



THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學



DEPARTMENT OF
LAND SURVEYING AND GEO-INFORMATICS
土地測量及地理資訊學系

Annual Report

2023–2024

1 September 2023 – 31 August 2024



The building on the left is the Block Z of PolyU campus where LSGI is located.

The information contained in this report covers the period from
1 September, 2023 to 31 August, 2024.

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MESSAGE FROM HEAD



Welcome to the Department of Land Surveying and Geo-Informatics (LSGI). I am pleased to present our annual report, which highlights our activities, efforts and achievements during September 2023 to August 2024.

This year, we are grateful for the dedication and hard work of our staff and students, whose commitment have contributed to progress in various fields. Prof. Bo Wu received the Outstanding Award (Individual) from the China National Space Administration for his contribution to China's first Mars exploration mission. Prof. Xiaoli Ding and Ir Prof. Wallace Lai were both awarded the Smart Living Partnership Award this year for their innovative work in developing a more sustainable and technologically advanced Hong Kong.

Moreover, Prof. Qihao Weng received both the AAG Wilbanks Prize for Transformational Research in Geography and the RSSG Lifetime Achievement Honour Award this year, in recognition of his important contributions to the fields of Geography and GIScience. We are also pleased to note that Prof. John Shi, Prof. Jianli Chen, and Prof. Qihao Weng were listed among the world's top 2% most-cited scientists in career-long impact, according to a Stanford University report released in October 2023.

During this academic year, LSGI students have made steady progress and achieved notable results in various areas. In research, Mr. Songyang Li, a PhD student from the Remote Sensing Laboratory, and his team were awarded First Place at the UN Datathon China Division. Ms. Yamin Qing, also a PhD student, was named Best Research Postgraduate Student of the Year 2023 by the Graduate School. In addition, Mr. Chan Ka Kit Zeno, an MSc student, and his team received the Silver Award in the "BIM Project - Private Development" category at the Hong Kong Institute of Building Information Modelling (HKIBIM) Award 2023. Our undergraduate students have also performed well in different areas. Mr. Wong Ka Wai Andy, a recent BSc graduate, received the 'Lo Pan Scholarship' from the Hong Kong Construction Association (HKCA). Ms. Xu Yi Nam Deanna, a Year 4 BSc student, and Ms. Chu Wing Wai Winnie, a Senior Year 1 BSc student, were each awarded a HKD 50,000 scholarship from the 'For Our Future Scholarship' and the 'HSBC Hong Kong Scholarship', respectively. Additionally, six LSGI students received the Hong Kong Institute of Surveyors Awards for Outstanding Academic Achievements. We are pleased to acknowledge these achievements, which reflect our students' consistent endeavours and dedication.

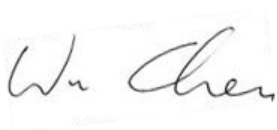
We were pleased to welcome several new colleagues to the LSGI family, including Dr. Qing Pei (Associate Professor), Dr. Sergey Krasilnikov, and Dr. Yang Yang (both Research Assistant Professors). Their expertise will further strengthen the department's teaching and research in various disciplines. We were also honored to have Prof. Peter Teunissen from Delft University of Technology join us as Distinguished Visiting Chair Professor. I am also delighted to share news of staff promotions within our department. Ir Prof. Wallace Lai has been promoted to Professor, Dr. Yang Xu to Associate Professor, and Dr. Guoqiang Shi to Assistant Professor. These well-earned promotions reflect their dedication, hard work, and valuable contributions to both our department and the wider academic community.

In 2023/24, our academic staff secured 10 major external research grants, including six General Research Fund (GRF) projects, one Environment and Conservation Fund (ECS) project, one Collaborative Research Fund (CRF) project, one Research Impact Fund (RIF) project, and a grant under the NSFC Key Programme. Notable projects include Prof. Jianli Chen's work on sea level rise monitoring, Dr. Xintao Liu's AI-enabled geospatial platform for smart facility management, and Prof. Xiaoli Ding's research on underground water pipe leakage detection. In total, new projects attracted around HK\$20 million in funding.

The department remains actively engaged in applied research, technology transfer, professional organisations, and public outreach. Highlights include the soft launch of the GEO Project 1941, led by Ir Prof. Wallace Lai, to preserve and share Hong Kong's historical geospatial data; the International Academic Forum for Non-Exposed Space, which brought together experts to discuss emerging topics in spatial science; and the inauguration of the Research Centre for Artificial Intelligence in Geomatics (RCAIG), led by Prof. Qihao Weng. In August 2024, we also established a strategic partnership with Hexagon to advance spatial measurement technologies and foster further collaboration in research, talent cultivation, and technology transfer.

Our department continues to offer a comprehensive range of geomatics programmes, including Higher Diploma, Bachelor of Science, Master of Science, MPhil and PhD. We currently have over 622 local and international students. This year, the number of BSc students increased by 9%, and PhD students grew by 22%. According to the 2023 Graduate Employment Survey, about half of our graduates are employed in government roles, and 75% are working in surveying-related positions. The average graduate salary also rose by 7.2% to HK\$23,427.

These achievements would not have been possible without the support of our staff, students, alumni, and industry partners. I am grateful for everyone's contributions and look forward to seeing the department continue to grow and serve the community in the years ahead.



Wu Chen
Head and Chair Professor
Department of Land Surveying & Geo-Informatics
The Hong Kong Polytechnic University

Vision and Mission

VISION

- Be a leading geomatics department in the world.

MISSION

- Offer high quality academic programmes for educating land surveyors and geo-informatics engineers capable of meeting industry and society needs.
- Develop international leading, high-impact and innovative research in the disciplines of Land Surveying and Geo-Informatics.
- Provide high level service to industry and society through knowledge transfer and active involvement in local and international professional societies.





Prof. CHEN Wu 陳武 教授

BSc, MSc, PhD

Department Head, ADoRIA IoT & Chair Professor of Satellite Navigation

Research interests

GNSS Applications on Transportation, Kinematic GPS, System Integration, GNSS Performance Evaluation, GPS Software Receiver, Regional GPS Network, Vehicle and Personal Navigation Systems, and Wireless Sensor Network

Teaching areas

Geodesy, Surveying, Positioning Technology

(Promoted in July 2024)

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Prof. DING Xiaoli 丁曉利 教授

BEng, PhD

Director of Research Institute for Land and Space & Chair Professor of Geomatics

Research interests

Satellite Positioning Technologies (such as GPS), Synthetic Aperture Radar (SAR) and Interferometric Synthetic Aperture Radar (InSAR), Technologies for Ground Deformation and Structural Health Monitoring

Teaching areas

Engineering Surveying, Least Squares Adjustment, Survey Data Analysis

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Prof. SHI Wenzhong, John 史文中 教授

BEng, MEng, AIRAS, DNatSc, FRICS, FHKIES, MHKIS

Director of Smart Cities Research Institute &

Chair Professor of Geographical Information Science and Remote Sensing

Research interests

GISci, remote sensing and urban informatics, with focusing on analytics and quality control for spatial big data, object extraction and change detection from satellite images and LiDAR data, integrated indoor mapping technology, 3D and dynamic GISci modelling, and Smart City applications

Teaching areas

Advanced Geographical Information Systems, Design and Development of Geographical Information System.

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✉ john.wz.shi@polyu.edu.hk



Prof. WENG Qihao 翁齊浩 教授

PhD

ADoRILS & Chair Professor of Geomatics and Artificial Intelligence

Research interests

Remote sensing, image science, geospatial artificial intelligence, geospatial computer vision, and geospatial big data, with applications in urbanization, sustainability, coastal environments and ecosystems, and global environmental change

Teaching areas

Remote Sensing, Image Science, Geographic Information Science, Environmental Modeling, Urbanization, Earth System Science

☎ (852) 2766 5959

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Prof. CHEN Yongqi 陳永奇 教授

PhD

Professor Emeritus

Research interests

Geodesy, Engineering Surveys, Hydrographic Surveys, Deformation Monitoring, GNSS surveys, Data Processing and Analysis, and Development of Fibre Optic Sensors for Monitoring of Structure Health and Environment

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Prof. Michael BATTY

BA, PhD, FRTPI, FCILT

Distinguished Visiting Chair Professor

Research interests

Mathematical Models, Database and Digital Technologies in Geographic Information Science, Urban and Regional Modelling & Science of Cities

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Prof. Michael GOODCHILD

BA, PhD

Distinguished Visiting Chair Professor

Research interests

Geographic Information Science, Spatial Analysis, Uncertainty in Geographic Data

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Prof. Dr.-Ing. Liqiu MENG

MSc, PhD

Distinguished Visiting Chair Professor

Research interests

Cartography, Visual Analytics

✉ liqiu.meng@tum.de



Prof. Dr. Dr.h.c. Ir. Peter J.G. TEUNISSEN

BSc, MSc, PhD

Distinguished Visiting Chair Professor

Research interests

Geodesy, Earth Observation

(Joined in Apr 2024)

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Sr Prof. WONG Man Sing, Charles 黃文聲 教授 測量師

BSc, MPhil, PhD, Fulbright, MHKIS, MHKInstES, MRICS

Associate Dean, Faculty of Construction and Environment & Professor

Research interests

Use of Remote Sensing to study Urban Heat Island Effect, Urban Environmental Quality, Landslides, Vegetation and Ecosystems, Spectral Mixture Analysis, Aerosol Retrieval, Water Vapour Retrieval and Solar Energy Potential. Application of Geographical Information Systems to analyse Wind Ventilation Corridors, Wall-Effect Buildings, Spatial Inequity and Public Health. Sensor development and analysis for Smart City Tree Management and Micro-Environmental Monitoring, Use of iBeacon technology in Teaching and Learning

Teaching areas

Remote Sensing, Geographical Information System

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Ir Prof. LAI Wai Lok, Wallace 賴緯樂 教授 工程師

BSc, PhD, MHKIE

Associate Head (Teaching) & Professor

Research interests

Image the unseen components in Engineering Structures and Underground world via Nondestructive Evaluation (NDE), Near-surface Geophysical Technologies and Advanced Signal Processing. These technologies include Ground Penetrating Radar, Infrared Thermography, Acoustic, Electrical Resistivity, etc.

Teaching areas

Nondestructive testing and evaluation of engineering structures, Surveying, condition assessment and monitoring of underground utilities, System and design of underground utilities, Construction, maintenance and management of underground utilities.

(Promoted in July 2024)

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Prof. LIU Zhizhao, George 劉志趙 教授

BSc, MSc, PhD, FHKMetS, FHKIES

Associate Head (Partnership) & Professor

Research interests

Global Navigation Satellite System (GNSS) Theory and Applications, Space Geodesy, Engineering Surveying, Atmospheric Remote Sensing Using GNSS Technique, the Ionospheric Study and Modelling Based on GNSS Data

Teaching areas

Advanced Surveying Data Adjustment and Analysis, Satellite Positioning and Navigation, Hydrographic Surveying, Mapping

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Prof. WU Bo 吳波 教授

BSc, MSc, PhD, MRICS

Associate Head (Research) & Professor

Research interests

Photogrammetry and Robotic Vision, Planetary Mapping and Planetary Science, GIS and Applications

Teaching areas

Photogrammetry, GIS, Spatial Analysis

☎ (852) 2766 4335

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Prof. CHEN Jianli 陳劍利 教授

PhD

Professor

Research interests

Space Geodesy and Applications, Climate Change, Hydrology, Oceanography, Geodynamics, Earth Rotations, Gravity Field, Core-Mantle Interactions, Seismic Deformation (from gravity and GPS observations), GNSS Applications (loading deformation, mass load inversion, ...)

Teaching areas

Space Geodesy, Climate Change, Geophysics, Geophysical Data Processing

☎ (852) 2766 5960

✉ jianli.chen@polyu.edu.hk



Dr. LIU Xintao 劉信陶 博士

BEng, MSc, PhD

Associate Professor

Research interests

GISci, Complex Network, GIS in Transportation, Transportation Geography, Urban Computing, Urban Mobility and Sustainability, State-of-the-art Technologies for Smart Cities

Teaching areas

Geographic Information Systems, Geomatics Algorithms and Geodatabase, Infrastructure and Utility Management

☎ (852) 2766 5962

✉ xintao.liu@polyu.edu.hk



Dr. PEI Qing 徐陽 博士

PhD

Associate Professor

Research interests

Historical Geography, History of Climate and Society, Social-Ecological Resilience, Digital Humanities, Historical GIS

Teaching areas

Human Geography, Environment Humanities, Climate History

(Joined in Oct 2023)

☎ (852) 2766 5972 ✉ qing.pei@polyu.edu.hk



Dr. Robert TENZER

Ing., PhD, PhD

Associate Professor

Research interests

Physical Geodesy, Satellite Geodesy, Geophysics, Geodynamics, Climate Change, Gravimetry

Teaching areas

Surveying, Physical Geodesy, Gravimetric methods in Geophysics, Geodetic Reference Systems, Adjustment Theory

☎ (852) 2766 5592 ✉ robert.tenzer@polyu.edu.hk



Dr. WANG Shuo 王碩 博士

BSc, MASc, PhD

Associate Professor

Research interests

Climate Change, Global Change, Climate Adaptation and Resilience

Teaching areas

Climate Change and Society, Spatial Data Analysis

☎ (852) 3400 3896 ✉ shuo.s.wang@polyu.edu.hk



Dr. XU Yang 徐陽 博士

BSc, MSc, PhD

Associate Professor

Research interests

Urban Big Data, Geographic Information System, Spatial Analysis, Geospatial Database

Teaching areas

Urban Informatics, Trajectory Data Mining, Big Data Visualization, Transport Geography, Computational Social Science

(Promoted in Nov 2023)

☎ (852) 2766 5958

✉ yang.ls.xu@polyu.edu.hk



Dr. ZHU Xiaolin 朱孝林 博士

BSc, MSc, PhD

Associate Professor

Research interests

Remote Sensing and Geospatial Analysis, with focusing on Missing Data Reconstruction, Spatiotemporal Data Fusion, Classification, Change Detection, Land Surface Information Retrieval, and Applications of Geoscience in Urban and Ecological Studies

Teaching areas

Remote Sensing, Geostatistics, Spatial Analysis

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Dr. SHI Guoqiang 史國強 博士

PhD

Assistant Professor

Research interests

Urban Geo-hazards, InSAR, Infrastructure Monitoring

Teaching areas

Remote Sensing, Geodesy

(Promoted in Mar 2024)

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Dr. YAN Wai Yeung 甄威揚 博士

PhD

Assistant Professor

Research interests

Remote sensing and laser scanning

Teaching areas

Land Boundary Survey

(Departed in Sep 2023)

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✉ jwaiyeung.yan@polyu.edu.hk



Dr. YAO Wei 姚巍 博士

BEng, Dip.-Ing, Dr.-Ing

Assistant Professor

Research interests

Multi-modality 3D remote sensing towards reconstruction and perception of spatial-temporal behaviors of geospatial objects, image processing and analysis, pattern recognition, and related environmental and industrial applications, such as landslide/glacier and ecosystem mapping, mobile mapping for indoor navigation and smart city management, water depth and quality retrieval, sensor fusion for environmental informatics

Teaching areas

Photogrammetry and remote sensing, Surveying, Geospatial Computer Vision and Machine Learning, Geographical Information System

(Departed in Jun 2024)

☎ (852) 2766 4304

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Dr. YIN Tiangang 殷天罡 博士

BSc, MEng, PhD

Assistant Professor

Research interests

Quantitative Remote Sensing, 3-D radiative transfer modeling (forward and inverse), 3-D urban/forest reconstruction using LiDAR and stereo photogrammetry, Urban individual tree monitoring and management, Urban climate and ecosystem services, Physical modeling of passive/active sensor mounted on satellite/aircraft/mobile platform, Solar-induced chlorophyll fluorescence, Science-driven pre-launch study for Earth-Observation satellites, Physically based ray tracing, Energy balance, Data/Sensor fusion, Big-data driven global photosynthesis modeling.

Teaching areas

Advanced Geographical Information Science, Digital Terrain Modelling

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✉ tiangang.yin@polyu.edu.hk



Dr. ZHUGE Chengxiang, Tony 諸葛承祥 博士

PhD

Assistant Professor

Research interests

Spatial Analysis and Modelling, Activity-based Travel Demand Modelling, Smart Cities, Land Use and Transport Interaction, Agent-based Modelling, Complex Urban System

Teaching areas

Geographic Information System, Spatial Planning, Urban Analytics

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✉ chengxiang.zhuge@polyu.edu.hk



Dr. CAO Rui 曹瑞 博士

BEng, MEng, PhD

Research Assistant Professor

Research interests

Urban Informatics, GIScience, Remote Sensing, Artificial Intelligence

Teaching areas

Advanced Geographic Information Systems (GIS)

(Departed in Dec 2023)

☎ (852) 2766 5955

✉ ray-rui.cao@polyu.edu.hk



Dr. DUAN Ran 段然 博士

PhD

Research Assistant Professor

Research interests

Visual SLAM, Smart-vision, UAVs

Teaching areas

Computer Vision, Deeping Learning, Robotics

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✉ ran.rd.duan@polyu.edu.hk

**Dr. Ameer Hamza KHAN**

PhD

Research Assistant Professor

Research interests

Robotics, Control systems, SLAM, Autonomous Navigation

Teaching areas

Smart Cities, Urban Sciences

☎ (852) 2766 5973 ✉ ameer-hamz.khan@polyu.edu.hk

**Dr. Sergey Krasilnikov**

PhD

Research Assistant Professor

Research interests

Planetary Geology, Geomorphological Processes, Surface Evolution, Planetary Mapping, Remote Sensing and GIS, Impact Processes

Teaching areas

Photogrammetry, GIS

(Joined in Oct 2023)

✉ sergey.kraskilnikov@polyu.edu.hk

**Dr. Li Zhiwei 李志偉 博士**

PhD

Research Assistant Professor

Research interests

Urban Remote Sensing, Cloud Detection and Removal, Multi-source Data Fusion, Land Use & Land Cover, Flood Monitoring, Geospatial Artificial Intelligence

Teaching areas

Remote Sensing, Digital Image Processing, Machine Learning

☎ (852) 2766 5973 ✉ zhiwei.li@polyu.edu.hk



Dr. LIU Lingbo 劉凌波 博士

PhD

Research Assistant Professor

Research interests

Smart City, Urban Computing, Computer Vision

Teaching areas

Spatial-Temporal Big Data Modelling, Deep Learning

(Departed in Feb 2024)

✉ lingbo.liu@polyu.edu.hk



Dr. MI Xiaolong 糜曉龍 博士

PhD

Research Assistant Professor

Research interests

Global Navigation Satellite System (GNSS), Low Earth Orbit-Positioning, Navigation and Timing (LEO-PNT), Applications of Artificial Intelligence in Earth and Space Sciences

Teaching areas

GNSS, Geodetic Data Processing, Spatial Science

☎ (852) 3400 8143 ✉ xiaolong.mi@polyu.edu.hk



Dr. Majid NAZEER

PhD

Research Assistant Professor

Research interests

Spatial Big Data Modelling and Analytics, Inland/coastal waters remote sensing, Atmospheric correction of satellite imagery, Atmospheric aerosols

Teaching areas

Remote Sensing, Geographic Information Sciences, Geo-statistical Analysis

☎ (852) 3400 8143 ✉ nmajid.nazeer@polyu.edu.hk



Dr. PENG Dongju 彭冬菊 博士

BEng, PhD

Research Assistant Professor

Research interests

Detection and attribution of regional sea-level changes, GNSS interferometric reflectometry (GNSS-IR), Vertical land motion (VLM), Sea level budget, Satellite orbit determination

Teaching areas

Geodesy, Sea-level Change

☎ (852) 2766 5955 ✉ dongju.peng@polyu.edu.hk

**Dr. Naeem SHAHZAD**

PhD

Research Assistant Professor

Research interests

Machine Learning, Modeling Slope Deformation and with MT-InSAR Techniques, Geospatial Data Analysis and Mapping, Point Cloud and 3D Modeling

Teaching areas

Geomatics

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✉ rnaeem.shahzad@polyu.edu.hk

**Dr. SUN Yangjie 孫洋傑 博士**

PhD

Research Assistant Professor

Research interests

3D GIS, 3D Scene Reconstruction and Segmentation, 3D Visualization, Photogrammetry and Computer Vision, Deep Learning

Teaching areas

Geographical Information System, Remote Sensing

☎ (852) 2766 5963

✉ yangjie.sun@polyu.edu.hk

**Dr. WENG Duo jie 翁多杰 博士**

PhD

Research Assistant Professor

Research interests

GNSS, Personal Navigation System, Indoor Positioning, GNSS Interference Monitoring

