

10 September 2026

PolyU LSGS STEAM Talk Series for Secondary School Students 2026/2027

Dear Principal / Teacher,

On behalf of the Department of Land Surveying and Geospatial Science (LSGS), The Hong Kong Polytechnic University (PolyU), I am delighted to invite you to join the STEAM Talk Series 2026/2027. Similar to the previous years, we aim to introduce the applications of land surveying and geospatial technologies in daily life, as well as their future development.

We are the leading and most widely recognised department in Hong Kong that offers a range of programmes (including BSc, MSc and PhD) in the field of geomatics. Our curriculum covers various disciplines such as Land Surveying, Global Positioning System (GPS), Beidou Navigation Satellite System, Geographic Information Science (GIS), Satellite Remote Sensing, Underground Utilities Imaging and Diagnosis, and more.

Due to the high demand for geomatics engineers in the market, our graduates have achieved a 100% employment rate in 2025. Around 70% of our graduates have secured positions in various HKSAR government departments, including the Lands Department, Planning Department and Highways Department, and private sector in engineering, architectural, technical services. Our programmes welcome students from all backgrounds, particularly those with a foundation in *Geography, Mathematics, Physics or Computer Science*.

STEAM Talk Topics by PolyU LSGS:

1. Smart City and 3D Mapping in HK 智慧城市及三維地圖的應用
2. Global Navigation Satellite System (GNSS) and Smart City Applications 全球導航衛星系統與智慧城市應用
3. Unfolding HK Lost WWII Heritage with Geospatial Science 尋找隱世二戰遺跡：地理空間科學篇
4. Problem Solving by Digital Maps and Geographic Information System (GIS) 以數字地圖和地理訊息系統解難
5. Seeing and Unseen Underground Utilities in 3D 三維地下管線測量
6. Observing and Measuring the Earth from Space 從太空觀測地球
7. IoT and Remote Sensing for Tree Monitoring 如何利用 IoT 及遙感技術監測城市樹木
8. Millimetres That Matter: Keeping Cities Safe from Space 關鍵毫米：從太空守護城市安全
9. Mapping Our Future: How Geospatial Science Fights Climate Change 測繪未來：地理空間科學如何應對氣候變化
10. From Spatial Data to Intelligent Transportation System 從空間數據到智慧交通

Date: October 2026 to July 2027 (*exact date to be suggested by school*)

Target Audience: S.2 – S.6 Students (*both Art and Science students are welcome*)

Medium of Language: Cantonese or English

Venue: Your Secondary School or PolyU Campus (a lab tour to be arranged at PolyU)

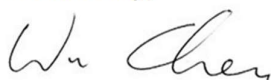
Speaker: Academic Staff from the Department of LSGS

Registration Form



Please register for the talk by filling out the [online form](https://polyu.hk/lmzpj) (<https://polyu.hk/lmzpj>). We will follow up with you for further arrangements. For more information, please visit our [website](#). If you have any questions, please feel free to contact Ms. April SO at 2766 4350 or april.so@polyu.edu.hk. We look forward to hearing from you.

Yours faithfully,



Prof. Wu CHEN
Head of Department
Department of Land Surveying and Geospatial Science
The Hong Kong Polytechnic University

6/F South Tower Block Z
The Hong Kong Polytechnic University
Hung Hom Kowloon Hong Kong
香港九龍紅磡香港理工大學Z座南6樓
T (852) 2766 5968 F (852) 2330 2994 E lsdept@polyu.edu.hk
www.polyu.edu.hk/lsgs

LSGS STEAM Talk Series For Secondary School Students 2026/2027



Descriptions for the STEAM TALK Topics:

1. Smart City and 3D Mapping in 1HK

智慧城市及三維地圖的應用

What is a map? Traditionally, maps were paper representations with schematics, annotations, and legends. Today, maps have evolved to 3D space and even 4D (space and time) representations, especially in the context of smart cities and geospatial technologies. This talk will introduce geospatial technologies like total stations, laser scanning, photogrammetry, remote sensing, geophysics, hydrography, and geographic information systems. Let's explore the development and impact of these technologies, revealing their transformative role in the world of mapping.



2. Global Navigation Satellite System (GNSS) and Smart City Applications

全球導航衛星系統與智慧城市應用



GPS is well-known for positioning and navigation, such as vehicle navigation and positioning for hiking. Together with the Russian GLONASS, European Galileo and the Chinese BeiDou, they are called the Global Navigation Satellite System (GNSS). This talk will briefly introduce the background and concepts of GNSS and smart cities. The state-of-the-art and potential contributions of GNSS to smart-city development are described. The presentation will be interactive, engaging with students in STEM/scientific thinking.

