

# Excel x Impact

Spring 2023

## HARNESSING EXCELLENCE TO DRIVE IMPACT

**PolyU innovations win  
record-high awards  
at Geneva inventions  
exhibition**

PolyU startup develops advanced  
spectacle lens for myopia control

PolyU establishes Research Centre  
for Chinese History and Culture

New AI and Robotics Lab to foster  
co-creation and innovation





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PolyU innovations win record-high awards at Geneva inventions exhibition

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## President's Message

As we enter the post-pandemic era, I am pleased to see The Hong Kong Polytechnic University excelling on various fronts.

PolyU triumphed at the 48th Geneva Inventions Expo by winning a record-breaking 31 accolades, including the highest number of Special/Grand Prizes among Hong Kong delegations. Our success reflects our unwavering commitment to impactful innovation.

We recently held an Appreciation Dinner to recognise the remarkable achievements of our staff in various aspects, including education, research, knowledge transfer, and services. Their dedication has driven the University's progress.

We are also proud of our students' accomplishments. We recently held the Presentation Ceremony for the Outstanding Student Award and the Presidential Student Leadership Award to honour our outstanding students, who have excelled in both academic and extra-curricular pursuits, while the STARS Residential College hosted a talent show highlighting our students' extraordinary talents.

Furthermore, we have been forging collaborations with partners locally, in the Mainland, and overseas. One example is our partnership with Hai Robotics, a successful unicorn company founded by two PolyU graduates, in the operation of a new state-of-the-art AI and Robotics Lab at our Industrial Centre. With society's return to normalcy, we anticipate more opportunities to collaborate with partners worldwide.

Moving forward, we will continue to embrace the spirit of innovation and collaboration to pursue excellence and make meaningful contributions to society.

Jin-Guang Teng  
President



# HARNESSING EXCELLENCE TO DRIVE IMPACT

## PolyU innovations win record-high awards at Geneva inventions exhibition



■ PolyU teams snatched three prestigious Grand and Special Prizes. Prof. Sun Dong, Secretary for Innovation, Technology and Industry (first from right), joined the award-winning inventors including (from left) Prof. Yung Kai-leung, Chair Professor of PolyU's Department of Industrial and Systems Engineering; Prof. Alisa Shum Sau-wun, Associate Professor of School of Biomedical Sciences, Faculty of Medicine, The Chinese University of Hong Kong; Dr Leo Lee Man-yuen, Research Assistant Professor; and Prof. Thomas Leung Yun-chung, Professor of PolyU's Department of Applied Biology and Chemical Technology; and Prof. Benny Cheung Chi-fai, Chair Professor of PolyU's Department of Industrial and Systems Engineering.

PolyU teams won a record 31 awards at the 48th International Exhibition of Inventions Geneva for impactful innovations developed by the PolyU community. The prizes reflect the success of the University's PolyImpact initiative, which seeks to harness its research and knowledge transfer excellence to develop innovations and inventions with real-world impact for the benefit of society.

Awards bestowed on PolyU teams included three Grand Prizes and Special Prizes, five Gold Medals with Congratulations of the Jury, 12 Gold Medals, five Silver Medals and six Bronze Medals. Prize winning inventions ranged from a spectacle lens to control myopia, to a drug to treat obesity and insulin resistance, to a camera that was used in China's Mars mission.

This year's awards were not only the most ever received by PolyU teams at the prestigious event, but the University also took home the highest number of Grand and Special Prizes among Hong Kong delegations. Congratulations to all our award winners.



