Hotel**
 - ***Option 1: Taxi***

Duration: Approximately 30 to 45 minutes, depending on traffic.
Fare: Approximately HK\$270 to 300.
 - ***Option 2: Airport Bus A21***

Duration: Approximately 70 minutes from the start station at the Airport to the destination station, Hung Hom.
Fare: HK\$34.6.
Frequency: Every 10 to 20 minutes from 05:30 to 00:00.
- **From Hong Kong West Kowloon Station (High Speed Rail) to Harbour Plaza Metropolis Hotel**
 - ***Option 1: Taxi***

Duration: Approximately 5 to 10 minutes, depending on traffic.
Fare: Approximately HK\$40 to 50.
 - ***Option 2: MTR Subway***

Step 1: From West Kowloon High Speed Rail Station, walk approximately 2 minutes (100 meters) to Austin MTR Station.
Step 2: Take MTR from Austin Station to Hung Hom Station in Tuen Ma Line.
Step 3: Exit Hung Hom Station via Exit C3 and follow the map to Harbour Plaza Metropolis Hotel.
Duration: Approximately 15 minutes
Fare: HK\$6.2

Transportation payment methods

Most transportation services in Hong Kong accept the following payment methods:

- ***Octopus Card***

The most convenient and widely accepted option. Usable on MTR, buses, minibuses, ferries, and even some taxis. It can also be used in convenience stores, supermarkets, and restaurants. You can purchase an Octopus card at various locations in Hong Kong, including 7-Eleven and Circle K stores, and selected MTR Customer Service Centres.



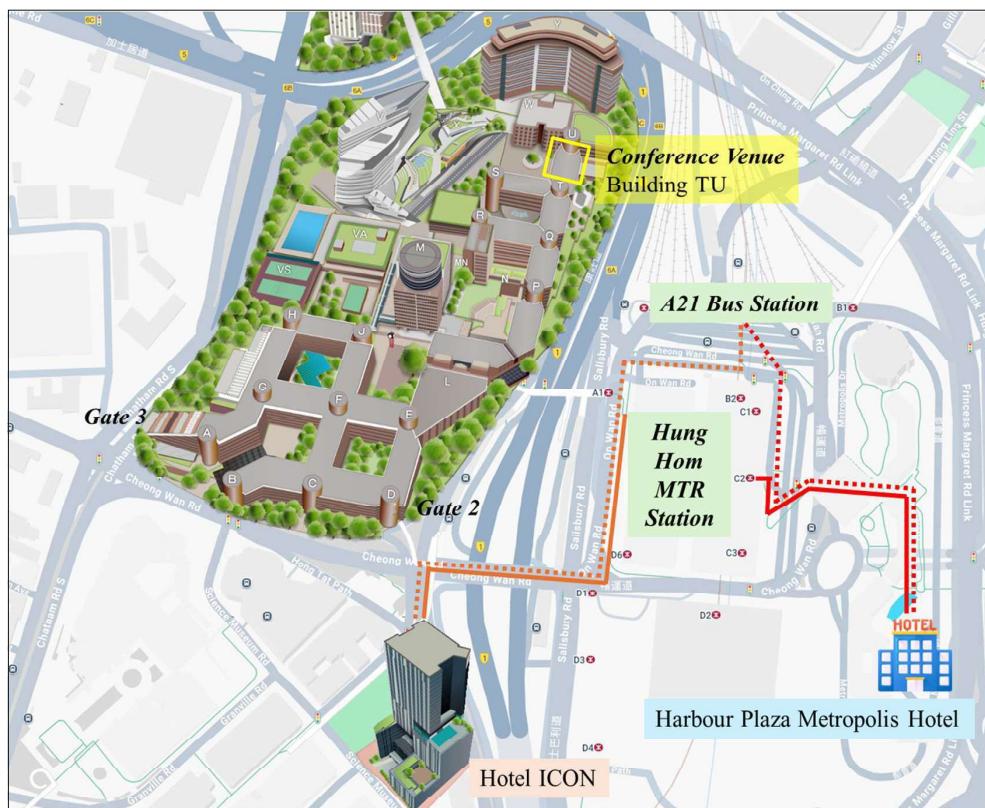
- **Cash**

Accepted on buses, minibuses, and taxis. Exact fare is required for buses and minibuses, as no change is given.

- **Credit Cards & Mobile Payments**

Some taxis, bus routes, and newer MTR gates accept contactless credit cards (Visa, Mastercard) and mobile payments, but this is not yet universal.

Tip: Many taxis in Hong Kong only accept cash, while a few taxis may accept electronic payments. We strongly suggest bringing some cash (HK dollars) with you.



港鐵路線圖 MTR system map



MTR Map



Sponsors

Construction Innovation and Technology Fund
Research Institute for Artificial intelligence of Things
Faculty of Construction and Environment



Contact

Email: ancrisst25.cee@polyu.edu.hk
Website: <https://events.polyu.edu.hk/ancrisst2025/home>