



Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability cum Inauguration Ceremony for Research Centre for Artificial Intelligence in Geomatics

DEC
9 & 10
2023

Registration Fees:

- **REGULAR:**
HK\$2500
- **STUDENT:**
HK\$1250

V322, Jockey
Club
Innovation
Tower, PolyU

Conference Chair



Prof. Qihao Weng, MAE

*Chair Professor of
Geomatics and Artificial
Intelligence, & Global STEM
Professor, The Hong Kong
Polytechnic University*

[Register Now](#)



**Extended abstract
submission
deadline: NOV 30
Registration
deadline: NOV 30**

Overview

In a rapidly evolving time, when social economic development, ecosystems, and climate change intersect, there is a pressing need to assess, monitor, and analyze urban environments and human-ecosystem interactions. The Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability serves as a vibrant platform to explore and discuss compelling and emerging topics in urban and environmental studies, and is the second workshop of IEEE GRSS Hong Kong Chapter. The primary objective of this workshop is to harness the potentials of cutting-edge earth observation technologies, leveraging geospatial intelligence and data analytics, to address the specific challenges and opportunities faced globally in urban and environmental contexts. This workshop serves as a catalyst for meaningful collaborations and knowledge exchange between researchers, industry professionals, and policymakers, fostering a holistic approach towards addressing the needs and challenges faced in the realms of urban development and environmental stewardship.

Enquires: info.poleis@polyu.edu.hk



Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability cum Inauguration Ceremony for Research Centre for Artificial Intelligence in Geomatics

Program Outline:

Day 1 – 09 DEC

Inauguration Ceremony for Research Centre for Artificial Intelligence in Geomatics:

08:30 am – 09:30 am Registration

09:30 am – 10:00 am Open Ceremony

09:30 am – 09:50 am Guest Greeting

Prof. Christopher Chao

VP(RI), DoPReCIT & Chair Professor of Thermal and Environmental Engineering,
The Hong Kong Polytechnic University

Prof. Qihao Weng

Chair Professor of Geomatics and Artificial Intelligence, & Global STEM
Professor, The Hong Kong Polytechnic University

Prof. Charles Wong

Associate Dean (FCE) and Professor, The Hong Kong Polytechnic University

Prof. Xiaoli Ding

Director of Research Institute for Land and Space, Chair Professor of Geomatics,
The Hong Kong Polytechnic University

Dr. Xuanya Li

Director of University Relationship, Baidu, Inc.

Mr. Cary Barce

GIS Solution Manager, Esri China (Hong Kong) Limited

Mr. Kwok Fai Chang

Deputy Director / Survey & Mapping, Lands Department

09:50 am – 10:05 am Ribbon Cutting Ceremony and Group Photo



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Day 1 – 09 DEC

Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability:

10:05 am – 11:05 am Keynote Session I (Chair: Prof. Xiaoli Ding)

10:05 am – 10:35 am

Prof. Peng Gong, Vice-President and Pro-Vice-Chancellor,
Chair Professor of Global Sustainability, HKU

**Title: iEarth for Urban Environment and
Sustainability**

10:35 am – 11:05 am

Prof. Changwen Chen, Chair Professor of Visual
Computing, PolyU

Title: Visual Computing for GeoAI Applications

11:05 am – 11:20 am Coffee Break

11:20 am – 12:20 pm Keynote Session II (Chair: Prof. Changwen Chen)

11:20 am – 11:50 am

Prof. Xiaojun Chen, Chair Professor of Applied
Mathematics, PolyU

**Title: Optimization Theory and Algorithms for Big
Data Analytics**

11:50 am – 12:20 pm

Prof. Jian Huang, Associate Director of UBDA, Chair
Professor of Data Science and Analytics, PolyU

Title: Conditional Generative Learning

12:20 pm – 02:00 pm Lunch Break



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Program Outline:

Day 1 – 09 DEC

02:00 pm – 03:00 pm Technical Session 1 (Chair: Dr. Wei Yao)

02:00 pm – 02:15 pm (invited talk) **Prof. Charles Man Sing Wong**, Associate Dean (FCE) and Professor, PolyU

Title: Use of Remote Sensing for Place Making and Community Development

02:15 pm – 02:30 pm (invited talk) **Prof. Hai Guo**, Professor, PolyU

Title: Big Data Implication on Urban Air Quality Study: Combining Observation with Model Simulation

02:30 pm – 02:45 pm **Dr. Qiming Zheng**, Research Assistant Professor, PolyU

Title: Impact of Temporal Compositing on Nighttime Light Data and its Applications

02:45 pm – 03:00 pm **Dr. Cheolhee Yoo**, Research Assistant Professor, PolyU

Title: Assessing the Impact of Urban Industrial Land Expansion on Economic Growth and CO2 Emissions Across Various Development Levels

03:00 pm – 4:30 pm Keynote Session III (Chair: Prof. Charles M.S. Wong)

03:00 pm – 03:30 pm **Prof. Qihao Weng**, Chair Professor of Geomatics and Artificial Intelligence, & Global STEM Professor, The Hong Kong Polytechnic University, PolyU

Title: How Will AI Transform Urban Observing, Sensing, Imaging, And Mapping?