### 48th International Exhibition of Inventions Geneva

#### Awards won by PolyU teams:

**Grand Prizes and Special Prizes**



**x 3**

**Gold Medals with  
Congratulations of the Jury**



**x 5**



**x 12**

**Gold Medals**



**x 5**

**Silver Medals**



**x 6**

**Bronze Medals**

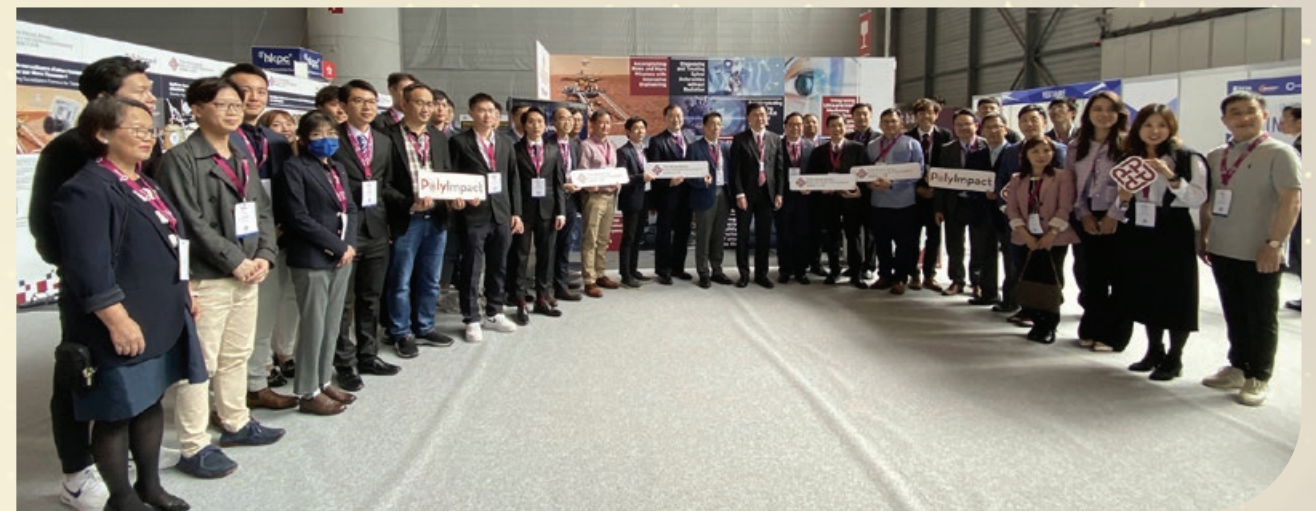
**Total Awards**



**x 31**



■ PolyU's innovations garnered record-high prizes at the 48th International Exhibition of Inventions Geneva, alongside the achievements of other Hong Kong delegations, cementing Hong Kong's reputation as a key innovation and technology hub.



■ Prof. Sun visited PolyU's pavilion at the Exhibition to learn about PolyU's innovations.

### Prize of the State of Geneva & Gold Medal with Congratulations of the Jury

#### Novel high efficacy nano multi-ring defocus incorporated spectacle lens for myopia control

##### Principal Investigators:

##### Professor Benny Cheung Chi-fai

(third from left)

Chair Professor of Ultra-precision Machining and Metrology, Department of Industrial and Systems Engineering; Director of State Key Laboratory of Ultra-precision Machining Technology (The Hong Kong Polytechnic University)

##### Professor To Chi-ho

Visiting Chair Professor of Experimental Optometry, School of Optometry; Co-founder, Vision Science & Technology Co Ltd (a PolyU academic-led start-up)

##### Mr Jackson Leung Tze-man

(second from left)

Co-founder, Vision Science & Technology Co Ltd (a PolyU academic-led start-up)



■ The high efficacy myopia control spectacle lens won the Prize of the State of Geneva and a Gold Medal with Congratulations of the Jury.

Please see pages 27 – 28 to learn more about this novel innovation.



## The International Federation of Inventors' Associations (IFIA) Best Invention Award & Gold Medal with Congratulations of the Jury

### ABarginase: first-in-class drug for the treatment of multiple obesity-related metabolic diseases

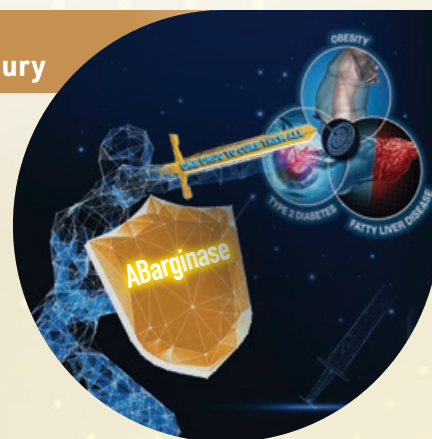
#### Principal Investigators:

**Professor Thomas Leung Yun-chung** (first from left)  
Lo Ka Chung Charitable Foundation Professor in Pharmaceutical Sciences;  
Professor, Department of Applied Biology and Chemical Technology