Teaching areas

Positioning System, GNSS, Location-based Service

☎ (852) 3400 8143

✉ wengduojie.lsgi@polyu.edu.hk

**Dr. WU Songbo 吳松波 博士**

PhD

Research Assistant Professor

Research interests

Urban civil infrastructure health monitoring with InSAR technique, Advanced method for InSAR near-real-time data processing, Coastal geological hazards monitoring by SAR imagery

✉ lssongbo.wu@polyu.edu.hk



Dr. YANG Yang 楊揚 博士

PhD

Research Assistant Professor

Research interests

GNSS Reflectometry for Remote Sensing, GNSS Passive Radar, GNSS Synthetic Aperture Radar, GNSS Software-Defined-Radio Receiver, Signal of Opportunities, GNSS Multipath Analysis

Teaching areas

Surveying, Geodesy, GNSS Technology

(Joined in Oct 2023)

☎ (852) 3400 8152 ✉ yyoung.yang@polyu.edu.hk



Dr. YOO Cheolhee 柳哲熙 博士

BEng, PhD

Research Assistant Professor

Research interests

Urban Remote Sensing, GIS, Artificial Intelligence, Urban Climate, Land Surface Temperature, Urban Carbon Emission

Teaching areas

Remote Sensing, Geostatistics, Spatial Analysis, GEO-AI

✉ cheolhee.yoo@polyu.edu.hk



Dr. YU Yue 余躍 博士

PhD

Research Assistant Professor

Research interests

Urban Informatics, Seamless Positioning and Navigation, Mobile Mapping, Geo-spatial Data Analytics

Teaching areas

Smart Positioning and Navigation, Spatial Big Data Modelling and Analytics

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Dr. ZHANG Anshu, April 張安舒 博士

BSc, PhD

Research Assistant Professor

Research interests

Space Time Pattern Mining, Urban Computing, Urban Big Data Analytics, Human Mobility Modeling and Forecast

Teaching areas

Geographic Information Systems, Spatial Data Analyses and Mining, Spatial Databases

☎ (852) 3400 8997 ✉ april-anshu.zhang@polyu.edu.hk



Dr. ZHANG Min 張敏 博士

PhD

Research Assistant Professor

Research interests

Deep learning, Explainable artificial intelligence, Remote sensing image processing, Change detection, 2D & 3D spatial data quality, Web/Mobile GIS

Teaching areas

Principle of GIS

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Dr. ZHENG Qiming 鄭啟明 博士

PhD

Research Assistant Professor

Research interests

Remote sensing of urban environment, Global environmental and climate change, Land-based and nature-based climate change mitigation solutions, Remote sensing image processing techniques and applications

Teaching areas

Remote sensing of urban environment

(Departed in Jun 2024)

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Dr. CHEN Si, Sissi 陳斯 博士

PhD

Lecturer (Teaching Fellow)

Teaching areas

Map reading and interpretation, Map Science, Geospatial database management and design, Geographic Information System, Mobile GIS and Location-based Service, Ecology

☎ (852) 2766 5956

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Dr. LAU Lawrence 劉奇源 博士

PhD, FRICS, MHKIS, FICES, FRIN

Lecturer (Teaching Fellow)

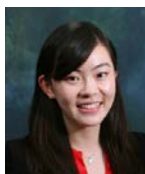
Teaching areas

Engineering Surveying

☎ (852) 2766 5964

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SCIENTIFIC OFFICER



Ms. Serein HAN

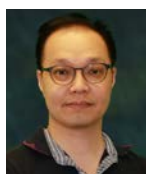
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TECHNICAL STAFF



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SENIOR SECRETARY TO HEAD



Ms. Peony CHAN

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EXECUTIVE OFFICER



Ms. Anna CHOI

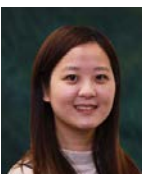
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Ms. Jocelyn WONG

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ASSISTANT OFFICER



Miss Ceci HO

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Mr. Jimmy KWAN

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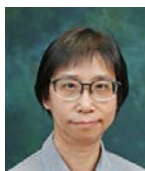
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Miss Belle CHU

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CLERICAL OFFICER



Ms. Vanessa YU

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TYPIST



Miss Ziki CHEUNG

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OFFICE ASSISTANT



Mr. Alvin TSE

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PEOPLE



2024

RESEARCH STAFF 2023–2024

Research Fellow

Long Tang
Miaomiao Cai
Ming Hao
Md Mizanur Rahman
Shenyue Ji

Project Fellow

Yu Kai Geoffrey Shea

Project Associate

Pak Ling Lau

Postdoctoral Fellow

Binbin Li
Chao Yang
Chengzhuo Tong
Cheolhee Yoo
Chunpeng Chen
Dabin Xue
Fei Xu
Huan Luo
Huijuan Xiao
Jialyu He
Jiapei Hu
Jie Shao
Jingxian Wang
Lipeng Gao
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Pir Mohammad
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Shuo Zheng
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Meilian Wang	
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Shuai Xu	
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Hao Zhou
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Huiying Li
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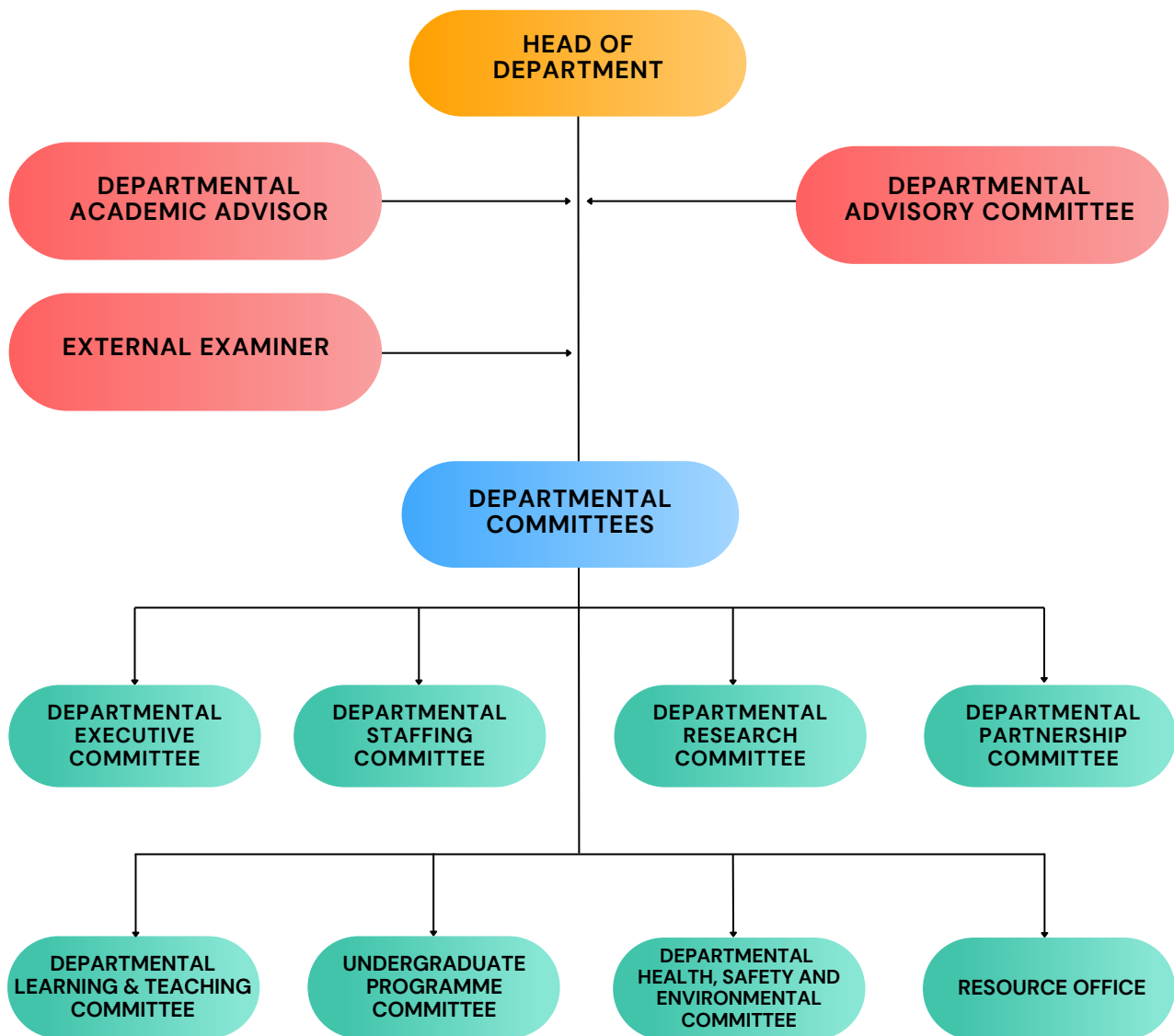
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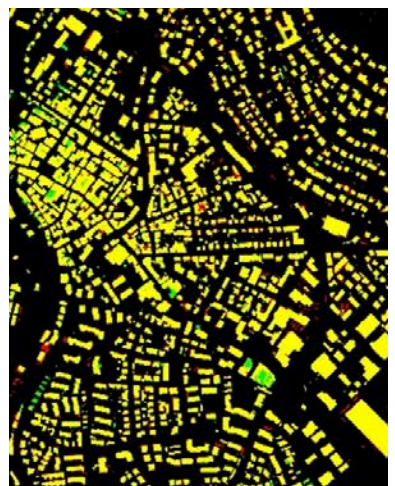
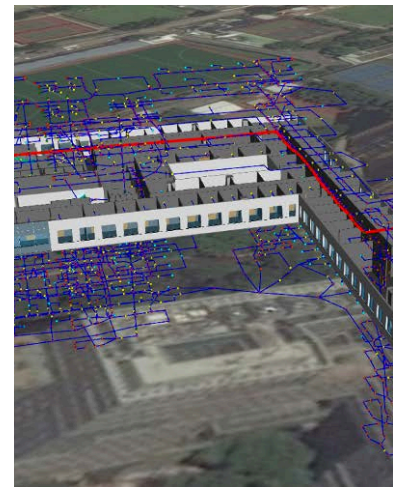
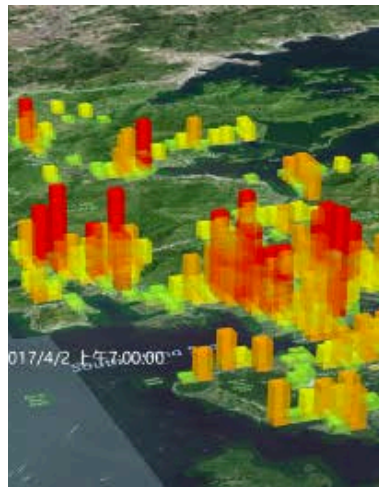
RESEARCH CENTRES & LABORATORIES

Research Centres

- Global Geophysical Fluids Centre
- HKPolyU-Wuhan University Partner GNSS Research Centre
- Research Centre for Artificial Intelligence in Geomatics (RCAIG)
- Remote Sensing Research Group

Research Institutes

- Smart Cities Research Institute (SCRI)
- Research Institute for Land and Space (RILS)



Laboratories

Digital Cartography Laboratory

Located in Room ZS1001, the laboratory is equipped with 50 sets of computers, digitizing tablets and two printers. All the computers are installed with various GIS, CAD and database software tools. The laboratory is mainly used for undergraduate teaching, students' practical work and final year project related to GIS, cartography and digital mapping. The laboratory also has different archives of topographic/thematic paper maps collected from different countries.

Geomatics Computing Laboratory

It provides a general computing facility for all teaching staff and students in the department to achieve a number of teaching and learning objectives:

- enabling teaching staff to deliver the practical sessions in a large group;
- equipping students with the necessary hands-on experience; and
- providing of sufficient number of licenses for students to complete the assignments and projects works.

Hydrographic Survey Laboratory

The Hydrographic Survey Laboratory ("Hydro Laboratory") has evolved into a modern laboratory to meet the various university teaching, research and consulting requirements. The Hydro Laboratory has a suite of advanced instruments and software for our teaching, research and consulting services. The Hydro Laboratory also provides excellent facilities and data for many undergraduate students' Final Year Projects (FYP).

Laboratory for Deformation and Geohazards Studies

The Laboratory for Deformation and Geohazards Studies is located in room ZB214, Block Z, The Hong Kong Polytechnic University. The Laboratory facilitates research in developing new technologies such as GNSS (Global Navigation Satellite Systems), InSAR (Interferometric Synthetic Aperture Radar) and in-situ sensor based technologies, and in studying geohazards such as landslides, earthquakes, land subsidence and structural health. The laboratory is equipped with advanced hardware and software.

Laboratory for Smart City and Spatial Big Data Analytics

The Laboratory for Smart City and Spatial Big Data Analytics aims to bring academics, researchers, professionals and even students together to generate innovative ideas, advanced technologies and practical solutions for smart cities.

Missions of the laboratory:

- developing key technologies for Smart City, including spatial big data analytics and modelling, smart navigation and mobility, and urban sensing and computing;
- proposing smart city solutions for Hong Kong and Greater Bay Area, covering the areas smart mobility, smart environment, smart people, and smart governance; and
- providing consultancy support to Hong Kong SAR Government on strategy and policy on Smart City development.

RESEARCH CENTRES & LABORATORIES



Navigation Laboratory

The Navigation Laboratory has equipped with modern positioning equipment, such as GNSS receivers, INS, optical motion tracking system, and indoor positioning facilities. It has a platform for GNSS RTK service and generates real-time GNSS related products, i.e. water vapor content and ionosphere TEC distribution. The main research directions include GNSS theory and applications in positioning and environment monitoring, technologies for establishing urban positioning infrastructure, integrated navigation systems, Intelligent Transportation Systems (ITS) and Location Based services (LBS).



Photogrammetry and Robotic Vision Laboratory

The Photogrammetry and Robotic Vision Lab occupies a floor area of 104 m² and houses a 30 seat computing space and specialist equipment space with a ceiling height of 7.0 m. The computing space is equipped with 15 PCs with access to ERDAS Imagine, ContextCapture, Agisoft PhotoScan, PhotoModeler, and Leica Cyclone v6.0 software. The specialist equipment space houses an Intergraph ImageStation DPW, an Intergraph PhotoScan TD, a dual screen Leica LPS DPW, a Peiss P3 analytical stereo plotter, and provides a workspace for laser scanning projects. The Lab is also equipped with instruments and sensors for advanced research and development in photogrammetry and robotic vision, and a demonstration platform for planetary mapping and remote sensing research.



Survey Store and Instrumentation Laboratory

It provides service of equipment check-in/out, maintenance and production of special accessories in support of teaching and research activities in the department. The laboratory has a variety of surveying equipment, including tapes, total stations, robotic total station, precise level instruments, GNSS receivers, hydrographic surveying systems, handheld and survey-grade laser scanners, etc. The laboratory has also equipped mechanical systems (turning, milling and drilling) and an optical collimator for regular maintenance and calibration of surveying equipment.



Underground Utility Survey Laboratory

The lab mimics a scale-down underground utilities network (water, drains, sewer, electric, gas) to simulate the congested utilities environment and hazards in congested cities. Near-surface and nondestructive geophysical technologies are used for imaging and diagnosis, such as ground penetrating radar, electromagnetic pipe cable locator, acoustic leak noise correlator, infrared thermography, etc. Students learn and are given chances to test their imaging and diagnostic competence in this indoor and relatively easy underground environment for better preparation of conducting the same task in the more complex and realistic underground.



Remote Sensing Laboratory

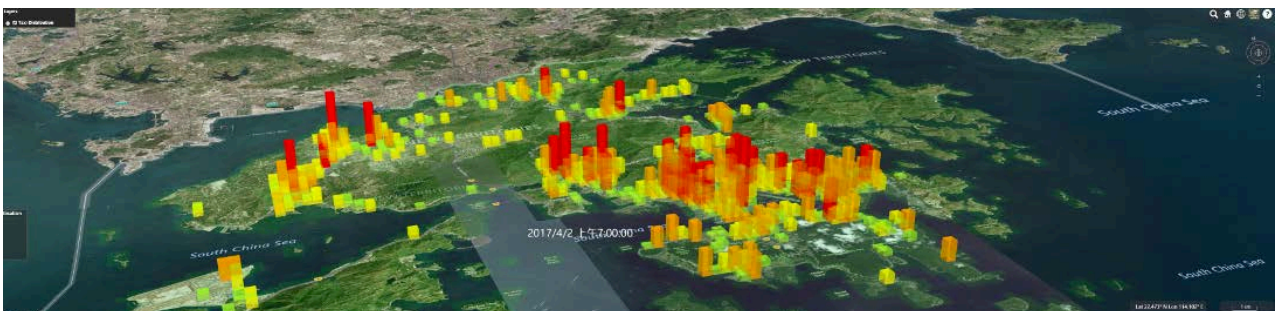
Remote Sensing Laboratory is newly established under the Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University and is a continued effort of the Department's Remote Sensing Research Group. It is located at ZB213 of Block Z of the University.

The Laboratory aims to implement high-impact and high-quality research through cross disciplinary collaborations among faculties/schools and other UGC institutions, provide new insight into a wider range of research areas, and maximize their impact and benefit to society. Apart from continuing to focus on the environmental applications of the state-of-the-art remote sensing systems, as well as the development of techniques to enhance the usefulness of these systems, the Laboratory also expands its research endeavours to the application of remote sensing technologies in teaching and learning. The recent initiatives of the Laboratory include the use of remote sensing and GIS in urban heat island effect, vegetation and ecosystems, spectral mixture analysis, dust aerosol retrieval, water and air quality monitoring, smart city tree management, artificial intelligence, and the use of iBeacon technology for engaging teaching and learning experiences.



RESEARCH

Our department's Strategic Area is "**Urban Informatics for Smart Cities**", and its focus is on scientific and technological research on acquisition, modeling, analysis, and management of spatial data with a wide range of applications. These include map-making, navigation, monitoring of engineering projects and geological hazards, environmental monitoring, boundary determination and geographic information management. Our holistic research is of basic and applied nature and is relevant to industrial, commercial and community needs. Our department is well recognised as a regional centre of excellence in geomatics research. It was ranked top three in worldwide according to a Thompson Reuters on SCI citation per staff.



STRATEGIC RESEARCH AREA : URBAN INFORMATION FOR SMART CITIES

Spatial Big Data Modelling and Analytics

Spatial big data modelling and analytics is based on a) the emerging research topic of big data, especially spatial big data in the geographic information science (GIS) community, and b) the related research accumulation in the areas of spatial, temporal and dynamic data modelling, and spatial analyses in GIS. Strategies for this research focus include (i) identifying the need for spatial big data modelling and analytics in the context of smart city development; (ii) forming an inter-disciplinary research team at PolyU on spatial big data analytics; (iii) applying for large research grants related to this research focus; (iv) developing solutions for spatial big data modelling for heterogeneous, multi-resolution sources of spatial data; (v) creating spatial data models for an integrated indoor and outdoor environment; (vi) proposing analytical methods for dynamic urban data; (vii) analyzing and predicting urban mobility and dynamic behavior based on spatial big data.

Urban Sensing and Measurement

Research in this area includes urban heat island research, urban atmosphere monitoring, urban hazard monitoring, urban utility and infrastructure monitoring and management, urban 3D mapping, and 3D modeling for urban applications. The research prospect for the future will include (i) urban remote sensing for environment monitoring and modelling; (ii) urban remote sensing for hazard/deformation monitoring of urban infrastructures; (ii) urban underground utility monitoring and management; (iii) advanced photogrammetric hardware and software systems for near real-time 3D measurement of urban scenes; (iv) more automated 3D/4D city modelling with a high level of details from multiple-source remote sensing datasets; (v) developing a spatial data infrastructure for smart city development in Hong Kong.

Smart Positioning and Navigation

Navigation technologies are the core technologies to support a mobile internet, Location Based Services (LBS), and the Internet of things (IoT). Satellite based navigation systems (i.e. GPS, GLONASS, Beidou, and Galileo), as the backbone of navigation technologies, have become the fundamental infrastructure for national security and economic growth. Smart mobility is crucial for a smart city by reducing traffic congestion and pollutions, improving transfer speed and people safety, and reducing transfer cost. LSGI has conducted research on navigation technologies and smart mobility for more than 30 years. In recent years, research on key issues (i.e. GNSS signal shadowing, GNSS multipath, and seamless positioning) for urban positioning and navigation technologies has supported economic development in Hong Kong. As a satellite navigation system developed in China, Beidou has been integrated with other navigation systems to improve navigation performance in urban areas and to promote the applications of the Beidou system internationally. A public transport enquiry system has also been developed and adopted by the Transport Department for public use since 2010.