3. Unfolding HK Lost WWII Heritage with Geospatial Science

尋找隱世二戰遺跡：地理空間科學篇

How much do we know about the ruins of war and the numerous stories that are hidden in the forests and buried beneath the ground in our Hong Kong countryside? To unfold the long-lost heritages in the Battle of Hong Kong during WWII, LSGI utilizes innovative geospatial and geophysical technologies for imaging the buried war heritage in Hong Kong which is then displayed in a 3D VR/AR CAVE for an immersive WWII heritage experience. It is supported by a two-year [Innovation Technology Fund project](#) (2023-2024) by the HKSAR government. ([Video promo](#))



4. Problem Solving by Digital Maps and Geographic Information System (GIS)

以數字地圖和地理訊息系統解難

Let's explore the power of spatial data in identifying and analyzing recreation sites! This talk will introduce a wide range of spatial data sources, including environmental, transportation, land use, and recreation data. Participants will learn how to access, evaluate and integrate this data into Geographic Information System (GIS) software for mapping, analysis, and decision-making. For instance, we will examine the popular BBQ locations, site amenities, and user reviews, showcasing some basic data analyzing skills and introducing open-source spatial data to enhance outdoor recreation experiences for participants.

LSGS STEAM Talk Series For Secondary School Students 2026/2027



5. Seeing and Unseen Underground Utilities in 3D

三維地下管線測量

How much do we know about the underground world? The invisible city's vessels supply us with clean water, electricity, gas, and telecommunication, helping our city not flooded during heavy rainstorm, conveying our toilet water to treatment. This talk will unfold some mysteries by geo-spatial and geophysical technologies, including laser scanning, electromagnetics, ground penetrating radar, acoustic and infrared thermography. After the talk, participants are able to explain how underground utilities are important to our city and have basic understanding on the technologies for monitoring underground utilities.

6. Observing and Measuring the Earth from Space

從太空觀測地球

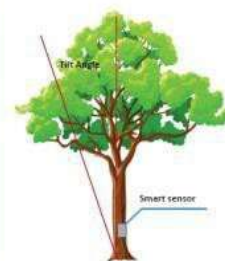


The Earth is a deformable body. Land uses and cities change/develop rapidly. What are the most accurate methods to measure the dynamic Earth? What are the most efficient methods with reasonable accuracy to measure the dynamic Earth? This talk will describe a variety of space-based technologies for Earth observations. The technologies include the Global Navigation Satellite System (GNSS), Remote Sensing, Synthetic Aperture Radar (SAR), and Earth Observation satellite missions. The presentation will be interactive, engaging with students in STEM/scientific thinking.

7. IoT and Remote Sensing for Tree Monitoring

如何利用 IoT 及遙感技術監測城市樹木

To help trees thrive in urban areas for a longer time, it's important to have an effective system for managing green spaces in our city. In this session, we will introduce the [Smart City Tree Management Project](#), which utilizes technologies such as Smart Sensing Technology (SST), Internet of Things (IoT), Geographic Information System (GIS), and remote sensing to monitor the health of trees in real-time. A system has been developed for the safety inspection of trees in various locations, utilizing big data analysis to predict leaning trends. This project, supported by The Hong Kong Jockey Club



Charities Trust and led by PolyU, aims to contribute to the development of a smart city. The related technologies and research findings have been shared with various HKSAR Bureaus and Departments. This talk will explain how these advanced technologies can facilitate tree monitoring, thereby enhancing conservation efforts and ensuring the safety of human lives in our city.

LSGS STEAM Talk Series

For Secondary School Students 2026/2027



8. Millimetres That Matter: Keeping Cities Safe from Space

關鍵毫米：從太空守護城市安全



Cities may look solid and still, but the ground beneath them is constantly changing - sometimes by only a few millimetres. Can satellites detect these tiny movements before they become serious hazards? This talk introduces Interferometric Synthetic Aperture Radar (InSAR), a powerful remote-sensing technology that compares radar images captured from space to map ground deformation. Through striking satellite images and real-world cases, students will discover how InSAR helps scientists monitor land subsidence, unstable slopes, construction impacts, and infrastructure risks. The talk connects physics, mathematics, geography, engineering, and data science to reveal how space technology can make our cities safer and more resilient.

9. Mapping Our Future: How Geospatial Science Fights Climate Change

測繪未來：地理空間科學如何應對氣候變化

Climate change is the defining challenge of your generation, but how do we actually see it, measure it, and fight it? In this talk, we will explore how geospatial science is being used to track rising sea levels, map heatwaves, monitor flooding, and plan climate-resilient cities. From satellites orbiting Earth to drones flying over Hong Kong's coastline, you will discover how maps, data, and technology are helping us understand our changing planet. You will also learn how you can become part of the next generation of problem-solvers, using STEAM skills to make a real difference.



10. From Spatial Data to Intelligent Transportation System

從空間數據到智慧交通

Have you ever wondered how Google Maps knows where traffic is backed up, or how a self-driving car figures out where to go? The answer starts with spatial data — information about where things are. Every time your phone logs your location, a traffic camera records a car, or a satellite snaps a photo of a city, that's spatial data being collected.



In this talk, we'll explore how all that location data gets turned into something useful, like predicting and easing traffic jams, helping buses and trains run on time, guiding self-driving cars safely, and designing smarter, safer cities. We'll also look at the challenges, such as keeping your data private and handling millions of data points every second. By the end, you'll understand how the data around you is quietly shaping the way the world moves, and inspire you to help build the transportation systems of tomorrow.

FOLLOW US:



Instagram:
LSGS.PolyU



Facebook:
LSGS.PolyU



LinkedIn:
LSGS-PolyU



YouTube:
@PolyULSGS



WeChat:
PolyU-LSGI



小紅書:
2103611393