**Professor Alisa Shum Sau-wun** (second from right)  
Associate Professor, School of Biomedical Sciences, Faculty of Medicine,  
The Chinese University of Hong Kong

ABarginase is the world's first therapy that safely and effectively treats multiple metabolic diseases related to obesity and insulin resistance, including prediabetes, type 2 diabetes and non-alcoholic fatty liver disease. It does this through arginine starvation. The drug's long circulating half-life and strong enzymatic activity starves the semi-essential amino acid arginine by maintaining it in circulation at low levels. The therapy is based on the research team's breakthrough discovery that arginine starvation suppresses fat synthesis, promotes fat breakdown and sensitises cells to insulin.

■ The long-acting anti-obesity and insulin-sensitising drug won the International Federation of Inventors' Associations (IFIA) Best Invention Award and a Gold Medal with Congratulations of the Jury.



■ ABarginase was engineered using an advanced fusion protein strategy that enables an inexpensive and highly efficient fabrication process, making it affordable and widely adoptable for clinical applications.



## Gold Medal with Congratulations of the Jury

### AI-assisted design of functional clothing for scoliosis treatment

#### Principal Investigator:

**Dr Joanne Yip Yiu-wan**

Associate Professor and Associate Dean, School of Fashion and Textiles;  
Founder, Active Biotechnology (Hong Kong) Company Limited (a PolyU academic-led start-up)

This innovation harnesses artificial intelligence to create tailor-made functional clothing to treat adolescent idiopathic scoliosis (AIS). The approach significantly improves scoliosis treatment and the quality of life for patients with AIS. Patient data is used to train a decision tree and three neural networks to prescribe and configure the brace, which is then customised by professionals. The design is optimised through adding padding, modifying the tightness of elastic straps and using configurable 3D structures to enhance functionality, increase comfort, and reduce the curvature of the spine in the wearer. It offers a superior alternative to the heavy and uncomfortable traditional braces prescribed by orthotists.

■ The AI-assisted design of functional clothing for scoliosis treatment won a Gold Medal with Congratulations of the Jury.



■ The new approach offers a promising solution for improving the treatment of scoliosis and enhancing the quality of life for adolescent idiopathic scoliosis (AIS) patients.



## Prize of the Technical University of Cluj-Napoca Romania & Gold Medal with Congratulations of the Jury

### Mars landing surveillance camera for Tianwen-1 Mars soft landing mission

#### Principal Investigator:

**Professor Yung Kai-leung** (centre)

Sir Sze-yuen Chung Professor in Precision Engineering; Director of Research Centre for Deep Space Explorations; Chair Professor of Precision Engineering and Associate Head, Department of Industrial and Systems Engineering

Tianwen-1 was the Nation's first mission to Mars. The Mars landing surveillance camera was onboard the Tianwen-1 lander in 2021 and monitored the landing status and the deployment of the Mars rover. The camera is designed for the harsh Martian environment. It can withstand a wide temperature range, and is shock resistant up to 6,200g, that is, 6,200 times the force of Earth's gravity. It also has low distortion, and an ultra-wide 170-degree diagonal field of view.

Weighing only 390g, the camera has a flexible shock metallic radiation protection. The key technology developed for the camera has been transferred to products for use on Earth, including surgery robotics and robotic devices for the in-line inspection of water mains.

■ The lightweight surveillance camera for the Tianwen-1 Mars mission won the Prize of the Technical University of Cluj-Napoca Romania and a Gold Medal with Congratulations of the Jury.



■ The camera, which can withstand a wide temperature range and 6,200g of shock, has low distortion and an ultra-wide 170-degree diagonal field of view, making it suitable for use in the harsh environment of Mars.