NEW RESEARCH PROJECTS 2023-2024

Name of PI	Project Title
CHEN Jianli	<ul style="list-style-type: none"> Global Mass Transport and Sea Level Change Multi-sensor monitoring, geophysical interpretation and prediction of sea level rise in Hong Kong 全球海洋質量及海平面變化機理和歸因研究
CHEN Wu	<ul style="list-style-type: none"> Development of onboard GNSS positioning and navigation platform for nanosatellites Mitigation of Multiple Jamming Attacks for Low-cost GNSS Receivers Rapid indoor 3D modelling with mobile Lidar system Research on advanced positioning technology
DING Xiaoli	<ul style="list-style-type: none"> Development of Deep Learning Based InSAR Technique for More Accurate Coseismic Deformation Modeling "Seeing Through Clouds" Satellite Remote Sensing by Unifying Optical and SAR Sensors 基於時序PolInSAR技術的地下水管探漏研究
KRASILNIKOV Sergei	<ul style="list-style-type: none"> Investigation of the Evolution of the 67P/Churyumov-Gerasimenko Comet Nucleus
LAI Wai Lok, Wallace	<ul style="list-style-type: none"> Uncertainties Modelling on Depth Measurements of Buried Circular Objects in Ground Penetrating Radar Survey
LIU Xintao	<ul style="list-style-type: none"> An AI-enabled Geospatial Platform for Smart Facility Management and Smart Mobility of People with Disabilities (PwDs)
MI Xiaolong	<ul style="list-style-type: none"> Precise Attitude and Orbit Determination of Low-cost Small LEO Satellites
PEI Qing	<ul style="list-style-type: none"> Climate Change and Wars in China during the Little Ice Age: From History of Climate and Society to Digital Humanities 基於中國歷史遺跡的地理課程發展可行性研究
PENG Dongju	<ul style="list-style-type: none"> Exploring changes in mean and extreme sea levels in Hong Kong and surrounding regions using geodesy 近百年多源觀測數據處理技術與貢獻源研究
SHAHZAD Naeem	<ul style="list-style-type: none"> National level slope deformation mapping of Hong Kong through Integrated SAR Interferometry
SHI Guoqiang	<ul style="list-style-type: none"> Enhancing Coastal Reclamation Modelling Using Satellite Geodesy and Deep Learning Monitoring and Predicting Slope Instability in Forested Terrain from Multi-mode Remote Sensing Data 結合多時相InSAR與固結理論的填海區非線性形變監測與模擬
WANG Shuo	<ul style="list-style-type: none"> Elucidating the mechanisms and dynamics of flash drought from the perspective of land-atmosphere feedbacks
WENG Duojie	<ul style="list-style-type: none"> Improving GNSS Performance in Urban Areas

Name of PI	Project Title
WENG Qihao	<ul style="list-style-type: none"> Geospatial AI Enabled Global Urban Road Mapping, Inspection, and Management (Internal) Response of Vegetation Phenology to Land Surface Temperature in Major Metropolitan Areas across the Asian Monsoon regions
WONG Man Sing, Charles	<ul style="list-style-type: none"> Mini Micro Pulse LiDAR (MiniMPL) (LSGI-2) Retrieval of Aerosol Optical Thickness using Himawari AHI satellite images under cloud-free and cloudy conditions
WU Bo	<ul style="list-style-type: none"> Development of a Spaceborne AI Module for Intelligent On-orbit SAR and Optical Image Analysis 小天體旋轉、形狀和地形地貌特徵分析與建模 嫦娥七號著陸區遙感製圖與光照地形地貌分析
YANG Yang	<ul style="list-style-type: none"> Using UAV-based GNSS reflectometry signal of opportunities for deformation monitoring
YAO Wei	<ul style="list-style-type: none"> Airborne LiDAR based Large-Scale Urban Object Classification via Semantic Scene Completion
YIN Tiangang	<ul style="list-style-type: none"> Airborne LiDAR based Large-Scale Urban Object Classification via Semantic Scene Completion Modeling On-Platform Fusion of LiDAR and Very-High-Resolution Stereogrammetry (VHRS) to Enhance Forest Structure Information Retrieval from Satellites Phenological Monitoring of Urban Trees' Leaf Area Density: from Terrestrial to Mobile Laser Scanning
ZHU Xiaolin	<ul style="list-style-type: none"> Achieving all-weather land surface temperature with high spatial and temporal resolution from multi-source satellite data A twin satellite system for enhanced monitoring of hotspot regions Design of a Robust Algorithm to Quantitatively Evaluate Social and Economic Environment Accessibility and Livability: A People Centric Approach
ZHUGE Chengxiang, Tony	<ul style="list-style-type: none"> Electrifying the Bus System in Hong Kong: Feasibility Analysis and System Optimization 氫燃料電池汽車市場演化機理及影響評價

CAO Rui

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CHEN Jianli

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CHEN Jianli

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CHEN Wu

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CHEN Wu

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CONFERENCE PAPERS



CHEN Wu

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ACADEMIC PROGRAMMES



A chalkboard with mathematical notations and a diagram. The text "LSGI" is written in large, stylized letters. To its right, a yellow arrow points downwards from the text "t=1" to "t=0". Further right, the derivative $\frac{dQ}{dt}$ is written in yellow. Below this, a yellow arrow points to the right, followed by an equals sign.

LSGI

$t=1$

$\frac{dQ}{dt}$

$t=0$

$=$

ACADEMIC PROGRAMMES

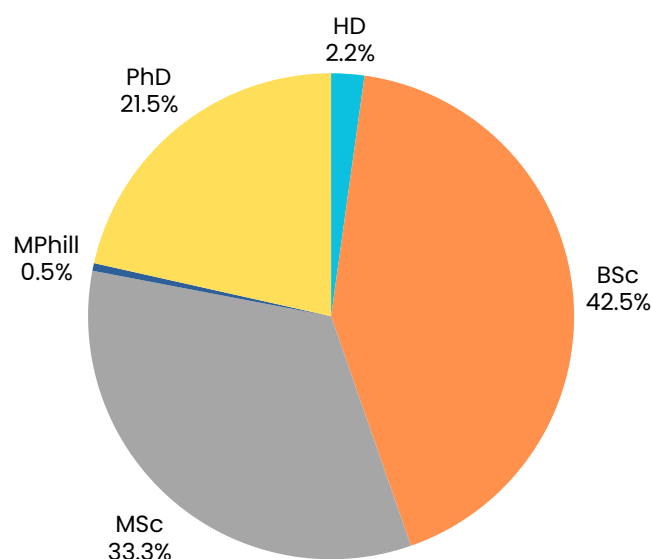
The Department offers award-bearing programmes at post-graduate, degree and higher diploma levels:

- Higher diploma programme (full-time | UGC-funded) (last admission in 2021/22)
- Undergraduate programme (full-time | UGC-funded)
- Taught postgraduate programme (mixed mode | self-financed)
- Research postgraduate programmes

We admit students from both Hong Kong and abroad.

Various scholarships are available to applicants with outstanding academic merits.

Student Profile 2023/24



Undergraduate Exchange Opportunities

Australia

- Curtin University of Technology
- Royal Melbourne Institute of Technology
- University of New South Wales

Belgium

- Ghent University

Canada

- University of Calgary
- University of New Brunswick

Finland

- Tampere University of Technology

Germany

- Technical University of Darmstadt
- Technical University of Munich

Italy

- Polytechnic University of Milan

Mainland China

- Tongji University
- Wuhan University

Malaysia

- University of Malaya

Sweden

- KTH Royal Institute of Technology
- Linköping University

Taiwan

- National Taipei University
- National Cheng Kung University

The Netherlands

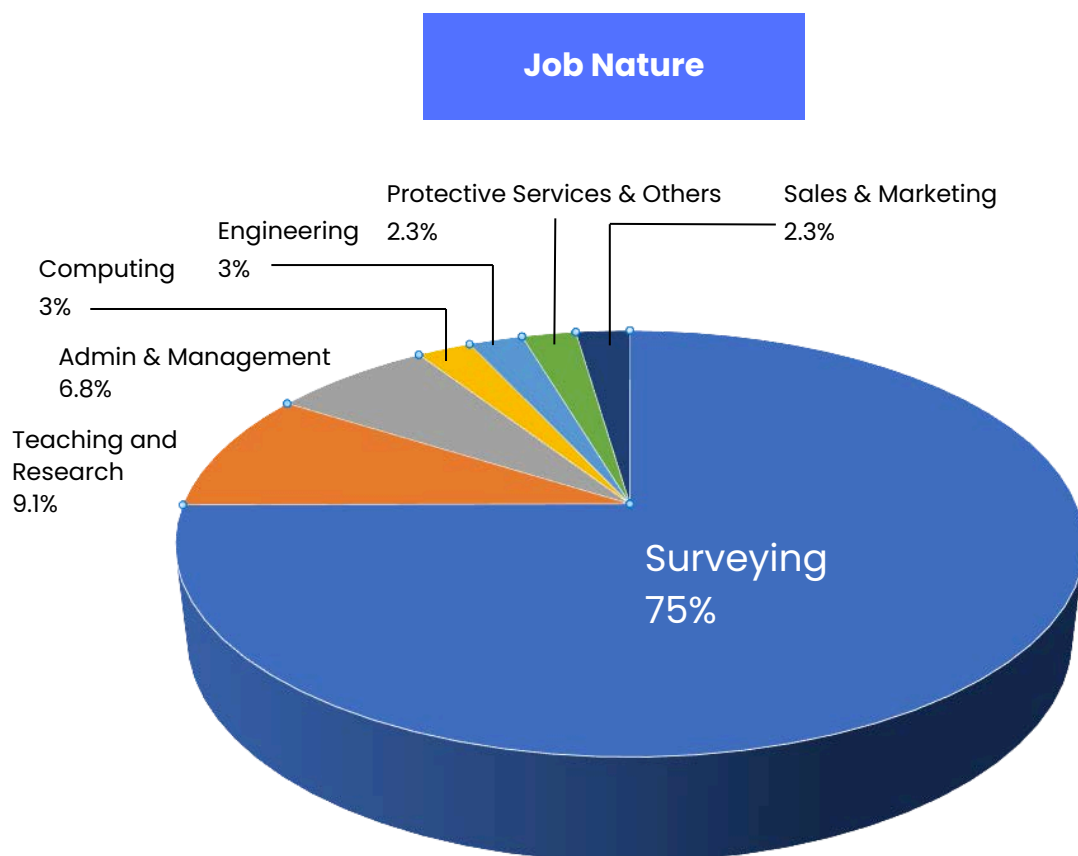
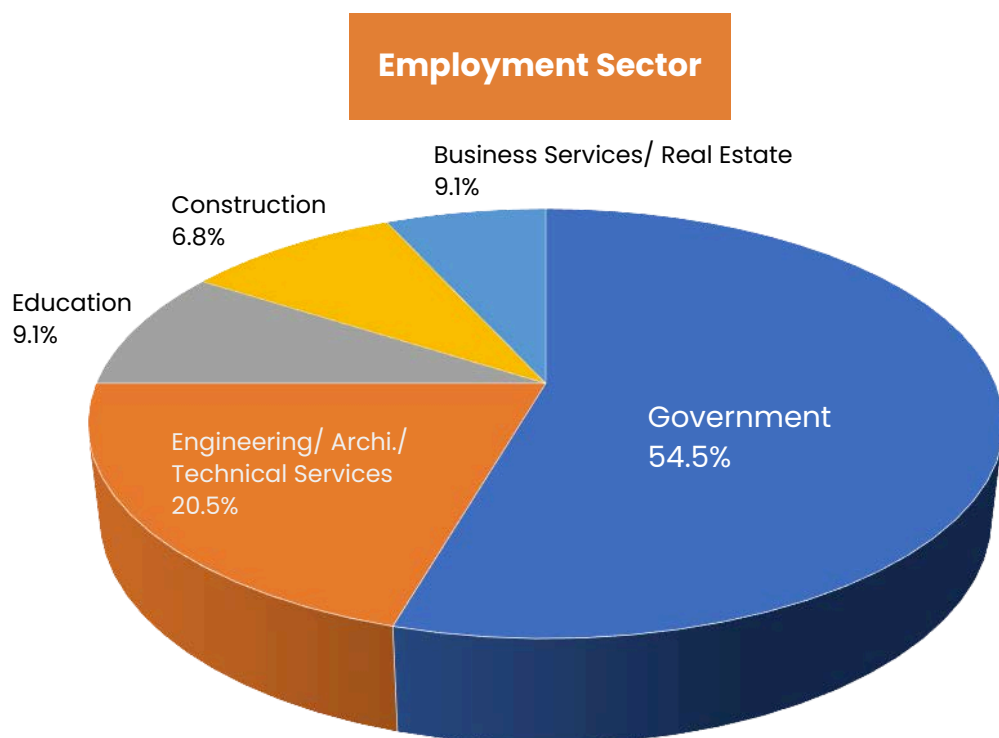
- University of Twente

UK

- University of Leeds

ACADEMIC PROGRAMMES

Graduate Employment Survey of BSc Students 2023



Name	Services
CHEN Wu	<ul style="list-style-type: none"> • Head, Department of Land Surveying and Geo-Informatics • Chairman, Departmental Executive Committee • Chairman, Departmental Research Committee • Chairman, Departmental Staff Committee • Ex-officio member, Departmental Undergraduate Programme Committee • Ex-officio member, Departmental Learning and Teaching Committee • Ex-officio member, Departmental Research Committee • Internal member, Departmental Advisory Committee • Member, Faculty Board • Member Faculty Executive Committee of Construction and Environment • Member of Senate, The Hong Kong Polytechnic University • Lab-in-charge (Navigation Laboratory) • Associate Director, Research Institute for Artificial Intelligence of Things (RIAIoT) • Member, Research Institute for Land and Space (RILS) • Expert Review Panel, Hong Kong R&D Centre for Logistics and Supply Chain Management Enabling Technologies • Advisory Board Member, The International Association of Chinese Professionals in Global Positioning Systems (CPGPS) • Editorial Board Member, Journal of Geodesy and Geoinformation Science • Editorial Board Member, Journal of Global Positioning Systems • Editorial Board Member, Geodesy and Geodynamics • Editorial Board Member, International Editorial Board member: Italian Journal of Navigation (2007) • Editorial Board Member, the International Programming Council of the TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation • Editorial Board Member, Journal of Navigation and Positioning • 中國衛星導航定位協會室內導航定位專業委員會副主任
DING Xiaoli	<ul style="list-style-type: none"> • Director, Research Institute for Land and Space (RILS) • Co-director, CHEC-PolyU Joint Research Centre for Land Department • Member, Departmental Research Committee • Member, Departmental Advisory Committee • Member, Departmental Executive Committee • Member, Departmental Staffing Committee • Director, Joint Research Lab with Central South University for Natural Hazards • Member, Executive Committee of Research Centre for Sustainable Urban Development • Editor-in-Chief, Remote Sensing Applications: Society and Environment • Theme Editor, Journal of Spatial Science • Member of Editorial Board, Journal of Engineering of Surveying and Mapping • Member of Editorial Board, Geodesy and Geodynamics • Expert Review Panel, Hong Kong R&D Centre for Logistics and Supply Management Enabling Technologies • Proposal Reviewer for National Science Foundation of China (NSFC) • Vice Chairman, Engineering Surveying Sub-Society, Chinese Society for Geodesy, Photogrammetry and Cartography • Member, Panel for Annual Best Paper Award (The U.V. Helava Award), ISPRS Journal of Photogrammetry and Remote Sensing

SERVICE & COMMUNITY ENGAGEMENT

Name	Services
HAN Yao, Serein	<ul style="list-style-type: none"> • Member, Departmental Resource Office • Associate Member, Association for Learning Technology • Member, The Chinese Association of Young Scientists And Technologists • Council Member, Hong Kong Shandong General Chamber of Commerce Limited
LAI Wai Lok, Wallace	<ul style="list-style-type: none"> • Associate Head (Teaching), LSGI • Chairman, Departmental Programme Committee • Chariman, Departmental Learning & Teaching Committee • Academic Advisor, BSc • Member, Departmental Research Committee • Lab-in-charge, Underground Utility Survey Laboratory • Corporate member, Hong Kong Institution of Engineer (Materials Division) • Fellow, Hong Kong Concrete Institute • Technical Assessor, Hong Kong Laboratory Accreditation Scheme (HOKLAS), Innovation Technology Commission, HKSAR Government. • External member of Validation Panel for VTC HD in Geospatial Science and Land Surveying
LAU Lawrence	<ul style="list-style-type: none"> • Deputy Programme Leader, Higher Diploma in Land Surveying and Geo-Informatics • Associate Editor, Journal of Navigation • Fellow Member, The Royal Institution of Chartered Surveyors • Fellow Member, The Chartered Institution of Civil Engineering Surveyors • Fellow Member, The Royal Institute of Navigation
LIU Xintao	<ul style="list-style-type: none"> • Chairman, Departmental Resource Office • Departmental Library Liaison Officer • Lab-in-charge (Lab for Geographic Information Systems) • Programme Leader, MSc in Geomatics • Deputy Programme Leader, MSc in Urban Informatics and Smart Cities • Member, Departmental Learning & Teaching Committee • Member, Research Insititute for Smart Ctieis (SCRI) • Member, Research Institute for Land and Space (RILS) • Co-Chair, Commission on Geospatial Analysis and Modeling of International Cartographic Association (ICA) • Secretary, Commission on Modeling Geographical Systems of International Geographical Union (IGU) • Member of American Association of Geographers • Member of Canadian Association on Gerontology • Member of Hong Kong Society for Transportation Studies (HKSTS) • Editorial Board Member of Earth Science • Associate Editorial Board Member of The Open Transportation Journal

Name	Services
LIU Zhizhao, George	<ul style="list-style-type: none"> • Associate Head (Partnership), LSGI • Chairman, Departmental Partnership Committee • Member, Departmental Staff Committee • Member, Faculty Partnership Committee, Faculty of Construction and Environment • Member, Editorial Board for the Faculty Newsletter • Lab-in-charge (Hydrographic Survey Laboratory) • Member, Departmental Executive Committee • Academic Advisor, BSc (Hons) in Geomatics • Fellow, The Hong Kong Institution of Engineering Surveyors • Fellow, The Hong Kong Meteorological Society • Director of Board, The International Association of Chinese Professionals in Global Positioning Systems (CPGPS) • Editor, Satellite Navigation • Member of Editorial Board, GPS Solutions • Vice Editor-in-Chief, Journal of Global Positioning Systems • Council Member International Programming Council, the International Journal on Marine navigation and Safety of Sea Transportation (Transnav) • Editor, Journal of Geospatial Engineering
SHI Wenzhong, John	<ul style="list-style-type: none"> • Director, Otto Poon Charitable Foundation Smart Cities Research Institute (SCRI) • Head, Department of Land Surveying and Geo-Informatics (until Jan 2021) • Otto Poon Charitable Foundation Professor in Urban Informatics • Member of Senate, The Hong Kong Polytechnic University • Member of Faculty Board of Construction and Environment • Director of PolyU-Shenzhen Technology and Innovation Research Institute (Futian) • Director, Laboratory for Smart City and Spatial Big Data Analytics, The Hong Kong Polytechnic University • Director, Joint Research Laboratory on Spatial Information, The Hong Kong Polytechnic University and Wuhan University • Member, Departmental Research Committee • President, International Society for Urban Informatics • Fellow, Hong Kong Institution of Engineering Surveyors • Council member, Hong Kong Society for Photogrammetry and Remote Sensing • Fellow, The Royal Institution of Chartered Surveyors • Member, The Hong Kong Institute of Surveyors • Technical Expert, Expert Group for IAEG-SDGs Working Group on Geospatial Information, Statistics Division, United Nations • Member, International Science Advisory Committee, International Society for Photogrammetry and Remote Sensing • Member of the Editorial Board, Spatial Statistics • Member of the Editorial Board, ISPRS International Journal of Geo-Information • Member of the Editorial Board, Journal of Spatial Information Science • Member of the Editorial Board, Journal of Geomatics Science and Technology • Member of the Editorial Board, International Journal of Geographic Information Science • Column Editor, Annals of GIS (uncertainty modeling) • Member of the Editorial Board, Geomatics World • Member of the Editorial Board, International Journal of Applied Earth Observation and Geoinformation (JAG) • Member of Editorial Board, Geography and Geographic Information Science • Member of the Editorial Board, International Journal of Applied Earth Observation and Geoinformation (JAG)