03:30 pm – 04:00 pm **Prof. Yeh, Anthony G.O.**, Director of Geographical / Land Information System Research Centre, Chair Professor of the Department of Urban Planning and Design, HKU

Title: Big Data, AI and Urban Planning



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Day 1 – 09 DEC

**03:00 pm – 4:30 pm Keynote Session III
(Chair: Prof. Charles M.S. Wong)**

04:00 pm – 04:30 pm Prof. Shunlin Liang, Chair Professor, Head of Department of Geography, HKU

Title: Machine Learning Methods for Estimating Global Land Surface Biophysical Variables from Satellite Observations

04:30 pm – 04:45 pm Coffee Break

**04:45 pm – 06:10 pm Youth Forum
(Chair: Dr. Tiangang Yin)**

04:45 pm – 04:55 pm Dr. Zherong Wu, Cornell University

Title: Detecting the Spatiotemporal Pattern of Land Subsidence Using InSAR and Deep Learning

Dr. Siqi Jia, The Hong Kong Polytechnic University

04:55 pm – 05:05 pm Title: Multiscale Evaluation of Thermal Environment in Hong Kong and Strategies for Improving Urban Thermal Environment and Walkability

Ms. Yuk Po Bowie Chan, The Chinese University of Hong Kong

05:05 pm – 05:15 pm Title: Estimation of Rupture Scenarios along the Cascadia Megathrust from Interseismic Locking Models Using 3-D Dynamic Simulations

Mr. Xiaojun Huang, Guangzhou University

05:15 pm – 05:25 pm Title: Evaluation of Wetland Damage and Simulation of Wetland Future Changes in the Guangdong-Hong Kong-Macao Greater Bay Area

05:25 pm – 05:40 pm Break

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Day 1 – 09 DEC

**04:45 pm – 06:10 pm Youth Forum
(Chair: Dr. Tiangang Yin)**

Ms. Hong Wei, Tsinghua University

05:40 am – 05:50 pm

Title: Impact of Early Heat Anomalies on Urban Tree Cooling Efficiency: Evidence from Spring Heatwave Events in India

Mr. Shizhe Xie, China University of Geosciences (Beijing)

05:50 pm – 06:00 pm

Title: Research on Fine Estimation of People Trapped after Earthquake on Single Building Level Based on Multi-Source Data

Ms. Yu Zhang, China University of Geosciences (Beijing)

06:00 pm – 06:10 pm

Title: Distance Weight-Graph Attention Model based High Resolution Remote Sensing Urban Functional Zone Identification

05:00 pm – 06:00 pm IEEE GRSS HK Chapter EXCO Meeting

06:30 pm – 08:30 pm Welcome Dinner / IEEE GRSS Hong Kong Chapter Excellent Paper Competition Award Ceremony



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Program Outline:

Day 2 – 10 DEC

09:30 am – 10:30 am Technical Session 2 (Chair: : Dr. Peifeng Ma)

Dr. Xintao Liu, Associate Professor, PolyU

09:30 am – 09:45 am (invited talk)
Title: Exploring eScooter Sharing Mobility for Sustainable Urban Development: A Case Study across 30 European Cities

Dr. Peifeng Ma, Vice-Chancellor Assistant Professor, CUHK

09:45 am – 10:00 am (invited talk)
Title: Deciphering Building and Infrastructure Deformations Using InSAR and Deep Learning Methods

Dr. Tiangang Yin, Assistant Professor, PolyU

10:00 am – 10:15 am (invited talk)
Title: Optimizing Configurations for Forest Canopy Surface Retrievals Using Spaceborne Stereogrammetry based on 3D Radiative Transfer Modeling

Dr. Lingcao Huang, Research Assistant Professor, CUHK

10:15 am – 10:30 am
Title: Is Traditional Feature Extraction Still Useful in the Era of Deep Learning? — Lessons Learned from the Processing of 200 TB ArcticDEM Data

10:30 am – 11:30 am Technical Session 3 (Chair: Dr. Cheolhee Yoo)

Dr. Frank Xue, Assistant Professor, HKU

10:30 am – 10:45 am (invited talk)
Title: Bridging the Gap between Point Clouds for GeoAI: Role of Supervised, Reinforced and Unsupervised Learning

Dr. Xiaojuan Qi, Assistant Professor, HKU

10:45 am – 11:00 am (invited talk)
Title: Unlocking the 3D World: From 3D Reconstruction and Understanding to 3D Creation



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Day 2 – 10 DEC

10:30 am – 11:30 am Technical Session 3 (Chair: Dr. Cheolhee Yoo)

11:00 am – 11:15 am
(invited talk) **Dr. Kai Han**, Assistant Professor, HKU
Title: GPT4GEO: How a Language Model Sees the World's Geography

11:15 am – 11:30 am
Dr. Xiaoyan Lu, PolyU
Title: Global Road Extraction Using a Pseudo-label Guided Framework: From Benchmark Dataset to Cross-region Semi-supervised Learning

11:30 am – 12:30 pm Technical Session 4 (Chair: Prof. Dongping Ming / Prof. Yang Yue)

11:30 am – 11:45 am
(invited talk) **Prof. Jie Chen**, Professor, Central South University
Title: Prototype Cognition of Urban Local Spatial Morphology via Intelligent Analysis of RS Images

11:45 am – 12:00 am
(invited talk) **Prof. Dongping Ming**, Professor, China University of Geosciences (Beijing)
Title: OCNN based High Spatial Resolution Remote Sensing Image Interpretation and its Applications

12:00 am – 12:15 pm
(invited talk) **Prof. Yang Yue**, Professor, Shenzhen University
Title: Understandings of Urban Sustainable Development in China: a Bibliometric Approach

12:15 pm – 12:30 pm Closing Ceremony