SERVICE & COMMUNITY ENGAGEMENT

Name	Services
Robert TENZER	<ul style="list-style-type: none"> • Departmental Exchange Officer • Member, Departmental Partnership Committee • Academic Advisor, BSc (Hons) in Geomatics • Lab-in-charge (Cadastre Survey Laboratory) • Member of Editorial Board Member for Advances in Geoscience since 2018 • Member of International Editorial Advisory Board of the Contributions to Geophysics and Geodesy since 2018 • Member of Editorial Board of the Journal of Geodesy and Geodynamics • Member of Editorial Board of the Journal of Geodetic Science • Chair of the IAG study group IC-SG7: Earth's inner structure from combined geophysical sources, since 2015 • Member of the IAG study group JSG 0.13: Integral equations of potential theory, since 2015 • Member of the International Association of Geodesy (IAG), since 2010 • Member of the European Geoscience Union (EGU), since 2009 • Member of the Japan Geoscience Union (JGU), since 2013 • Member of the Asia Oceania Geosciences Society (AOGS), since 2012 • Member of the International Association for Mathematical Geosciences (IAMG), since 2010 • Member of American Geophysical Union (AGU), since 2012
WANG Shuo	<ul style="list-style-type: none"> • Associate Editor, Water Resources Research • Associate Editor, Journal of Hydrology • Editorial Board Member, Environmental Research Communications • Editorial Board Member, Water • External Affairs, International Association for Hydro-Environment Engineering and Research – Hong Kong Chapter (IAHR-HK), Hong Kong • Departmental Academic Advisor • Departmental Partnership Committee Member • Departmental Computer Liaison Officer • Lab-in-charge, Geomatics Computing Laboratory • Member, Resource Office of LSGI • Member, Research Institute for Artificial Intelligence of Things (RIAIoT) • Member, Joint Research Centre for Marine Infrastructure (JRCMI) • Member, Research Institute for Sustainable Urban Development (RISUD) • Member, Research Institute for Land and Space (RILS) • Member, Otto Poon Charitable Foundation Smart Cities Research Institute (SCRI)
WENG Qihao	<ul style="list-style-type: none"> • Director, Research Centre for Artificial Intelligence in Geomatics (RCAIG) • Associate Director, Research Institute for Land and Space (RILS) • Member, Department Staffing Committee, Department of Land Surveying and Geo-Informatics • Member, Departmental Executive Committee, Department of Land Surveying and Geo-Informatics • Member, Faculty Staffing Committee (Chair Professor), Faculty of Construction and Environment • Member, Faculty Board, Faculty of Construction and Environment • Senator, Hong Kong Polytechnic University • Editor-in-Chief, ISPRS Journal of Photogrammetry and Remote Sensing • Series Editor, Taylor & Francis Series in Remote Sensing Applications • Series Editor, Taylor & Francis Series in Imaging Science • Member of Editorial Board, Remote Sensing of Environment • Member of Editorial Board, GIScience & Remote Sensing • Member of Editorial Board, Remote Sensing Applications: Society and Environment • Member of Editorial Board, Information Processing in Agriculture

Name	Services
WENG Qihao	<ul style="list-style-type: none"> • Member of Editorial Board, Remote Sensing • Member of Editorial Board, Sensors • Member of Editorial Board, Geomatics • Member of Editorial Board, Urban Science • Associate Editor, Frontiers in Ecology and Evolution • Member of Editorial Board, Civil Engineering Journal • Task Lead, GEO Global Urban Observation and Information • Member, GEO Urban Resilience Group • Steering Committee Member, GEO Earth Observations for Sustainable Cities and Communities Toolkit • Member, Publications Committee, Association of American Geographers • Chair, IEEE GRSS Hong Kong Chapter • Co-Lead, GRSS Educational Webinar Series • Trustee, The ISPRS Foundation • Member, Audit Committee, The ISPRS Foundation • Co-Director, The Hong Kong Division of the National Remote Sensing Center of China
WONG Man Sing, Charles	<ul style="list-style-type: none"> • Associate Dean, Faculty of Construction and Environment (since Jul 2021) • Chairman, Faculty Learning and Teaching Committee • Academic Advisor, BSc (Hons) in Geomatics • Member, Research Institute for Land and Space (RILS) • Council member in the Geomatic Professional Group of the Royal Institution of Chartered Surveyors (Hong Kong) • Council member, LSGI Alumni Association • Editor in Chief, Journal of Geospatial Engineering • Special Topic Editor, Climate • Special Topic Editor, International Journal of Environmental Research and Public Health • GEO member of Earth Observation for Monitoring Environmental Impacts of Coal Extraction and Use in China • Member in the 7SEAS international network, led and supported by U.S. Naval Research Laboratory, U.S. • Member in the Fulbright Program, the Institute of International Education, United States Department of State • Member in the International Association of Mathematical Geosciences (IAMG) • Member in the International Society for Environmental Information Sciences (ISEIS) • Member in the International Society for Photogrammetry and Remote Sensing (ISPRS) Commission III, Inter-commission Working Group III/VII • Member, MOOC Steering Group, University level • Member, the Hong Kong Institution of Engineering Surveyors • Member, The Royal Institution of Chartered Surveyors • Site Manager in Hong Kong, NASA AERONET station • Editor of ATMOSPHERE • Deputy President of Atmospheric Environmental Remote Sensing Society • Editor of Special Issue in Sustainability • Innovation and Technology Commission Enterprise Support Scheme Assessment Panel, Innovation and Technology Commission, The Government of HKSAR • Non-government member, Urban Forestry Advisory Panel, Development Bureau, HKSAR

SERVICE & COMMUNITY ENGAGEMENT

Name	Services
WONG Man Sing, Charles	<ul style="list-style-type: none"> • FCE representative on Grievance • FCE representative in Taskforce on Review of Quality Assurance Mechanisms and Processes for Academic Departments • FCE representative in DoKPI assessment • FCE representative in Working Group for IC Extension and Revitalization • Local Auditor for UGC's QAC Third Audit Cycle (UGC) • Member of the Hong Kong Geographic Information System Association (HKGISA)
WU Bo	<ul style="list-style-type: none"> • Associate Head (Research), LSGI • Member, Faculty Board • Chairman, Departmental Research Committee • Member, Departmental Staffing Committee • Member, LSGI EXCO • Member, Departmental Advisory Committee • Lab-in-charge (Photogrammetry and Remote Sensing Laboratory) • Secretary, ISPRS Working Group III/II – Planetary Remote Sensing and Mapping • Co-Chair, ISPRS Working Group II/6 – Geo-Visualization and Virtual Reality • Council Member, Hong Kong Society for Remote Sensing • Member, Royal Institution of Chartered Surveyors (RICS) • Associate Editor, Photogrammetric Engineering & Remote Sensing (PE&RS) • Editorial Board Member, ISPRS Journal of Photogrammetry and Remote Sensing • Editorial Board Member, The Photogrammetric Record
XU Yang	<ul style="list-style-type: none"> • Programme Leader, MSc in Urban Informatics and Smart Cities • Deputy Programme Leader, MSc in Geomatics • Member, Departmental Research Committee • Member, Departmental Learning and Teaching Committee • Member, Departmental Partnership Committee • Deputy Departmental Enrolment Liaison Officer (TPg) • Departmental Exchange Officer • Guest Editor, ISPRS International Journal of Geo-Information
YAN Wai Yeung	<ul style="list-style-type: none"> • Deputy Programme Leader, BSc in Land Surveying and Geo-Informatics • Programme Leader, Higher Diploma in Land Surveying and Geo-Informatics • Chairman, Departmental Health, Safety and Environmental Committee • Deputy Chairman, Departmental Partnership Committee • Scholarship Liaison Officer • Member of Scholarship Assessment Board • Survey Store in charge • Member, Departmental Resource Office • Associate Editor, Journal of Applied Remote Sensing • Member, Resource Office of LSGI • Member, Departmental Undergraduate Programme Committee • Member, Departmental Learning and Teaching Committee • Proposal Reviewer, MITACS Accelerate

Name	Services
YAO Wei	<ul style="list-style-type: none"> • Academic Advisor, BSc (Hons) in Land Surveying and Geo-Informatics • Member, Departmental Partnership Committee • Co-Chair, Remote Sensing Data Fusion, International Society for Photogrammetry and Remote Sensing (ISPRS) • Member, International Cartographic Association (ICA) Commission on Sensordriven Mapping • Guest Editor, Remote Sensing • Member, LiDAR Expert Committee of the China National Committee of the International Society for Digital Earth Session Chair, XXIV ISPRS Congress • Members, CoGUR Sub-committee on Cluster-Area Requirements (CAR) subjects
ZHU Xiaolin	<ul style="list-style-type: none"> • Programme Leader, BSc in Land Surveying and Geo-Informatics • Member, Departmental Undergraduate Programme Committee • Deputy Chairman, Departmental Learning and Teaching Committee • Departmental Enrolment Liaison Officer • Member, Departmental Resource Office • Academic Advisor, BSc (Hons) in Land Surveying and Geo-Informatics • Member, Research Institute for Land and Space (RILS) • Member, Resource Office of LSGI • Associate Editor, Frontiers in Remote Sensing • Guest Editor, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
ZHUGE Chengxiang, Tony	<ul style="list-style-type: none"> • Deputy Chairman, Departmental Partnership Committee (until Jul 2021) • Member, Division of Transportation Planning, World Transport Convention • Guest Editor for the Journal of Advanced Transportation

SCHOLARSHIPS AND AWARDS



SCHOLARSHIPS AND AWARDS



Student Scholarships

BSc (HONS) LAND SURVEYING & GEO-INFORMATICS	
A & P 40th Anniversary Scholarship	WONG Yeuk Mei
AEON Credit Service (Asia) Scholarship	CHU Wing Wai
Distinguished Athletes Scholarship	CHAN Tsz Yeung HUI Kwok Wa LEE Anton SHAO Xinyi SO Pak Hei
Dr. Ng Tat-lun Memorial Scholarship	CHU Wing Wai
FCE Outbound Exchange Scholarship	LEUNG Hiu Tung SHAO Xinyi TANG Chit Yung
'For Our Future Scholarship'	XU Yi Nam
Hall Residence Scholarship	CHAN Tsz Yeung
HKIES Scholarship	LIU Mingzhen
HKSAR Government Scholarship Fund – Scholarship for Outstanding Performance	CHAN Sze Chuen LAU Yu Lam LIU Mingzhen CHU Wing Wai WONG Ka Wai
HKSAR Government Scholarship Fund – Talent Development Scholarship	DUAN Mingjie SHAO Xinyi SO Pak Hei TAM Chun Hei Wood TSANG Kwun Ho YU Kai Him Otto
Hong Kong Institute of Surveyors Scholarship	WONG Ka Wai XU Yi Nam CHAN Chi Yin CHAN Sze Chuen
HSBC Hong Kong Scholarship	CHU Wing Wai
LSGI Scholarship	LIU Mingzhen
Multi-faceted Excellence Scholarship	KEUNG Cheuk Yin

SCHOLARSHIPS AND AWARDS

Student Scholarships

BSc (HONS) SCHEME IN SPATIAL DATA SCIENCE & SMART CITIES	
SINOPEC "Cleaner Energy Better Life" Scholarship	CHAN Sze Chuen CHU Wing Wai LI Runxin
Targeted Scholarship Scheme – Belt & Road Scholarship (Malaysia) and The Hong Kong Polytechnic University Cultural Ambassador Scholarship	LOW Li Yu
The Hong Kong Polytechnic University Entry Scholarship (Academic)	ZHANG Zhiyu WONG Tsz Fung
The Hong Kong Polytechnic University Entry Scholarship (Non-Academic)	CHAN Tsz Yeung LIU Ngai Kam
Undergraduate Research and Innovation Scheme Scholarship	DUAN Mingjie LIU Mingzhen
Department of Land Surveying and Geo-Informatics Scholarship for Hall Residents	CAO Jiyang
Distinguished Athletes Scholarship	NG Siu Hong
Dr. Y.K. Ching Memorial Scholarship	FENG Zihang
DOCTOR OF PHILOSOPHY	
HKSAR Government Scholarship Fund – Talent Development Scholarship	ZHAO Huilin
PolyU Presidential PhD Scholarship (Cash Award)	CHENG Qi WILLIAMS Trecia LIU Denghong MA Zhongtian MAHMOUD Mostafa Mahmoud Hanafy SHI Fan ZHAO Shuheng
PolyU Research Student Conference 2024 – SINOPEC Best Paper Award Scholarship	ZHOU Mo

Awards Received by Student

HKSAR Government Scholarship Fund		
Endeavour Merit Award	BSc (HONS) LAND SURVEYING & GEO-INFORMATICS	LEUNG Tsz Nga
Reaching Out Award	BSc (HONS) LAND SURVEYING & GEO-INFORMATICS	CHAN Chi Yin CHAN Hin Yeung CHAN Yik Leong LAU Yu Lam LEE Chui In LEUNG Ching Ching LEUNG Hiu Tung LEUNG Tsz Nga LIP Lok Yi TANG Chit Yung WONG Ka Ki YAU Shuk Man

Department of Land Surveying and Geo-Informatics		
Outstanding Student Award 2023	BSc (HONS) LAND SURVEYING & GEO-INFORMATICS	CHAN Chi Yin

SCHOLARSHIPS AND AWARDS

2023/24 Awards Received by Academic Staff

Awardee	Award	Organization
WENG Qihao	AAG Wilbanks Prize for Transformational Research in Geography 2024	American Association of Geographers
DING Xiaoli	Dean's Award for Outstanding Achievement in Research Funding	Faculty of Construction and Environment, PolyU
LIU Xintao		
LIU Xintao	Departmental Excellence Award in Research 2023/24	Department of Land Surveying and Geo-Informatics, PolyU
WANG Shuo		
XUE Dabin	Excellent Presentation Award	Wuhan University
SHI Wenzhong, John	First Prize for the Science and Technology Progress Award in Surveying and Mapping	Beijing Society of Surveying and Mapping
WENG Qihao	Lifetime Achievement in Remote Sensing Award 2024	American Association of Geographers
WU Bo	National award for remarkable contributions to China's space missions	China National Space Administration
SHI Wenzhong, John ZHANG Min	PolyU Patents Achievement Award 2023	PolyU Academy for Interdisciplinary Research
DING Xiaoli	Smart Living Partnership Awards 2023/24	ET Net Limited
LAI Wai Lok, Wallace		
CHEN Wu	The 49th International Exhibition of Inventions Geneva	International Exhibition of Inventions Geneva



A banner for the LSGI Distinguished Lecture Series. The background is blue with a digital, circuit-like pattern. On the right, there is a portrait of Prof. Laurent Polidori, a man with glasses and a green shirt. The text is white and blue.

**LSGI DISTINGUISHED
LECTURE SERIES**

**Global Terrestrial Relief Modeling:
Challenges and Quality Issues**

📅 **20 MAY 2024 (MON)**
🕒 **11:00 AM - 12:00 PM**
📍 **Z414, POLYU**
🌐 **ENGLISH**

Prof. Laurent POLIDORI
President of ISPRS Commission III "Remote Sensing"

Global Terrestrial Relief Modeling: Challenges and Quality Issues

20 May 2024

Until the eighteenth century, maps represented relief by symbolic shapes meaning "this is a mountain". Subsequently, advances in topography and then photogrammetry, stimulated by the needs of war and civil engineering, transformed the artistic work into a rigorous document. However, the maps of different countries differed in terms of specification (the choice of what the map should represent), scale and accuracy. As a result, the world map was a mosaic of sheets of heterogeneous quality. We had to wait for the advent of satellites to have a homogenous representation of the Earth's relief. The lecture will show how topographic techniques such as photogrammetry and radar interferometry, initially validated with airborne acquisitions, were implemented by satellite, first opportunistically and then with dedicated space missions. The particular case of forested regions such as the Amazon, where all the techniques are potentially degraded, will be considered. The question of quality will be addressed: the lecture will show the limits of the usual methods of validating 3D models, based on the statistical distance between the model and reality. Original approaches will be discussed, showing how geomorphological realism and hydrographic coherence can constrain the modelling of relief with invariant properties of the planet Earth.

RESEARCH SEMINARS

Date	Topic & Speaker
30 Aug 2024	What's Cadastral Surveying? Can AI Help Tackle Its Challenges? Sr Ben CHAN Siu-bun, Adjunct Professor, Research Institute of Land and Space, PolyU Sr LEE Yiu-hing, Senior Land Surveyor, Lands Department, HKSAR Sr Winnie WONG Wing-yin, Land Surveyor, Lands Department, HKSAR Sr Ida CHEUNG Kai-ling, Land Surveyor, Lands Department, HKSAR
12 Aug 2024	Global Public Sentiment on Decentralized Finance: A Spatiotemporal Analysis of Geo-tagged Tweets from 150 Countries Dr. Luyao ZHANG, Assistant Professor of Economics and Senior Research Scientist at the Data Science Research Center at Duke Kunshan University, China
9 Aug 2024	Learning to Simulate and Understand the 3D World Prof. Xiaojuan Qi, Assistant Professor, Department of Electrical and Electronic Engineering, University of Hong Kong
23 Jul 2024	Earth Observation Images and Intelligent Methods in Developing Building Footprint Inventories: A Sustainable City Planning Lens Dr. Jagannath Aryal, Associate Professor, Department of Infrastructure Engineering, The University of Melbourne
12 Jul 2024	Coastal Blue Carbon in China: Nature-based Solution towards Carbon Neutrality Prof. Faming Wang, Professor, South China Botanical Garden, Chinese Academy of Sciences
4 Jul 2024	Advancing Precision GNSS for Mass-market Applications Dr. Yang GAO, Professor, Department of Geomatics Engineering, Schulich School of Engineering, University of Calgary, Canada
28 Jun 2024	Drone and AI Driven High-performance Digitization and Management of Smart Sustainable Cities Dr Xi CHEN, Research Assistant Professor, The Chinese University of Hong Kong
26 Jun 2024	GeoAI and Sustainable Urban Environment Prof. Jue WANG, Assistant Professor, Geography, Geomatics and Environment, University of Toronto, Canada
20 Jun 2024	Multi-proxy approaches toward a long view of past coastal disasters Prof. Adam SWITZER, Professor of Asian School of The Environment, Principal Investigator of Earth Observatory of Singapore, Nanyang Technological University, Singapore
29 May 2024	北斗賦能萬物互聯，助推新質生產力發展 – 從PNT到PNTRC 李德仁院士，中國科學院院士、中國工程院院士
22 May 2024	Groundwater Quality Modeling and Assessment Dr Zhilin GUO, Assistant Professor, Southern University of Science and Technology (SUSTech), Shenzhen
20 May 2024	Global Terrestrial Relief Modeling: Challenges and Quality Issues Prof. Laurent POLIDORI, President of ISPRS Commission III "Remote Sensing"
13 May 2024	The Nexus between Climate, Nature and People Ms Karen Ho, Head of Corporate and Community Sustainability, World Wildlife Fund (WWF)-Hong Kong

Date	Topic & Speaker
10 May 2024	Modelling of mass and energy transport in a porous medium: Application to the small bodies of the solar system <i>Dr Yuri SKOROV, Scientist, Max Planck Institute for Solar System Research University of Braunschweig, Germany</i>
3 May 2024	A Crowdsourcing Approach to Generate 3D Building Models <i>Prof. Dr. Hongchao FAN, Professor, Department of Civil and Environmental Engineering, Norwegian University of Science and Technology</i>
29 Apr 2024	General Indoor Positioning based on Crowd-Sourced Magnetic Feature Mapping <i>Dr Xiaoji NIU, Professor, GNSS Research Center, Wuhan University</i>
25 Apr 2024	衛星重力國內外計劃與科學應用進展 鍾敏 教授, 中山大學, 測繪科學與技術學院
18 Mar 2024	Glacial Isostatic Adjustment and Sea-level Change in Singapore and Southeast Asia: Implications from Past to Future <i>Dr Tanghua LI, Earth Observatory of Singapore, Nanyang Technological University, Singapore</i>
	Investigating Holocene Relative Sea-level Changes in the Tropics <i>Dr Fangyi TAN, Earth Observatory of Singapore, Nanyang Technological University, Singapore</i>
15 Mar 2024	Mapping under LLM: Two Hierarchical Solutions <i>Prof. Tinghua AI, Professor, School of Resource and Environmental Sciences, Wuhan University</i>
14 Mar 2024	月球重力場 李斐教授, 武漢大學, 中國南極測繪研究中心

RESEARCH SEMINARS

Date	Topic & Speaker
11 Mar 2024	Research on the Development of BeiDou High Precision Positioning Navigation and Timing Service <i>Prof. Chuang SHI, Chief Professor of Navigation Department, School of Electronic Information Engineering, Beihang University</i>
23 Jan 2024	Altimeter Methods for Interdisciplinary Satellite Geodesy <i>Prof. C K SHUM, Professor and Distinguished University Scholar, Division of Geodetic Science, School of Earth Sciences, The Ohio State University, United States</i>
21 Dec 2023	Space Resources Exploitation and Utilization – A Geodetic Perspective <i>Prof. Kefei Zhang, Professor of China University of Mining and Technology, Honorary Professor of RMIT University, Australia</i>
11 Dec 2023	Remote sensing of atmospheric composition: aerosol, nitrogen oxide and methane <i>Prof. Kai QIN, Head of Department of Remote Sensing and GIS, China University of Mining and Technology</i>
7 Dec 2023	The Future of Digital Twin Technology in Smart Cities Development in China <i>Dr Tao HE, Executive Director, Shenzhen Aerospace Smart City System Technology Co., Ltd.</i>
1 Dec 2023	時空基準發展的現狀、挑戰與相關問題思考 孫和平教授, 中國科學院院士
7 Nov 2023	Four Cases of Flood-risk Reduction in Coastal Cities <i>Dr Paul Chan, CIO (retired), U.S. National Weather Service</i>
11 Oct 2023	Structure and Function of Hypergraph Based High-order Networks <i>Prof. Zi-Ke ZHANG, Professor, College of Media and International Culture, Zhejiang University</i>
6 Oct 2023	The Evolution of GIS and Examples of a Sino-Austrian Cooperation <i>Prof. Wolfgang KAINZ, Professor, University of Vienna</i>
	Is Trade Decoupling from China after the US-China Trade War and COVID-19? <i>Dr Wei LIU, Assistant Professor, National University of Singapore</i>
27 Sep 2023	The Story of Groundwater: Think Globally, Act Locally <i>Prof. Yan ZHENG, Chair Professor, Southern University of Science and Technology</i>
15 Sep 2023	Achieving Water Security in the Context of the Food-Energy-Water Nexus <i>Prof. Ximing CAI, Professor, University of Illinois at Urbana-Champaign</i>
11 Sep 2023	Advancements in BeiDou Disaster Monitoring and Early Warning Technology through UAV-Deployed Equipment <i>Prof. Zhang Qin, Professor, Chang'an University</i>

LSGI Impact Case Study: Urban Big Data Analytics of COVID-19

1 Sep 2023

In the seventh episode of PolyU FCE Impact Case Studies 2023 video series – “Urban big data analytics for COVID-19 risk prediction and control” was published. It shared the research output – a series of extended Weighted Kernel Density Estimation (E-WKDE) models for short-term prediction of COVID-19 symptom onset risk by Prof. John SHI, Chair Professor of Geographical Information Science and Remote Sensing of the Department of Land Surveying and Geo-Informatics (LSGI), Director of Smart Cities Research Institute (SCRI), and his team.

The models presented offer an improvement over traditional COVID-19 risk predictions, as they can accurately predict the transmission trend for a period of 4 to 5 days. These models have been utilized for various purposes, including assessing the impact of the Wuhan lockdown on decreasing the risk of infection in other parts of China, devising a vaccine distribution plan based on risk for Hong Kong, examining the transmissibility of different variants of SARS-CoV-2, and evaluating the effectiveness of global anti-epidemic measures. Since the beginning of 2020, the team has submitted over 40 reports to the Hong Kong Government utilizing the predictions from the E-WKDE model as a point of reference in evaluating COVID-19 control measures.

A Soft Launch of Geo-Project 1941

28 Oct 2023

Ir Dr. Wallace Lai and Dr. Yan Wai Yeung from LSGI have obtained a \$4.75M Innovation Technology Fund (ITF) to develop and promote airborne and terrestrial geo-spatial/ geophysical technologies as a means on baseline assessment on wartime archaeology and subsequent historical interpretation. Other team members of the ITF project include historians, archaeologists, forensic anthropologists, geologists, and geomorphologist from Hong Kong Baptist University, The University of Hong Kong and The Chinese University of Hong Kong.

The 2-year project “Unfolding the lost WWII heritage: promotion of geo-spatial and geophysical technologies” will start in Jan 2023. It is supported by five Government departments/bureau (AFCD, LandsD, WSD, CEDD and CSTB), and an industrial in kind sponsor Camptopia, a campsite in Fanling which will provide venue for the Art Tech exhibition “Lest we forget: The 80th Anniversary of WWII in HK reconstructed by Art-Tech”. Through a variety of public engagement activities, we look forward to the development and promotion of the technologies to be blended in an holistic Art Tech approach for historical interpretation, heritage conservation & tourism, and STEAM education.



RESEARCH ACTIVITIES

LSGI PhD student's research on impacts of space weather on aviation industry is published by the Nature Reviews Earth & Environment

6 Nov 2023

We are pleased to share with you that the research work on the impacts of space weather on aviation industry, conducted by PhD student Mr. Dabin Xue from the Department of LSGI at PolyU, was recently selected to be highlighted by the Nature Reviews Earth & Environment, a journal published by the Springer Nature with an Impact Factor of 42.1.

The research paper "Examining the Economic Costs of the 2003 Halloween Storm Effects on the Northern Hemisphere Aviation Using Flight Data in 2019", co-authored by Mr. Dabin Xue, his supervisors Dr. George Zhizhao Liu at the Hong Kong Polytechnic University and Dr. Jian Yang at the Southern University of Science and Technology, Shenzhen, and Dr. Shiwei Yu (a former graduate from Dr. Liu's Lab), was recently published at the AGU journal "Space Weather" in March 2023. It claims to be the world's first one to quantify the potential

economic impacts of space weather on aviation operation, which is an interdisciplinary study involved with Space Physics including Ionosphere and Cosmic Radiation, GNSS Satellite Navigation, and Air Traffic Management as well as Operation Research. This study can be a benchmark for evaluating and alleviating the potential effects of future space weather on aviation operations.



PolyU Joins BRICS Remote Sensing Satellites Data Application Project

25 Nov 2023

The International Aerospace Forum, with the theme "Accelerating the Application of BRICS Satellite Data and Facilitating International Cooperation in Space and Space Information," took place in Wenchang, Hainan, Mainland China on 25th November 2023. As part of the forum, an expert seminar on the cooperation of satellite remote sensing data application was held, with notable attendees including Dr Guoping LI, Chief Engineer of the National Space Administration, Mr Xiaoming LIU, Governor of Hainan Province, Dr Yirong WU, Academician of the Chinese Academy of Sciences, and Dr Yaqiu JIN, Academician of the Chinese Academy of Sciences.

PolyU, as one of the co-initiators of the 'Declaration on Cooperation in Data and Application based on BRICS Remote Sensing Satellites,' actively contributed to the project's promotion. In this regard, we are delighted to announce the appointment of Prof. Charles WONG, Associate Dean of FCE & Professor of LSGI, as a Member of the BRICS Remote Sensing Satellite Project Team for the period spanning from November 2023 to November 2026.

Additionally, the "BRICS Remote Sensing Satellite Constellation Data and Application Center (China)" was officially introduced on 21st November 2022. This milestone was followed by an announcement made during the 15th BRICS Leaders' Meeting on 23rd August 2023, where President XI Jinping emphasized China's reliance on the BRICS remote sensing satellite constellation to establish a "BRICS Global Remote Sensing Satellite Data and Application Cooperation Platform." This platform aims to provide data support for the advancement of agriculture, ecology, disaster reduction, and other areas in different countries.



PolyU Successfully Hosts Workshop on GeoAI and Big Data for Urban, Environment, and Sustainability

10 Dec 2023

The workshop on GeoAI and Big Data for Urban, Environment, and Sustainability, along with the Inauguration Ceremony for the Research Centre for Artificial Intelligence in Geomatics (RCAIG), was successfully held at PolyU on 9th and 10th December 2023. This two-day event brought together distinguished guests, speakers, and attendees to discuss the latest advancements in GeoAI and Big Data for sustainable urban development and celebrate the launch of RCAIG.

The event was chaired by Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence from LSGI at PolyU, and esteemed guests included Prof. Christopher CHAO, Director of PReCIT, Vice President (Research and Innovation) & Chair Professor of Thermal and Environmental Engineering at PolyU, Professor Peng GONG, Vice-President and Pro-Vice-Chancellor (Academic Development) & Chair Professor of Global Sustainability at the University of Hong Kong (HKU), Prof. Anthony G.O. YEH, Academician of Chinese Academy of Sciences & Chair Professor of Urban Planning at HKU, Prof. Charles WONG, Associate Dean (Teaching) of Faculty of Construction and Environment & Professor from LSGI at PolyU, Prof. Xiaoli DING, Director of Research Institute for Land and Space (RILS) & Chair Professor of Geomatics from LSGI at PolyU, Dr. Xuanya LI, Director of University Relationship, Baidu, Inc., Mr. Cary BARCE, GIS Solution Manager, Esri China (Hong Kong) Limited, and Sr. Kwok Fai CHANG, Deputy Director of Survey & Mapping at Lands Department.

The event provided a platform for interdisciplinary research and collaboration, addressing urban development and environmental challenges.



LSGI co-organizes the International Symposium on Atmospheric Sounding and Data Assimilation 2023

11 Dec 2023

The International Symposium on Atmospheric Sounding and Data Assimilation (ISASDA) took place in Xuzhou, Mainland China, from 6th to 9th December 2023. This successful event was jointly organized by PolyU, China University of Mining and Technology (CUMT), and Shanghai Astronomical Observatory (SHAO) of Chinese Academy of Sciences (CAS).

This conference was co-chaired by Prof. George LIU, Associate Head (Partnership) & Professor from LSGI at PolyU, and Prof. Kefei ZHANG, Professor from the School of Environment Science and Surveying and Mapping at CUMT. The conference attracted over 200 scientists, researchers, and professionals from around the world. It was the first conference of its kind to specifically focus on the synthesis of GPS/Beidou-based and remote sensing-based atmospheric sounding techniques with data assimilation.

Prof. Liu and his Micro-Laboratory of Atmospheric Research and Geomatics Engineering (Micro-LARGE) are internationally recognized pioneers in integrating GPS/Beidou and remote sensing technologies for NWP applications. The Micro-LARGE Lab, led by Prof. Liu, is the second agency in the world to assimilate Near-Infrared (NIR) satellite water vapor data into NWP.



RESEARCH ACTIVITIES

LSGI Scholar Delivered a Presentation at The Hong Kong Jockey Club Scholarships Community Leaders Sharing

19 Dec 2023

On 19 December 2023, Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence from LSGI at PolyU, was invited by The Hong Kong Jockey Club Scholarships to share his knowledge and insights on the topic of "Technological Innovations Enabling Sustainable Urban Development" at the Community Leaders Sharing session.

As cities face challenges like waste disposal, air and water pollution, and climate change, Prof. Weng discussed technological advancements in monitoring natural resources and urban assets. He highlighted the role of Earth Observations (EO) and AI technologies in addressing environmental and societal challenges. Attendees expressed their appreciation for his insights, with many finding his presentation eye-opening, inspiring, and accessible. Prof. Weng's impactful speech left a lasting impression, encouraging scholars to consider the urgent issue of climate change and advocate for positive transformations in urban environments through technological innovation.



Two LSGI Scholars Grant RGC Research Fund 2023/24

8 Jan 2024

We are delighted to announce that LSGI's scientific research capabilities have been duly recognized! Two projects led by LSGI scholars have been awarded funding from the Research Grant Council (RGC) Collaborative Research Fund (CRF) and Research Impact Fund (RIF) respectively in the 2023/2024 exercise. These two projects have received a total funding amount of HK\$10.9 million. The primary goal of these funding is to act as a catalyst, motivating researchers to apply their studies towards the betterment of society. By supporting impactful and translational research projects, these funds encourage collaboration among academia, government, the business sector, industries, and research institutes.

The funded CRF project, is led by Prof. Jianli CHEN, a professor in LSGI, with title "Multi-sensor monitoring, geophysical interpretation, and prediction of sea level rise in Hong Kong". This project aims to study the geophysical factors that contribute to sea level rise and develop a monitoring system to track sea level changes in different coastal areas of Hong Kong. Based on the research findings, the project aims to provide recommendations for coastal management and infrastructure planning to reduce the impact of rising sea levels.



The funded RIF project, is led by Dr. Xintao LIU, an associate professor in LSGI, with title "An AI-enabled Geospatial Platform for Smart Facility Management and Smart Mobility of People with Disabilities". This project aims to introduce a dedicated smart mobility solution that will enhance the travel experience for people with disabilities and the elderly. By leveraging artificial intelligence and geospatial technologies, the project seeks to improve accessibility and inclusivity in transportation systems.

Congratulations to Prof. Chen and Dr. Liu on these well-deserved recognitions!

LSGI Retreat 2024

11 Jan 2024

The LSGI Retreat 2024 was successfully held on 10 and 11 January 2024 at the WM Hotel in Sai Kung. A total of 36 colleagues, including academic, teaching, and some supporting staff, participated in this engaging event. The 2-day retreat covered various topics, including research and RAE updates, strategic planning, and learning and teaching enhancements.

Prof. Wu Chen, Head of LSGI, opened the retreat with a warm welcome speech, introducing new staff and highlighting the department's latest development focus. Following this, Prof. Bo Wu, Chairman of the Departmental Research Committee, provided an overview of the departmental research performance and the latest arrangements for the Mock RAE. Participants then engaged in a group discussion on "Strategies for Enhancing RAE's Impact Cases and Environmental Overview of LSGI," where staff were divided into three groups to facilitate discussion, which culminated in presentations that shared insights and strategies. The first day concluded with a delightful seafood dinner in Sai Kung, offering a chance for colleagues to relax and connect.

On the second day, the focus shifted to strategic planning and sharing practices for enhancing learning and teaching performance. In the afternoon, another group discussion was led by the department head, centered around two key questions:

- i.) Envisioning the Future of LSGI: What Will LSGI Look Like in 10 Years?
- ii.) Strategies for Achieving LSGI's Future Goals." Presentations were shared on these topics, fostering insightful dialogue.

The retreat was a valuable opportunity for staff to exchange ideas and interact on various aspects, including research, teaching, and strategic development. We look forward to seeing these discussions translate into further advancements and successes for LSGI in the coming years.

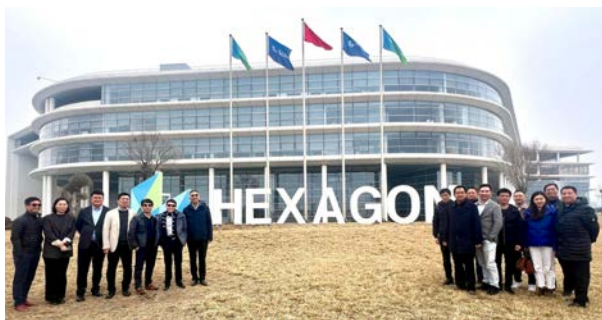


RESEARCH ACTIVITIES

PolyU Establishes Strategic Partnership with Hexagon for Advancing Spatial Measurement Technologies

15 Mar 2024

PolyU has established a strategic partnership with Hexagon, a global leader in digital reality and Industry 4.0 solutions, to advance technology and innovation. On March 8–9, Prof. Wu CHEN, Head of the Department of Land Surveying and Geo-Informatics (LSGI), led a delegation to the Qingdao Hexagon Smart Park, where they signed a framework MoU with Hexagon Leica Geosystems, witnessed by Mr. Hongquan Li, President (Greater China Region) of Hexagon, Mr. Deyong Wang, Chief Financial Officer (China Region) of Hexagon, and other distinguished guests. This collaboration will enhance R&D in surveying, geographic information mapping, and navigation systems, while exploring the establishment of a joint lab focused on AI and machine learning in surveying. Multidisciplinary forums facilitated discussions on future innovation trends, aiming to integrate Hexagon's technologies with PolyU's research capabilities for societal benefit.

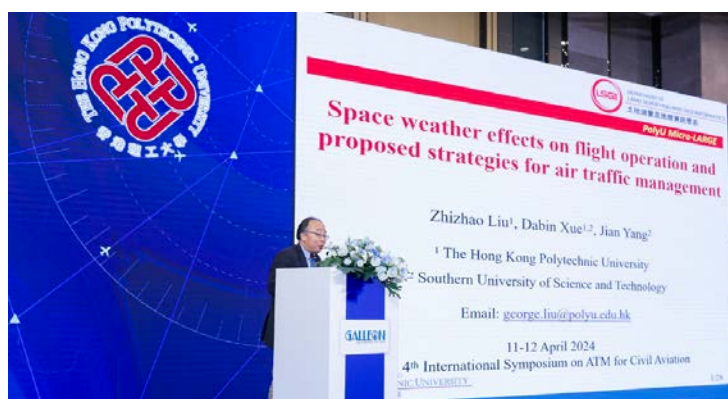


LSGI Scholar is invited to speak at the 4th International Symposium on ATM for Civil Aviation

12 Apr 2024

Prof. George Zhizhao LIU from the Department of Land Surveying and Geo-Informatics (LSGI) at The Hong Kong Polytechnic University was invited to give a talk at the 4th International Conference on Air Traffic Management (ATM) for Civil Aviation held on 11–12 April 2024 at Beijing, China. The conference attracted over 400 participants from academia, airlines, and international organizations, aiming to foster technological innovation in civil aviation ATM.

His presentation, coauthored with Dr. Dabin Xue and Prof. Jian Yang, focused on "Space weather effects on flight operation and proposed strategies for air traffic management." The talk addressed the unpredictable impacts of space weather on satellite navigation, radio communication, and cosmic radiation, which pose safety hazards. Prof. Liu's team at the Micro-LARGE has developed strategies to mitigate these effects and evaluated their economic benefits for airlines. Their work has been recognized internationally, highlighting the need for addressing space weather in ATM, especially during China's 14th Five-Year Plan period.



Workshop on Smart City and Geospatial Technology at Geospatial Lab

20 Apr 2024

On 20 April 2024, a public seminar and workshop titled “Smart City and Geospatial Technology in Hong Kong” was successfully held at GeoSpatial Lab in Kwun Tong. The event was a collaborative effort between PolyU LSGI, GeoSpatial Lab (under the Development Bureau of the HKSAR Government), and the Hong Kong Institute of Vocational Education (IVE). The seminar attracted over 20 physical attendees and around 40 online participants, including local secondary school students, parents, and teachers.

The event commenced with a seminar by Dr. Sissi Chen, Lecturer at LSGI, on the topic “Problem Solving by Digital Maps and Geographic Information System (GIS).” Dr. Chen demonstrated how GIS can be used to address societal needs through the application of digital maps.

Speakers from IVE, Ms. Cherrie Siu, Lecturer, and Mr. Leo Yau, Assistant Lecturer, shared insights on “Introducing Geospatial Technology for Supporting Smart Cities Development in Hong Kong” Both speakers are affiliated with the Hong Kong Institute of Vocational Education (Sha Tin).

The related geospatial higher diploma and bachelor degree programmes were introduced during the event. The session was highly informative, and the Q&A segment saw various questions from both the floor and online participants being addressed.



Research by LSGI Scholar Reveals the Increasing Risk of Concurrent Heatwaves and Extreme Sea Levels Along the Global Coastline

22 Apr 2024

A research study led by Dr. Shuo WANG, an Associate Professor in the Department of LSGI at PolyU, and his team, has discovered that the concurrent occurrence of heatwaves and extreme short-term sea level rises at coastal locations significantly increased between 1998 and 2017 when compared to the preceding 20 years. The study also predicts that, under a modelled high emissions scenario, the probability of the occurrence of such events in 2025–2049 may multiply by fivefold. These research findings provide scientific evidence and guidance for improving climate adaptation strategies in response to extreme weather events, which will aid in the development of climate-resilient coastal cities. The study has been published in the journal *Communications Earth & Environment*.

Congratulations to Dr Wang and his team on this remarkable achievement!



RESEARCH ACTIVITIES

LSGI Scholar's Expert Opinion Reveals China's Land Subsidence Study



24 Apr 2024

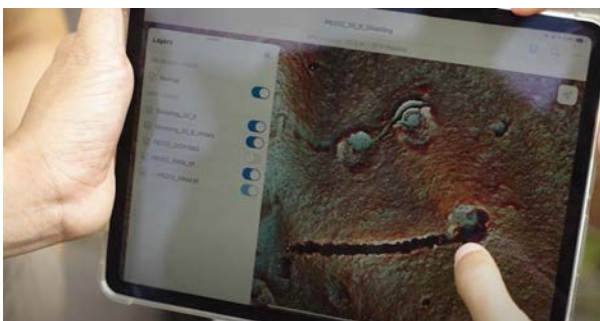
Prof. DING Xiaoli, Chair Professor of Geomatics in the Department of LSGI at PolyU, has gained international recognition for his expertise on land subsidence issues. In recent interviews with Nature and BBC World Service's "Newshour", Prof. Ding discussed the research in a paper revealing alarming statistics: approximately 16% of the mapped areas in China's major cities are sinking rapidly. Within a century, one in ten residents in coastal cities could be living below sea level. He emphasised that subsidence is not exclusive to China, and excessive groundwater usage could be the primary cause, highlighting the importance of controlling groundwater usage as an effective solution.

Launch of documentary "Unfolding the lost WWII heritage: A new chapter of geo-spatial and geophysical technologies in Hong Kong" at National Geographic Magazine

5 Jul 2024

Led by Ir Prof. Wallace LAI, Associate Head of LSGI, the project titled "Unfolding the Lost WWII Heritage: Promotion of Geo-spatial and Geophysical Technologies" (funded by ITF-GSP and matching fund by FCE and RILS) continues to make strides in uncovering Hong Kong's hidden remnants from the Battle of Hong Kong in 1941.

Recently together with Dr. Kwong Chi-Man of Department of History at the Hong Kong Baptist University, we released a compelling 42-minute documentary on youtube!. Our works are also featured by National Geographic Magazine in an insightful article titled "揭示失落的香港二戰遺產—地理空間和地球物理科技的新篇章" 2. Through continual public engagement activities such as seminar talks, workshops, Art-Tech exhibition in the HiVE in Industrial Centre, and field trips to HK's WWII remnants, we have actively shared our findings and outreached to over 1200 audience since mid-2023, such as the recent seminar talk at the Poi Oi Hospital 80th Anniversary Tang Ying Hei College. The engaging session saw active participation from 180 students from Secondary 4 and 5. Stay updated on our progress through our official social media channels on Instagram (@geoproject_battleofhk1941), Facebook and LinkedIn (Geo-Project: Battle of Hong Kong 1941).



Research by LSGI Scholar Identifies Effective Heat Indices for Detecting Dangerous Outdoor Conditions

7 Aug 2023

We are delighted to announce that the research team from the Research Centre for Artificial Intelligence in Geomatics (RCAIG), led by Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence in the Department of Land Surveying and Geo-Informatics at The Hong Kong Polytechnic University, has published a groundbreaking study on global heat wave frameworks.

The article, titled "Comparing Existing Heat Wave Indices in Identifying Dangerous Heat Wave Outdoor Conditions," was published on 7 August 2024, in the journal Nexus of Cell Press. Dr. Pir Mohammad, a postdoctoral research fellow in the JC STEM Lab of Earth Observations at PolyU, is the first author, while Prof. Weng serves as the corresponding author. This paper evaluates the effectiveness of commonly used heat wave indices in identifying dangerous outdoor conditions, using recent heat wave events observed in Asia, Europe, and North America as case studies.



Congratulations to Prof. Weng and his team on this remarkable achievement!

LSGI & RCAIG Joint Seminar

30 Aug 2023

The Department of Land Surveying and Geo-informatics and the Research Centre for Artificial Intelligence in Geomatics (RCAIG) jointly hosted a seminar on 30 August 2024, bringing together leading experts to discuss the future of cadastral surveys and land management in Hong Kong. The event featured Professor Ben CHAN Siu-bun, Adjunct Professor from the Research Institute of Land and Space, along with guest speakers from the Lands Department, HKSAR Government.

The seminar covered various aspects, from the historical background of cadastral surveys in Hong Kong to the potential applications of Artificial Intelligence in addressing current industry challenges. Speakers provided insights into implementing the Land Survey Ordinance (Cap.473) and explored integrated developments in the lands and works industries.



During the discussion, Prof. Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence from LSGI and Director of RCAIG, proposed that the government should allocate specific funds to support the development of Artificial Intelligence technology for cadastral surveys, similar to the Smart Traffic Fund. Additionally, he recommended establishing a joint lab to engage in in-depth discussions and build partnerships with the academic community.

This event demonstrated the importance of interdisciplinary approaches in tackling complex challenges in land management and surveying, while also highlighting the potential of AI to revolutionize these fields.



ACTIVITY HIGHLIGHTS

International Delegation from SISV and LJT Visits LSGI to Explore Collaborations and Programme Accreditations

17 Oct 2023

On October 16, 2023, a delegation from the Singapore Institute of Surveyors and Valuers (SISV) and The Land Surveyors Board Malaysia (LJT) paid a visit to the LSGI, accompanied by representatives from the Hong Kong Institute of Surveyors (HKIS). The 13-member delegation was spearheaded by Mr. Mak Weng Tat, the Land Surveying President from SISV, and Dato' Indera Sr. Ismail bin Harun from LJT.

The delegation's morning was spent at Q-Leak, the underground water mains leak detection training centre of the Water Supplies Department. This centre was designed and supported by LSGI since 2021. Ir Dr Wallace Lai, the Associate Head and Associate Professor of LSGI, provided a demonstration and overview of the collaborations between LSGI and WSD, as well as the training and research conducted at Q-Leak.

In the afternoon, the delegation was warmly welcomed by Prof. Wu Chen, the Head of LSGI at PolyU. He provided them with the latest updates on LSGI programmes and research highlight. Discussions were held regarding collaborations on training and talent nurturing. The delegation expressed a strong need for training in underground utilities survey and management from LSGI.

The visit concluded on a positive note, with all parties expressing enthusiasm for future collaborations.



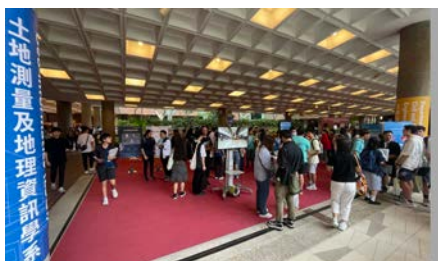
PolyU Info Day 2023

21 Oct 2023

PolyU Info Day was successfully held on 21st October 2023 at the campus. LSGI offered various activities, including a consultation booth, guided laboratory visits, admission talks for the Undergraduate (Ug) and Taught Postgraduate (TPg) programmes, and sharing sessions with graduates.

During the two sessions of Ug admission talks, Ir Dr Wallace LAI, Associate Head in Teaching, and Dr Sissi CHEN, Deputy Programme Leader, provided introductions and programme details. Guest speakers and esteemed LSGI graduates also shared their work experiences and perspectives, emphasizing the exciting career opportunities in the government and private sectors.

We extend our sincerest gratitude and appreciation to all colleagues, alumni, guests, and student ambassadors who wholeheartedly participated in the Info Day. The event successfully facilitated prospective students' understanding of the department and its academic programmes. LSGI eagerly looks forward to welcoming them to join in the near future!



29th Congregation – LSGI Session

15 Nov 2023

The 29th FCE Congregation – LSGI Session was held in hybrid mode on 15 November 2023 at the Jockey Club Auditorium. More than 200 graduates from the LSGI were conferred degrees and awards from Higher Diploma, Bachelor's to Master's degree. Prof. Xiang-dong LI, Dean of Faculty, presided over the ceremony and encouraged graduates to follow the examples of FCE alumni and make lasting impacts in their chosen path.

LSGI invited Mr Kelvin LO, SBS, JP, as a guest of honour to share with the graduating class their visions for the future of Hong Kong's development in Land Surveying and Geo-Informatics discipline, as well as invaluable life lessons and mottos. Graduate Ms Cherry Lai Sze CHEUNG gave a valedictory speech on behalf of the class of 2023. Congratulations to the graduating class of 2023!



The Faculty of Geosciences and Environmental Engineering at Southwest Jiaotong University (SWJTU) visits LSGI

23 Nov 23

A delegation from the Faculty of Geosciences and Environmental Engineering at Southwest Jiaotong University (SWJTU) visited LSGI on November 23, 2023, with the aim of strengthening ties between the two academic institutions in the areas of teaching and research. The SWJTU team was warmly received by Prof. Wu Chen, Prof. Xiaoli Ding, Prof. George Liu, Dr. Xintao Liu, and Dr. Songbo Wu, who represented LSGI.

During the visit, the delegation engaged in productive discussions with LSGI on topics such as cooperative educational project applications, laboratory construction and management, and student affairs administration. They also had the opportunity to tour LSGI's laboratories, gaining a deeper understanding of the state-of-the-art research facilities and recent accomplishments in the areas of underground utilities network, deformation, and geohazards studies. The visit served to strengthen the partnership between the two institutions and identify potential areas for future collaborations, proving to be a beneficial experience for both parties.



ACTIVITY HIGHLIGHTS

Visit by delegation from China University of Mining Technology (CUMT)

11 Dec 2023

A delegation from China University of Mining Technology (CUMT) visited LSGI on 11th December 2023. Prof. Wu CHEN, Head of LSGI at PolyU, warmly welcomed them and shared the latest updates on LSGI programmes and research highlights. The academic team from LSGI, including Sr Prof. Charles WONG, Prof. George LIU, Dr. Tiangang YIN, and Dr. Sissi CHEN, held a productive discussion with CUMT on collaborating in talent development and student exchanges. The visit strengthens ties between LSGI and CUMT, fostering potential for future cooperation and creating opportunities to enhance academic and research endeavors in geospatial information.



Visit by delegation from Hohai University (HHU)

12 Dec 2023

A delegation from Hohai University (HHU), including Prof. Yang SHEN, Director of Academic Affairs Office, and Prof. Yiping LI, Director of Hong Kong, Macao and Taiwan Affairs Office, visited LSGI on 12th December 2023. The HHU team received a warm welcome from Prof. Wu CHEN, Head of LSGI, Prof. George LIU, Associate Head (Partnership), Dr Xintao LIU and Dr Guoqiang SHI, representing LSGI.

During the visit, the two groups had a meeting and toured the Underground Utility Survey Laboratory. The visit aims to strengthen the partnership between LSGI and HHU, focusing on student exchange and talent training. It provides a platform for both institutions to foster a closer relationship and explore potential collaborations in academics and student affairs.



Secondary School participates the Project “Unfolding the Lost WWII Heritage: Promotion of Geo-spatial and Geophysical Technologies”

9 Jan 2024

To honor the upcoming 80th anniversary of World War II in 2025, the project titled “Unfolding the Lost WWII Heritage: Promotion of Geo-spatial and Geophysical Technologies” was held on 6–7 January at the Camptopia campsite in Sheung Shui. The project aims to raise public awareness of historical interpretation, heritage conservation, and STEAM education through integrated art-tech exhibitions.

Led by Ir Dr Wallace Lai, Associate Head of LSGL, a group of 26 dedicated teachers and S.4/S.5 students studying Geography from St. Stephen's College (SSC) actively participated in this project. SSC was selected as the starting point due to its historical significance as the last stronghold during the Battle of Hong Kong in 1941. The school endured the most hardships during the battle, including a massacre, and throughout the subsequent 3-year and 8-month occupation period as an internment/POW camp.

This public engagement event at Camptopia consisted of two key components:

1. An immersive art-tech exhibition showcased in a 4D CAVE allowed participants to step back in time and experience the war zone firsthand. This interactive exhibition combined art and technology, providing a deeper understanding of WWII.
2. A two-day STEAM workshop focused on geo-spatial technologies and archaeological excavation techniques. Participants learned how to locate and scan artifacts from Hong Kong's WWII period and ancient times. Through hands-on activities, attendees gained insights into historical preservation and the use of advanced technologies to uncover hidden treasures.

This project not only served as an educational platform but also as a reminder of the importance of preserving our collective memory. By integrating art, technology, and historical interpretation, the project aims to ensure that the legacy of World War II remains vivid in the hearts and minds of future generations.

We extend our gratitude to the ITF/General Support Program for their generous funding and the support from various organisations.



ACTIVITY HIGHLIGHTS

LSGI STEAM Talks for Secondary School 2024

23 Jan 2024 & 22 Apr 2024

On January 23, 2024, Dr. Sissi Chen from the Department of Land Surveying and Geo-Informatics (LSGI) at The Hong Kong Polytechnic University hosted a workshop for eight students and a teacher from Lee Kau Yan Memorial School. The session, titled "Problem Solving by Digital Maps and Geographic Information System (GIS)," introduced participants to spatial data, GIS software for mapping and analysis, and cutting-edge surveying equipment like total stations and laser scanners. The visit was deemed fruitful as students learned about the BSc (Hons) Scheme in Spatial Data Science and Smart Cities.

Additionally, on April 17 and 22, Dr. Chen delivered another engaging STEAM Talk on Smart Cities and 3D Mapping to groups from Creative Secondary School and Nord Anglia International School. The presentations highlighted the transformative impact of smart city technologies, complemented by hands-on demonstrations of advanced surveying tools, enriching students' understanding of geospatial science and its relevance to urban development. LSGI looks forward to future educational engagements.

STEAM Talk Series Topics:

Smart City and 3D Mapping in HK (智慧城市及三維地圖的應用)

Global Navigation Satellite System (GNSS) and Smart City Applications (全球導航衛星系統與智慧城市應用)

Unfolding HK Lost WWII Heritage with Geo-spatial Science (尋找隱世二戰遺跡：地理空間科學篇)

Problem Solving by Digital Maps and Geographic Information System (GIS) (以數字地圖和地理訊息系統解難)

Seeing and Unseen Underground Utilities in 3D (三維地下管線測量)

Observing and Measuring the Earth from Space (從太空觀測地球)

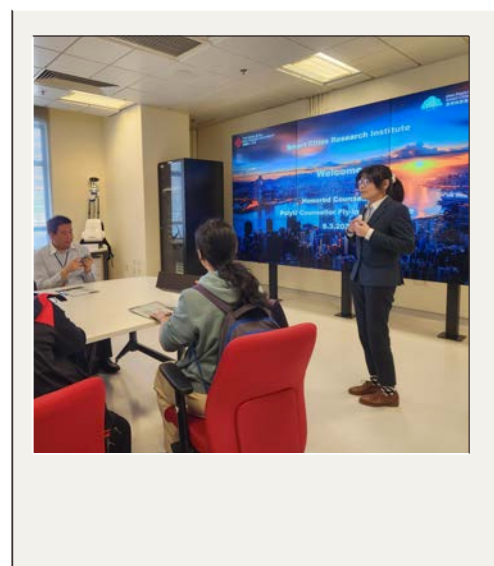
IoT and Remote Sensing for Tree Monitoring (如何利用IoT及遙感技術監測城市樹木)



Counsellor Fly-in Programme 2024

8 Mar 2024

During the week of March 4, 2024, PolyU's Global Engagement Office hosted the Counsellor Fly-in Programme 2024, welcoming 26 counsellors from 25 schools across 14 countries. The four-day event provided an immersive experience of PolyU's academic offerings and campus life. A highlight was the visit to the Faculty of Construction and Environment, where the Department of Land Surveying and Geo-Informatics showcased its innovative programmes and research initiatives. The Counsellor Fly-in Programme 2024 was a resounding success, strengthening connections between PolyU and educational institutions worldwide. We look forward to welcoming more counsellors in the future and continuing to build and enhance our global partnerships.



LSGI Career Talk 2024: Bridging Students with Industry Leaders

21 May 2024

The LSGI Career Talk 2024 was successfully held for two sessions on 16 February and 21 March 2024 at PolyU, attracting over 100 students.

Session I – Private Company

The first session was conducted on 16 February 2024. This session featured esteemed speakers from leading private companies, including ARUP, Build King, China State Construction Engineering, EGS Survey, and Esri China (Hong Kong), discussing trends in climate, sustainability, and technological advancements.



Session II – The Government of the HKSAR

The second session was held on 21 March 2024. It focused on career opportunities within the government of HKSAR. This session featured speakers and alumni from various government departments, including Planning Department, Lands Department and Civil Engineering and Development Department. The event successfully facilitated engagement between students and industry leaders, enhancing their understanding of career paths available in both sectors.



PolyU JUPAS Consultation day 2024

18 May 2024 & 5 July 2024

The PolyU JUPAS Consultation Day 2024 successfully concluded on 18 May and was followed by Part II on 5 July. The first session attracted many DSE candidates and their parents, offering insights into subject selection strategies, program information, and mock admission interviews with professors. LSGI students shared their experiences, greatly benefiting attendees. The second session, themed "Cheer On! Chit-Chat with HKDSE Students," provided additional admission information for prospective students. Many attendees visited the LSGI consultation counter, gaining valuable insights into their academic journeys and opportunities. LSGI looks forward to welcoming these students as they pursue their aspirations.



International Study Tour in Singapore 2024

23 May 2024

From 19 to 23 May, 28 students and academic staff from the Department of LSGI at PolyU participated in a study tour in Singapore to explore urban development. They visited key locations, including NParks, the Singapore City Gallery, and Sky Greens Farm, the world's first low-carbon vertical farm. This tour highlighted innovative technologies for enhancing urban greenery management. LSGI professors – Dr Yang XU, Associate Professor, Dr Shuo WANG, Associate Professor, and Dr Tiangang YIN, Assistant Professor shared insights on smart city concepts, including using UAVs for tree health monitoring. The experience provided students with practical knowledge on urban planning and sustainability, applicable to Hong Kong's future development.



ACTIVITY HIGHLIGHTS

PolyU supports Rural Education Development by engaging with Yanglou Dong Primary School 2024

26 May 2024

From 18 to 26 May 2024, a group of 53 students and academic staff from the Department of Land Surveying and Geo-Informatics at Hong Kong Polytechnic University embarked on a nine-day service-learning programme at Yanglou Dong Primary School in Chibi City, Hubei, China. During the service-learning period, the PolyU students and faculty members engaged in meaningful interactions and learning activities with the students of Yanglou Dong Primary School. Our students brought advanced educational concepts and teaching methods, providing the local students with enriching and diverse learning experiences.

Our department highly values this service-learning programme, Dr. Lai Wai Lok, Associate Head (Teaching) and Associate Professor of LSGI, stated that this programme is not only an educational support initiative but also an opportunity for cultural exchange and emotional connection. Through such activities, more students and faculty members can understand the current conditions and needs of rural education and contribute their efforts to its development.



LSGI Beijing Study Tour 2024

13 Jun 2024

From 26 to 31 May 2024, a group of 10 students from the Department of Land Surveying and Geo-Informatics (LSGI) at the Polytechnic University of Hong Kong (PolyU) embarked on a study tour to Beijing, China. During this trip, our students had the opportunity to visit and engage with their peers at the China University of Geosciences Beijing (CUGB), an institution renowned for its contributions to geographic information technology.

Through the academic exchanges and discussions, our students were eager to share the latest research and cutting-edge technologies in the field of land surveying and geographic information systems. This valuable experience helped them broaden their knowledge and skills within these specialized domains.

In addition to the academic activities, our students also had the opportunity to explore the history and culture of mainland China. They visited a number of iconic places, including the Badaling Great Wall, the Palace Museum, the National Museum of China, and the Imperial College. This study tour provided our students with a valuable learning experience. It not only expanded their academic horizons, but also gave them a greater understanding and connection to China.

We are sincerely thankful for the warm hospitality extended by the CUGB staff and students. This study tour was an excellent opportunity for LSGI students to apply their newfound knowledge to their future studies and work, thereby contributing to the ongoing development of land surveying and geographic information fields.



LSGI STEAM Talks for Secondary School 2024 – Poi Oi Hospital 80th Anniversary Tang Ying Hei College



4 Jul 2024

On 4 July, 2024, Mr. Sahib Singh SANDHU from the Department of LSGI at PolyU delivered a seminar at Poi Oi Hospital 80th Anniversary Tang Ying Hei College, attended by around 200 Secondary 4 and 5 students. The seminar focused on the project titled "Unfolding the Lost WWII Heritage: Promotion of Geo-Spatial and Geophysical Technologies," led by Ir Prof. Wallace LAI, Associate Head (Teaching) and Professor of LSGI, represented the multi-disciplinary Geo-project team. Students actively participated, finding the talk engaging and informative.

LSGI Shanghai Study Tour 2024

6 Jul 2024

From 1 to 6 July, 2024, five students and staff from the Department of LSGI at PolyU visited Tongji University in Shanghai for a summer study tour. Led by Dr. Songbo Wu, Research Assistant Professor at LSGI, they engaged in lectures and hands-on activities focused on the latest developments in surveying and geo-informatics. Students visited key institutions, including the Shanghai Institute of Surveying and Mapping, gaining insights into urban planning and disaster prevention. They also enjoyed cultural experiences, such as city walks and food sharing. The tour fostered valuable connections and collaboration between PolyU and Tongji University.



PolyU Summer Institute 2024: LSGI – Unfolding the Lost WWII Heritage through Geo-Spatial Technologies

26 Jul 2023

The PolyU Summer Institute 2024, a dynamic five-day residential camp, was held during 22–26 July for Secondary 4 and 5 students. During the faculty attachment sessions on the second and fourth days, around 120 enthusiastic participants engaged with an immersive art-tech exhibition showcased in a 4D CAVE. This unique experience allowed them to step back in time and vividly explore a World War II (WWII) war zone.

The LSGI session focused on geo-spatial technologies and archaeological excavation techniques, enabling students to deepen their understanding of Hong Kong's WWII history and ancient times. Through hands-on activities, attendees gained invaluable insights into historical preservation and the use of advanced technologies to uncover hidden treasures.

This attachment workshop was part of the project titled "Unfolding the Lost WWII Heritage: Promotion of Geo-spatial and Geophysical Technologies", led by Ir Prof. Wallace Lai, Associate Head at LSGI. The project, funded by IFT-GPD and matching funds from FCE and RILS, aims to engage the public in using an integrated art-tech approach to rediscover and preserve Hong Kong's war heritage.



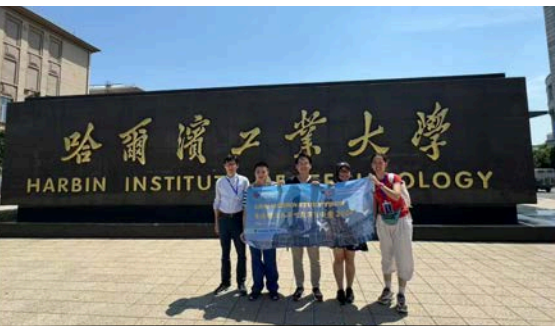
ACTIVITY HIGHLIGHTS

LSGI Harbin Study Tour 2024

14 Aug 2023

From 6–15 July 2024, a 10-day exchange and learning study tour was held in Harbin, China. A group of five students from the Faculty of Construction and Environment (FCE) at the Hong Kong Polytechnic University (PolyU) participated in this summer tour to Harbin Institute of Technology (HIT). This study tour was co-organized by the Department of Land Surveying & Geo-Informatics (LSGI) at PolyU and the School of Architecture and Design at HIT, led by Dr. Xintao Liu, Associate Professor, and Dr. Xiaolong Mi, Research Assistant Professor at LSGI. The tour targeted students studying in the fields of construction, building, computing, or architecture, with the theme "Computational Urban Science 2024: Urban Historical Spatial Computation and Modeling Workshop".

The program began with an opening ceremony and ice-breaking activities, followed by lectures on urban computational science. Students explored Harbin's landmarks, including St. Sophia Cathedral and the remnants of Unit 731, enriching their understanding of the city's history and culture. The tour concluded with a summary session, where students presented their learning outcomes and received expert feedback. This cross-cultural experience fostered cooperation between PolyU and HIT, broadening participants' academic horizons and enhancing their appreciation for China's dynamic urban landscapes.



LSGI Orientation Day 2024

30 Aug 2024

On 30 August 2024, the Department of Land Surveying and Geo-Informatics (LSGI) at PolyU successfully hosted its Orientation Day for all incoming undergraduate and master's programme freshmen. The event was held in a face-to-face format, marking a vibrant start to the new academic year.

Prof. Wu Chen, Chair Professor of Satellite Navigation and Head of LSGI, warmly welcomed the new students and provided an insightful introduction to the department. He also took the opportunity to introduce the academic, teaching, and support staff, ensuring that the students felt acquainted with the team dedicated to their educational journey. The orientation was a valuable opportunity for our faculty and support staff to meet nearly 200 new faces, fostering a sense of community from the outset.

We hope that all students found the orientation informative and helpful, setting the stage for a rewarding and enjoyable university life at PolyU.



AWARD HIGHLIGHTS

LSGI Research Project Awarded Key Programme of the National Natural Science Foundation of China



15 Sep 2023

As a prestigious research funding organization dedicated to supporting and promoting fundamental scientific research in various disciplines throughout China, the Natural Science Foundation of China (NSFC) announced the application results of the NSFC Programmes in September 2023. Among the applications, various research projects and researchers in PolyU are awarded. The LSGI research "Detection of underground water pipe leakage based on multi-temporal PolInSAR technology", led by Prof. Xiaoli DING, Chair Professor of Geomatics and Director of the Research Institute for Land and Space, was one of the three PolyU projects which have been funded under the Key Programme of NSFC.

Congratulations to Prof. DING!

LSGI scholar was appreciated with national award for remarkable contributions to China's space missions

29 Sep 2023

Prof. Bo WU, Associate Head (Research) & Professor of LSGI and Associate Director of the University Research Centre for Deep Space Explorations (RCDSE), has been awarded the Outstanding Award (Individual) for his contribution to China's First Mars Exploration Mission.

The awards are presented by the Ministry of Industry and Information Technology, China National Space Administration, and four other ministries to recognize individuals and groups who have significantly contributed to China's space missions. In addition to Prof. WU, Prof. Kai-leung YUNG, Director of RCDSE, and a PolyU team also received awards, representing PolyU. Prof. Jin-Guang TENG, President of PolyU, congratulated the awardees and commented that PolyU would continue to advance the technology and make contributions to the national space missions.

Prof. Wu and his research team utilized topographic mapping and geomorphological analysis technologies to analyze the terrain of the Mars surface. This analysis allowed them to estimate a landing site with both safety and scientific value on Mars for the Tianwen-1 mission, thus greatly contributing to the success of China's Mars mission in 2021.

Congratulations to Prof. WU!



AWARD HIGHLIGHTS

2023 Dean's Honours List



4 Oct 2023

We are glad to announce that 14 students from LSGI have earned a place in the Dean's Honours List of the Faculty of Construction and Environment at The Hong Kong Polytechnic University. These students have been recognized for their outstanding academic performance during the 2022/2023 academic year.

BSc (Hons) in Land Surveying and Geo-informatics (34478)

CHAN Sze Chuen	KHOO Pak Hum	LAU Yu Lam	LIP Lok Yi	NG Hoi Wah
SIN Ka Hei	SIT Fei Ching	WONG Ka Wai	YUEN Hau Yiu	

BSc (Hons) Scheme in Spatial Data Science and Smart Cities (34480)

GONG Changwen	LI Runxin	LIU Mingzhen
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HD in Land Surveying and Geo-informatics (34379)

CHU Wing Wai	WONG Hei Yin
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We would like to extend our warmest congratulations to all the recipients on their outstanding academic achievements. We are proud of our students and wish them continued success in their academic pursuits.

The World's Top 2% Scientists in LSGI by Stanford University 2023

27 Oct 2023



Six academic staff from LSGI, including Prof. John Wenzhong SHI, Prof. Qihao WENG, Prof. Jianli CHEN, Prof. Charles Man Sing WONG, Dr. Xiaolin ZHU and Dr. Ameer Hamza KHAN, are ranked as the World's Top 2% most-cited scientists in career-long and single-year categories, according to the Stanford University list published on Oct 2023. The database categorized scientists into 22 subject fields and 174 sub-fields. It has taken their research publications into consideration, including information on citations, individual's scientific research output, co-authorship and a composite indicator.

Career-long Data & Single Recent Year Data

Name of Researcher		Subject Field
Prof. John Wenzhong SHI	Prof. Qihao WENG	Geological and Geomatics Engineering
Prof. Jianli CHEN		Meteorology and Atmospheric Sciences

Single Recent Year Data

Name of Researcher		Subject Field
Prof. Charles Man Sing WONG	Dr. Xiaolin ZHU	Geological and Geomatics Engineering
Dr. Ameer Hamza KHAN		Electrical and Electronic Engineering

LSGI PhD Student Wins the Best Research Postgraduate Student of the Year 2023



2 Dec 2023

We are delighted to share that Ms Yamin QING, a PhD student in LSGI under the supervision of Dr Shuo WANG, Associate Professor of LSGI, has been honored with the Best Research Postgraduate Student of the Year 2023 award by the Graduate School. This award recognizes research postgraduate students who have demonstrated exceptional academic achievements and made significant contribution to the research community at PolyU.

Ms Qing focuses her research on analyzing extreme weather events and water-related hazards using remote sensing and geospatial techniques, provides valuable insights for environmental policy implementation, especially regarding climate-induced disasters. In addition to this achievement, she was previously awarded the 2022 Young Scientist Award.

Congratulations to Ms Qing on this well-deserved recognition!

LSGI PhD Student Wins the 2023 “Zhu Kezhen” Prize from the Hong Kong Meteorological Society

15 Dec 2023

We are pleased to announce that Mr Yangzhao GONG, a PhD student at the Micro-Laboratory of Atmospheric Research and Geomatics Engineering, led by Prof. George LIU, Associate Head (Partnership) & Professor of LSGI at PolyU, has been selected as the recipient of the “Zhu Kezhen” prize awarded by the Hong Kong Meteorological Society (HKMets) in 2023. This prize recognises Mr Gong’s outstanding work on assimilating satellite-based all-sky Near Infrared (NIR) Precipitable Water Vapor (PWV) data into Numerical Weather Prediction (NWP) models. Notably, Mr. Gong is the third winner of the “Zhu Kezhen” prize from Prof. Liu’s Micro-LARGE team.



This achievement, in collaboration with the Hong Kong Observatory, marks the first successful assimilation of such data, significantly improving NWP performance and rainfall forecast accuracy. The prize-winning paper was published in the American Geophysical Union (AGU)’s “Journal of Geophysical Research: Atmospheres” in 2023. Congratulations to Mr. Gong and his supervisor Prof. Liu on this remarkable achievement!

LSGI PhD Student Wins the First Place Award in United Nations-affiliated Big Data Hackathon Competition



20 Dec 2023

Mr. Songyang LI, a PhD student from the Remote Sensing Laboratory of the Department of Land Surveying and Geo-Informatics (LSGI), won the First Place Award with his team at the UN Datathon China Division from 3rd to 6th November 2023. The competition, hosted by the United Nations Statistics Division, was held at the UNBDC in Hangzhou, attracting nearly 100 teams from China’s top universities, research institutions, and companies.

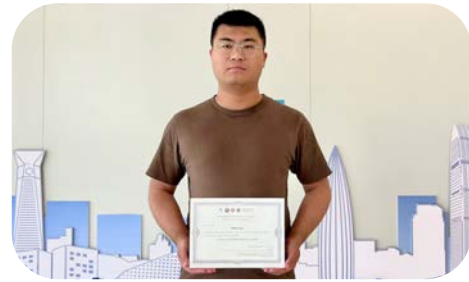
Being the only finalist team from Hong Kong, Sustainable Roaming, consisting Mr. Li and his teammates from PolyU AMA and HKU, stood out from the top 12 teams in the final round with their project “China-Africa Cooperation: Shared Prosperity for Sustainable Development”. The project exhibited great potential in offering technical support and decision-making recommendations for future Sino-foreign cooperation under the South-South cooperation framework and the Belt and Road Initiative.

AWARD HIGHLIGHTS

LSGI Scholar Wins Award at the International Graduate Workshop on Geoinformatics (IGWG) 2023

27 Dec 2023

Dr. Dabin XUE, a Postdoctoral Fellow of LSGI at the Hong Kong Polytechnic University (PolyU), recently received an Excellent Presentation Award at the International Graduate Workshop on Geoinformatics (IGWG) held in Wuhan, Mainland China from 17th to 19th December 2023. Dr. Xue is a Postdoc at the Micro-Laboratory of Atmospheric Research and Geomatics



Engineering (Micro-LARGE) under the supervision of Prof. George LIU, Associate Head (Partnership) & Professor of LSGI. Dr. Xue completed a PhD degree earlier in 2023 from the Micro-LARGE, with joint supervision by Prof. Jian YANG at the Southern University of Science and Technology (SUSTech), Shenzhen, Mainland China.

The awarded presentation, titled "Space weather effects on aviation operation and related air traffic management solutions for mitigating these effects," provided an overview of the impact of space weather on aviation operations. The presentation covered topics such as high-frequency communication blackouts, GNSS-based navigation and surveillance failures, and increased cosmic radiation. Additionally, Dr. Xue proposed solution methods to mitigate the effects of space weather on air transportation from an air traffic management perspective.

The LSGI Student and Graduates Win Awards in AI x HK OpenCup 2023

29 Dec 2023

We are proud to announce that a team of students and graduates from LSGI at PolyU was achieved the second runner-up and the Best Social Impact Award in AI x HK OpenCup 2023. The LSGI team, named "Forestree", included Mr. CHAN Tze Chung, Mr. LAM Yik, and Mr. YU Kai Him Otto. Otto is currently an undergraduate student in LSGI, while the other two are graduates of our Higher Diploma programme. They are currently working on developing solutions to enhance urban forestry development using LiDAR, photogrammetry, and remote sensing techniques.

In the contest, the team developed an AI-based tool for diagnosing tree defects, following the standards set by the Tree Management Office. This tool provides a user-friendly platform for the public to engage in tree management. For example, individuals can simply capture photos of damaged trees using their mobile devices and upload them to the system. By utilizing the database developed by the team, the system can analyze the tree photos and identify various tree problems, such as structural defects and management issues. This AI product, designed in accordance with local standards, is expected to enhance citizen engagement, improve the efficiency of tree management, and reduce the risk of tree collapse.

Congratulations to the "Forestree" team on their achievements in AI x HK OpenCup 2023!



LSGI MSc Student Wins HKIBIM Silver Award

26 Jan 2024

Mr CHAN Ka Kit Zeno, a student from MSc in Urban Informatics and Smart Cities (Class of 2024), with his team has won the Silver Award in the category of "BIM Project – Private Development" in The Hong Kong Institute of Building Information Modelling (HKIBIM) Award 2023. The award presentation was successfully held on 26 Jan 2024.

Under supervision of Sr Dr Lawrence Lau, Lecturer of LSGI, Zeno selected a topic on using Building Information Modelling (BIM) with Augmented reality (AR) to facilitate building services engineering work for his MSc project. Zeno carried out the MSc project investigations with his full-time work in constructing the Chill Residence in Yau Tong. He completed the MSc project and obtained an excellent grade for the subject. Zeno applied for the HKIBIM award with his MSc project work related to the Hybrid Model on BIM and Point Cloud, AR Inspection, and Digital Twins technologies. Congratulations to Zeno!



LSGI Students Receive HKIS Outstanding Dissertation Awards 2023

21 Feb 2024

We are pleased to announce that two of our BSc students from LSGI, Miss SIT Fei Ching and Mr MOK Ka Him, have been awarded with the Outstanding Dissertation Awards 2023 by the Hong Kong Institute of Surveyors for their excellent performance in the final year projects. This prestigious award aims to recognize students who have displayed excellence in their pursuit of knowledge in surveying and the built environment by producing outstanding research work in this field.

Miss Sit, under the supervision of Ir Dr Wallace LAI, Associate Head of LSGI, has been awarded the Top Award (Land Surveying) for her project titled 'Discovering and Unfolding WWII Heritages with Geospatial Technologies in the Gin Drinkers Line'. Meanwhile, Mr Mok, under the guidance of Prof. John SHI, Chair Professor of Geographical Information Science and Remote Sensing from LSGI, has received the Merit Award (Land Surveying) for his project titled 'Point Cloud Integration of Backpack laser scanner and UAV photogrammetry'.

The award presentation ceremony will be held in the late July 2024. We extend our heartfelt congratulations to two of our BSc students for their remarkable academic achievements!

LSGI student wins Team Award for Highest International Potential at the SDG Open Hack@Tsinghua University

28 Feb 2024

We are pleased to announce that Miss XU Yi Nam Deanna, a final-year BSc student of LSGI, won the Team Award for Highest International Potential at the SDG Open Hack@Tsinghua University 2023. Organized by Tsinghua University's Innovation and Entrepreneurship Education Coordination Committee, this competition involves over 1000 students from 22 global partner universities collaborating on challenges related to the UN's 17 Sustainable Development Goals. Deanna and her team focused on Track 2: RESILIENCE, addressing energy system resilience to extreme weather disruptions. We are excited to see more innovative ideas for sustainable development within the higher education community.



Congratulations to Deanna and her teammates!

AWARD HIGHLIGHTS

LSGI Alumna Wins the Best Researcher Award 2024 at the “International Research Awards on Sustainable Agriculture and Food Systems”

1 Mar 2024

We are thrilled to announce that Dr. Komal Kumari, an alumna of LSGI, has been honoured with the Best Researcher Award 2024 at the “International Research Awards on Sustainable Agriculture and Food Systems”. This prestigious award recognises the exceptional research accomplishments and contributions of scientists, innovators, and experimenters in the field of Agriculture.



Dr. Komal Kumari completed her PhD degree in 2022 under the supervision of Prof. John Wenzhong SHI, Chair Professor of Geographical Information Science and Remote Sensing at LSGI and the Director of the Otto Poon Charitable Foundation Smart Cities Research Institute of PolyU.

Her project focuses on agriculture monitoring for sustainable development using remote sensing. It highlights the utilization of high-resolution Sentinel-2 data, along with a combination of various types of secondary data, in a Random Forest (RF) regression model during different phases of the crop growing season. This approach aims to enhance the accuracy of rice yield prediction and advance our understanding of precision agricultural systems.

We extend our congratulations to Dr. Komal Kumari on her remarkable achievement!

LSGI Scholar Receives the AAG Wilbanks Prize for Transformational Research in Geography and RSSG Lifetime Achievement Honor Award 2024

8 Mar 2024



Professor Qihao WENG, Chair Professor of Geomatics and Artificial Intelligence at LSGI, PolyU, has been honored with two prestigious awards: the 2024 AAG Wilbanks Prize for Transformational Research in Geography and the 2024 RSSG Lifetime Achievement Honor Award. The former, awarded by the American Association of Geographers (AAG), recognizes his significant contributions to Geography, GIScience, and Society. The latter, presented by the Remote Sensing Specialty Group (RSSG) of AAG, acknowledges his exceptional work in remote sensing science and technology.

Prof. Weng has achieved remarkable milestones in urban remote sensing through his groundbreaking research, including the development of novel algorithms for sub-pixel-scale analysis and time series imagery. His work has advanced the understanding of urban heat islands, urban sprawl, and environmental sustainability. Notably, his 2004 methodology for estimating land-surface temperature using satellite-derived vegetation attributes, co-developed with Lu and Schubring, has influenced multiple disciplines. These achievements will be celebrated during the 2024 AAG Annual Meeting in Honolulu, Hawaii. Congratulations to Prof. Weng for his exceptional accomplishments!

LSGI Student, Jenny Chan, Receives the PolyU Outstanding Student Award of Department 2023

26 Mar 2024

Heartfelt Congratulations to Miss Jenny CHAN Chi Yin, our LSGI student, on being selected as the awardee of the ‘Outstanding Student Award 2023’ at the departmental level for her remarkable accomplishments! Jenny was honoured with the award by Prof. TENG Jun Guang, the President of PolyU, at the Presentation Ceremony on 26 March 2024. We are proud of her well-deserved achievements.



LSGI Research Team's GNSS Monitoring System Wins Gold at 49th Geneva Invention Exhibition

22 Apr 2024

We are delighted to announce that the project “Hong Kong GNSS Signal Quality Monitoring and Interference Detection System,” led by Prof. Wu Chen, Head of LSGI, in collaboration with the Logistics and Supply Chain MultiTech R&D Centre (LSCM), has been awarded the Gold Medal at the 49th International Exhibition of Inventions in Geneva, held from 17–21 April 2024. The system monitors GNSS data quality, detects interference, and ensures reliable satellite navigation for applications like UAVs and critical infrastructure. Developed through advanced research by LSGI and LSCM, with significant contributions from Dr. Weng Duoje, it highlights the synergy between academia and industry.

Congratulations to Prof. Wu Chen, Dr. Weng Duoje, and the entire research team for their outstanding achievement!



LSGI Master Student Wins the Best Oral Presentation Award in the Nexus Forum 2024 – Sustainable Exploration of Interdisciplinary Research and Innovation

16 May 2024

We are pleased to share that our student in the MSc in Urban Informatics and Smart Cities programme, Mr. Haotian WANG, supervised by Dr. Xintao LIU, Associate Professor, from Department of Land Surveying and Geo-Informatics (LSGI) at PolyU, has won the Best Oral Presentation Award at the Nexus Forum 2024, which was co-organized by PolyU and Cell Press on “Sustainable Exploration of Interdisciplinary Research and Innovation”, which was held on the PolyU campus on 9–10 May 2024.



His research, titled “Exploring Urban Odor Characteristics from Citizens Perception: A Case Study of Hong Kong,” introduces a novel approach using social media data for keyword extraction, sentiment analysis, and regression analysis to explore urban odor characteristics and their correlation with urban environmental factors.

Congratulations to our MSc student, Haotian WANG, on this recognition!

LSGI PhD student Wins Best Student Paper Award at 20th International Conference on Ground Penetrating Radar



27 Jun 2024

Mr. Wenchao He, a PhD student from the Department of Land Surveying and Geo-Informatics (LSGI) at the Hong Kong Polytechnic University (PolyU), recently received the Best Student Paper Award at the 20th International Conference on Ground Penetrating Radar (GPR 2024) held in Jilin, China from 23 to 27 June 2024. His award-winning presentation, titled “Depth-Weighted Velocity Correction: Approach to

Hyperbolic Fitting in Multi-Layered GPR Surveys,” highlights his research on Ground Penetrating Radar and Non-destructive Testing under the supervision of Ir Prof. Wallace Lai. This recognition showcases LSGI’s strong research capabilities. GPR 2024 is a premier biennial event, attracting global experts to share the latest developments in GPR research and applications. Congratulations to Wenchao He!

AWARD HIGHLIGHTS

Result of 2024 Outstanding PolyU Alumni Award for LSGI

28 Jun 2024

The Outstanding Alumni Award of LSGI aims to give public recognition to outstanding graduates of the department for their professional achievements and significant contributions to the community and their alma mater.

Outstanding Alumni Award of PolyU LSGI 2024 – Awardee

Professor LIU Guoxiang

Award Category: Scholarly Achievement

Prof. LIU Guoxiang graduated with a PhD in Photogrammetry and Remote Sensing from the Department of LSGI at PolyU in 2003. He began his academic career at Southwest Jiaotong University (SWJTU), where he is now the Dean and Professor of the Faculty of Geosciences and Engineering (FGE). Under his leadership, FGE has emerged as a top school at SWJTU. Prof. Liu teaches radar remote sensing and mentors postgraduate students, receiving numerous awards for his teaching excellence. His research in radar remote sensing has significantly contributed to geological disaster prevention and high-speed railway safety, with nearly 20 significant scientific research projects and close to 250 publications, reflecting the depth and breadth of his influence in the field.



Outstanding Alumni Award of PolyU LSGI 2024 – Young Awardee

Miss LEE Tsz Ki, Pinky

Young Award Category: Entrepreneurial Achievement

Miss LEE Tsz Ki, Pinky, graduated from the Department of LSGI in 2012 with a bachelor's degree in Geomatics, specializing in Utility Management and Surveying. She has held significant roles in the Hong Kong Institute of Utility Specialists and served as Technical Manager at CASTCO Testing Centre Ltd from 2015 to 2023, where she established a new department and developed 3D BIM models from 2D AutoCAD data. Currently, as Executive Director of Signature Consulting and Engineering Ltd, she leads strategic initiatives in underground utility surveying, utilizing advanced technologies. In addition to her professional achievements, Pinky has employed, supervised, and provided guidance to over 20 LSGI graduates and summer interns, helping to pave the way for their careers. She actively promotes the LSGI program to the next generation by engaging in various secondary school talks, sparking curiosity and ambition among the students.

LSGI Master Student Wins Outstanding Presentation Award in 14th Forum on Spatially Integrated Humanities and Social Science

30 Jun 2024

We are pleased to share that our MSc student in Geomatics, Miss Jiarui MOU, from the Department of LSGI at PolyU, has won the Outstanding Presentation Award at the 14th Forum on Spatially Integrated Humanities and Social Science, under the supervision of Dr. Yang XU, Associate Professor. This forum, organized by the Geographical Society of China in Nanchang, China from 28-30 June 2024.

Jiarui's award-winning research, titled “基於AIS數據的海絲之路海運網絡交通不均衡性多尺度分析”, proposed a novel approach to portraying the spatial pattern of the “21st Century Maritime Silk Road” maritime complex network. The research utilized the Automatic Identification System (AIS) data to analyze the imbalance of the maritime complex network across multiple vessel types, multiple scales and multiple indicators. This outstanding presentation award recognizes Jiarui's strong research skills and her ability to effectively present her findings.

Congratulations to Jiarui on this well-deserved recognition!

LSGI students received multiple awards in ESRI Young Scholars Award 2023

27 Jul 2023

In the recent 2024 Annual Forum of the International Association of Chinese Professionals in Global Positioning Systems (CPGPS) held in Beijing, China, from 25–27 July 2024. A PhD student Mr. Jiafei Xu, under the supervision of Prof. Zhizhao George Liu at the Micro-Laboratory of Atmospheric Research and Geomatics Engineering (Micro-LARGE) in the Department of LSGI at PolyU, won the “Best Paper Award” for his paper titled “Directly Retrieving Integrated Water Vapor from Sentinel-3 OLCI NIR Radiance Data Under Cloudy Sky Conditions Based on Ground-Based GNSS Measurements”.

His current research interests focus on the development and validation of advanced algorithms to enhance precipitable water vapor retrievals. The work presented in this winning paper has significant implications in improving the accuracy of water vapor data, which is crucially important in weather forecasting and climate



modeling. The Micro-LARGE Lab is the first in the world to calibrate all-weather near-infrared band satellite remote sensing water vapor data and assimilate it into a Numerical Weather Prediction model.

Currently Mr. Xu is in his 4th year of PhD programme at PolyU. During his PhD programme, he has published 17 peer-reviewed journal papers and has a few papers in review.

Congratulations to Jiafei!

LSGI Students Receive Awards from The Hong Kong Institute of Surveyors (HKIS) for Outstanding Academic Achievements 2024

30 Jul 2023

The Hong Kong Institute of Surveyors Scholarship and 2023 Dissertation Awards Presentation Ceremony was successfully held at the Surveyors Learning Centre on 30 July 2024. The event was organized by HKIS, aiming to promote research amongst future surveyors and reward the efforts of the best students.

The representatives from HKIS, including Sr Francis LAM Ka Fai (HKIS President), Sr Steven TANG Chi Kin (Chairman of Board of Education), and Sr Dr. Mei-yung Leung (Chairman of Research Committee), presented the prizes to the award winners. Notably, 6 awardees were from the Department of LSGI at PolyU, showcasing the outstanding academic achievements of the students. We are glad to announce the following winners:

2023 Dissertation Awards (Bachelor Category)

Top Award	SIT Fei Ching
Merit Award	MOK Ka Him

HKIS Scholarship 2024 – BSc (Hons) in Land Surveying and Geo-Informatics

First Prize	WONG Ka Wai	XU Yi Nam
Second Prize	CHAN Chi Yin	CHAN Sze Chuen

We believe our students and graduates will continue to excel in their studies and contribute significantly to the surveying industries. Congratulations to all the LSGI awardees on this well-deserved recognition!



PolyU Researchers Advance Smart City Development through Remote Sensing Satellites and Low Earth Orbit Satellites

5 Sep 2023

PolyU and Hong Kong Aerospace Technology Group (HKATG) have signed a Memorandum of Understanding to foster their collaboration in satellite navigation, communication, remote sensing, and payload development in August 2023. Under this collaboration, as the key involving department, LSGI can be benefited from provision of optical remote sensing and radar observation data, as well as access to near-Earth orbit satellite payload space and testing services. A media

briefing was arranged on 30 August 2023 to share the latest and future research development under the collaborative framework.

Prof. Charles Wong, Associate Dean (Teaching) of FCE and Professor of LSGI, stated that LSGI would utilize the provided resources in multiple researches, like monitoring land use, estimating solar energy potential, and water quality mapping. The partnership can not only reduce the cost of data acquisition significantly, but also enhance the resolution of satellite images which can benefit the research.

Media Coverage: Ming Pao Daily News, Hong Kong economic Times, Sing Tao Daily



LSGI scholars engaged events with the China Manned Space delegation

4 Dec 2023

The Hong Kong Polytechnic University (PolyU) hosted an event, "A Dialogue between the China manned space delegation and PolyU students and faculty members" to extend a warm welcome to the esteemed China Manned Space delegation on 29 Nov 2023. The event, held at the Jockey Club Auditorium, provided an opportunity for approximately 700 attendees to engage in discussions and exchange ideas with the delegation.

During the event, Prof. WU Bo, Fiona Cheung Professor in Spatial Science, Associate Head (Research) of LSGI, and Associate Director of the Research Centre for Deep Space Explorations of PolyU, and Dr. CHEN Long, a PhD graduate of LSGI, were selected as representatives from PolyU to engage in discussions with the delegation. Both of them contributed to China's space missions by utilising advanced topographic mapping technologies to identify suitable landing sites. Additionally, Prof. WU was awarded the Outstanding Award (Individual) for his contribution to China's First Mars Exploration Mission. Prof. WU was also invited to join the live broadcasting event "「全港歡迎中國載人航天工程代表團大匯演」" on the same evening at Hong Kong Coliseum to share LSGI's research contribution to national space missions.

As one of our representatives, Dr. CHEN was interviewed by multiple media outlets after the event. Expressing his delight in welcoming the delegation to the university, he hoped to have the opportunity in the future to become a payload specialist and bring the team's research to the space station.

Media Coverage: Wen Wei Po, Sing Tao Headline

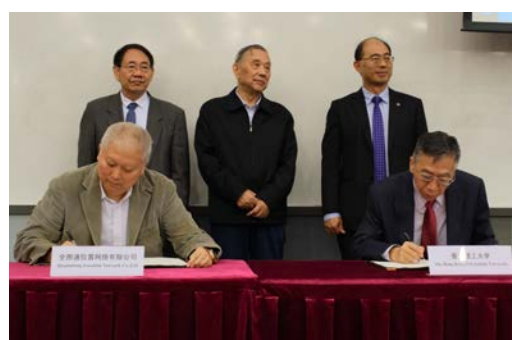


International Academic Forum for Non-Exposed Space and MoU Signing Ceremony

10 Dec 2023

The International Academic Forum for Non-Exposed Space, jointly organized by the Department of LSGI, Research Institute for Land and Space (RILS), and Quantutong Location Network Co., Ltd., was successfully held on 9th December at PolyU. The event attracted over 100 experts, scholars, and industry representatives from Beijing, Shanghai, Shenzhen, and Hong Kong to discuss the latest achievements and future directions in non-exposed space. One of the highlights of the event was the signing ceremony between PolyU and Quantutong for the "Commercial Satellite Launch Cooperation" memorandum of understanding. This partnership seeks to advance the integrated development of commercial satellite communication, navigation, and remote sensing. Specifically, the collaboration aims to apply mainland China's advanced management experiences, including panoramic navigation, rail transportation, and UWB technology, to various scenarios in Hong Kong. This includes implementing these technologies in the city's subway systems, airport, gas and water services, with the ultimate goal of contributing to the establishment of a smart city.

Media Coverage: Wen Wei Po, Xinhua Net, People's Daily



LSGI Student, Deanna Xu, Receives the 'For Our Future Scholarship' 2023/24

17 Apr 2024

Congratulations to Deanna Xu Yi Nam, an LSGI undergraduate, for receiving the 'For Our Future Scholarship' 2023/24 from The Greater Bay Area Homeland Youth Community Foundation. Selected from over 250 applicants across 13 institutions, Deanna is among 16 awardees recognized for academic excellence, diverse talents, and community service. She will receive HKD 50,000 and a Greater Bay Area exchange program focusing on innovation, culture, and technology. At the award ceremony on 17 April 2024, Deanna shared her passion for environmental protection, gained through exchange programs and international energy competitions. She aims to pursue environmental science and use geospatial intelligence to protect the environment.

Media Coverage: Bastille Post, China News Service, East Money



LSGI scholar engaged with media to discuss remote sensing research on space exploration and the I&T development



11 May 2024

Prof. WU Bo, Associate Head (Research) & Professor of LSGI and Associate Director of the Research Centre for Deep Space Explorations (RCDSE), was interviewed by "GD Today", sharing the experience of his team in the research works as well as his view on the evolution of innovation and technology (I&T) in Hong Kong.

Prof. Wu and his research team are actively engaged in the Chang'e-7 and Tianwen-2 missions through devoting their own expertise to the projects. With the use of remote sensing data over the surfaces of the Moon or Mars and topographic analysis technologies, they construct detailed topographic maps of those surfaces, aiming to estimate safe and scientifically significant landing sites.

Prof. Wu shared his experience in the research work for the Tianwen-2 mission. In that project, the lack of satisfactory data posed significant obstacles to the research on mapping and remote sensing analysis. Therefore, the team constructed a test site within the laboratory to simulate real environments for analysis and facilitate advancements in surveying, mapping, and remote sensing. The goal of this endeavor was to enable effective measurement and analysis of irregular stellar objects, as well as the identification and tracking of potential landing sites for future analysis. Additionally, Prof. Wu added that artificial intelligence techniques were utilized in satellite image processing, advancing research efficiency and reliability.

Regarding I&T development, he believed that its position became more dominant in Hong Kong. Considering that situation and closer cooperation between Hong Kong and Mainland China, he commented that it was crucial for researchers in Hong Kong to proactively embrace the forthcoming research opportunities, thereby driving the progress and development of Hong Kong, the Greater Bay Area, and the nation.

Media Coverage: Nanfang Daily

LSGI two Scholars win Smart Living Partnership Awards 2023/24



31 May 2024

We are pleased to announce that two scholars from the Department of Land Surveying and Geo-Informatics (LSGI) at The Hong Kong Polytechnic University (PolyU) have been recognized for their outstanding contributions to smart city development. Prof. DING Xiaoli, DoRILS and Chair Professor of Geomatics, and Ir Dr Wallace LAI, Associate Head (Teaching) and Associate Professor, have both been awarded the Smart Living Partnership Award 2023/24.

Awardee in LSGI	Awards
Prof. DING Xiaoli	Outstanding Land Subsidence Monitoring Technology by Integrating Satellite Remote Sensing & Mobile Surveying
Ir Dr Wallace LAI	Outstanding Imaging Technologies for Rapid Leakage Diagnosis of High-Pressure and Large Water Mains

Media Coverage: ETNet

LSGI Scholar's Granted Project aims to Develop Low-Cost Remote Sensing System for Detecting Illegal Dumping of Construction Waste in Hong Kong

4 Jun 2024

Dr. ZHU Xiaolin, Associate Professor at the Department of Land Surveying & Geo-Informatics (LSGI) at the Hong Kong Polytechnic University (PolyU), was invited to share the findings of his project on the news media "DotDotNews" on 4 June 2024. His project, titled "Developing Low-Cost Remote Sensing System for Detecting Illegal Dumping of Construction Waste in Hong Kong", showcases the impact of granted projects of the Public Policy Research (PPR) Funding Scheme of the Chief Executive's Policy Unit of the HKSAR Government.



The project aims to use satellite remote sensing technology to improve the efficiency and coverage of detecting illegal construction waste dumping activities. This technology acts as a "super eye in the sky," capturing hidden illegal dumping behaviors through high-resolution satellite imagery. The current government approach relies on patrols and surveillance cameras, which can be costly and have limited coverage. In contrast, the satellite remote sensing technology can quickly locate illegal dumping activities, enhance monitoring efficiency, and reduce the cost of enforcement.

The project's findings will help the government formulate more effective policies to tackle illegal dumping, reduce environmental pollution, protect the ecosystem, and improve the public's quality of life, ultimately creating a better living environment for current and future generations. Thank you for the efforts made by Dr. Zhu and his research team.

Media Coverage: DotDotNew

LSGI scholars contribute to Nation's Chang'e-6 historic lunar far-side sampling mission

4 Jul 2024

Prof. WU Bo, Fiona Cheung Professor in Spatial Science and Associate Head of LSGI, along with his team, played a crucial role in the world's first lunar far-side sampling for the Chang'e-6 mission. At a press event on 3 July at PolyU, Prof. Wu highlighted their groundbreaking research on "Finding Water in Lunar Soil" using microstructural analysis. The team obtained two lunar soil samples, contributing significantly to lunar exploration. Prof. Wu emphasized their extensive experience in space missions and their commitment to advancing innovation and technology in Hong Kong and the nation. The PolyU team is poised to support future space exploration efforts.

Media Coverage: Ming Pao Daily News, TVB, Now TV



OTHER ACTIVITIES

New Academic Staff Onboarding

1 Oct 2023

Dr Qing PEI is jointly employed by the Department of Land Surveying and Geo-Informatics (LSGI) and the Department of Chinese History and Culture to the post of Associate Professor in September 2023. He obtained his Bachelor's degrees in Environmental Economics and Management and in Law (double degree) from Renmin University of China, and received his MPhil and PhD in Geography from The University of Hong Kong (HKU). He has rich postdoctoral experience in universities around the world, including HKU, the University of Cambridge in the UK, and the University of Zurich in Switzerland. Prior to joining PolyU, he served as the Assistant Professor (2016 – 2021) and Associate Professor (2021 – 2023) at The Education University of Hong Kong. Dr Pei's multidisciplinary research covers topics across physical and human geography, including historical geography, climate history and social-ecological resilience.



Welcome Dr Pei to LSGI!

Staff Promotions 2023

1 Nov 2023

We are delighted to share the news that Dr. Yang Xu have been promoted to Associate Professor effective from 1 Nov 2023 respectively. Dr. Xu joined LSGI as Assistant Professor in 2017.



Congratulations to Dr. Xu!

LSGI Scholar is appointed as the Founding Chair of Hong Kong Branch of the 142-year-old Canadian Institute of Geomatics (CIG)



3 May 2024

We are pleased to announce that Prof. George Zhizhao LIU, a Professor at the Department of Land Surveying and Geo-Informatics (LSGI), The Hong Kong Polytechnic University (PolyU) was recently appointed as the Founding Chair of Hong Kong Branch of the 142-year-old Canadian Institute of Geomatics (CIG).

Prof. Liu, an esteemed scholar in geomatics, leads the Micro-Laboratory of Atmospheric Research and Geomatics Engineering (Micro-LARGE), which has made significant contributions in GPS/GNSS positioning, space weather impact on navigation, and atmospheric modeling. His lab's work has been recognized globally, including by NASA JPL and Nature Reviews Earth & Environment. The institute aims to lead the advancement of geomatics in Canada and worldwide and offers a platform for geospatial information professionals worldwide to share ideas, collaborate on research, and promote the use of geomatics in various sectors of the economy. CIG organizes conferences, seminars, and workshops, and publishes a peer-reviewed scientific journal called "Geomatica". The institute also provides scholarships and awards to recognize individuals who have made significant contributions to the field of geomatics.

Staff Promotions 2024

2 Jul 2024

We are delighted to announce the promotion of two distinguished academics from the Department of LSGI, with effect from 1 July 2024:

- Prof. Wu CHEN, Head (LSGI) & Professor, has been promoted to Chair Professor of Satellite Navigation.
- Ir Dr Wallace Wai Lok LAI, Associate Head (Teaching) & Associate Professor, has been promoted to Professor.



*Congratulations to Prof. Wu Chen and
Ir Prof. Wallace Lai!*

GLOBAL EXPOSURE

Exchange Programme

The Student Exchange Programme provides students with one- or two-semester off-shore opportunities to enhance their practical skills and professional knowledge by studying at our overseas partner universities. The programme also cultivates independence, enhances students' interpersonal and problem-solving skills and exposes them to a multicultural environment. Students can apply for financial support from the university, faculty and department.

Some of the exchange destinations of LSGI students:

- Curtin University of Technology (Australia)
- Royal Melbourne Institute of Technology (Australia)
- University of New South Wales (Australia)
- University of Calgary (Canada)
- University of New Brunswick (Canada)
- Ghent University (Belgium)
- Tampere University of Technology (Finland)
- Technical University of Munich (Germany)
- Technical University of Darmstadt (Germany)
- Polytechnic University of Milan (Italy)
- University of Twente (The Netherlands)
- KTH Royal Institute of Technology (Sweden)
- Linköping University (Sweden)
- University of Leeds (UK)
- Tongji University (PR China)
- Wuhan University (PR China)
- National Taipei University (Taiwan)
- National Cheng Kung University (Taiwan)
- University of Malaya (Malaysia)





DEPARTMENT OF
LAND SURVEYING AND GEO-INFORMATICS
土地測量及地理資訊學系

DEPARTMENT OF LAND SURVEYING & GEO-INFORMATICS
FACULTY OF CONSTRUCTION AND ENVIRONMENT
THE HONG KONG POLYTECHNIC UNIVERSITY

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