## Gold Medal with Congratulations of the Jury

### MicroGlue: microbial-derived technology to remove microplastic pollutants

#### Principal Investigators:

**Dr Chua Song-lin** (left)

Assistant Professor, Department of Applied Biology and Chemical Technology

**Dr Liu Yang** (right)

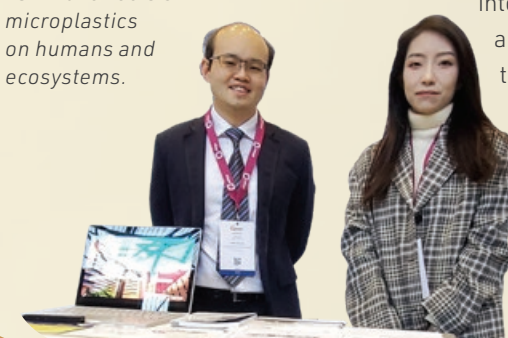
GBA Startup Postdoctoral Fellow, Department of Applied Biology and Chemical Technology

This microbial biotechnology offers a safe, low-cost and efficient way to remove microplastics from water, using biodegradable microbial-derived polymers to aggregate microplastic contaminants into clumps that can then be easily separated and removed from the environment. The technology can be integrated into the final purification stage of wastewater treatment or used as a stand-alone solution for polluted sea water or fresh water. It is scalable, simple to install into existing processes, and has low operating costs, making it a convenient way to retrieve microplastics for resource recovery and plastic recycling, and mitigate the harmful effects of microplastics on humans and ecosystems.

■ The MicroGlue: microbial-derived technology to remove microplastic pollutants won a Gold Medal with Congratulations of the Jury.



■ MicroGlue supports the UN's Sustainable Development Goals targeting Life Below Water, and Clean Water and Sanitation. By reducing the release of microplastics into the environment, it helps limit the harmful effects of microplastics on humans and ecosystems.





## Gold Medal

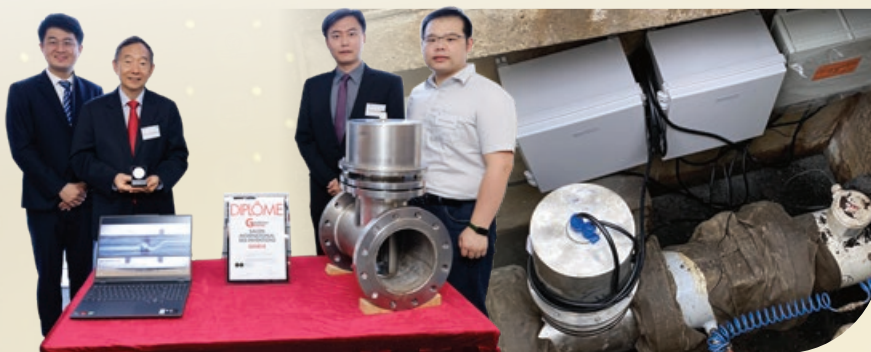
**A novel wireless self-adaptive hydropower harvesting system for applications in urban water supply pipelines**

**Principal Investigator:**

**Professor Yang Hongxing**

(second from left)

Professor, Department of Building Environment and Energy Engineering



■ The self-adaptive hydropower harvesting system addresses the challenge created by the limited capacity and service life of chemical batteries used in the Water Intelligent Network (WIN) through generating electric power from water pipelines to supply the WIN, while limiting water head loss.

## Gold Medal



■ The platform uses novel patented spatiotemporal epidemic prediction models, automatic data collection/prediction engines to make real-time predictions about the spread of emerging pathogens with high accuracy and fine spatial resolution. Since 2020, it has successfully tracked different SARS-CoV-2 variants and supported COVID-19 control measures around the world.

**Advanced real-time prediction and early warning system for the spread of emerging pathogens**

**Principal Investigator:**

**Professor John Shi Wenzhong**

Otto Poon Charitable Foundation

Professor in Urban Informatics; Chair Professor of GISci and Remote Sensing, Department of Land Surveying and Geo-Informatics; Director of PolyU-Shenzhen Technology and Innovation Research Institute (Futian); Director of Otto Poon Charitable Foundation Smart Cities Research Institute; Co-founder, Smart Space Technologies Limited (a PolyU academic-led start-up)

## Gold Medal

**A sport-specific soft manikin system for sports bra design**

**Principal Investigator:**

**Dr Yick Kit-lun** (left)

Associate Professor, School of Fashion and Textiles



■ The soft manikin system offers scientific guidelines and a complete solution for designing effective sports bras, using simulated breast tissue and running motions to measure the performance and pressure of sports bras in a scientific, objective, and reliable way.

## Gold Medal

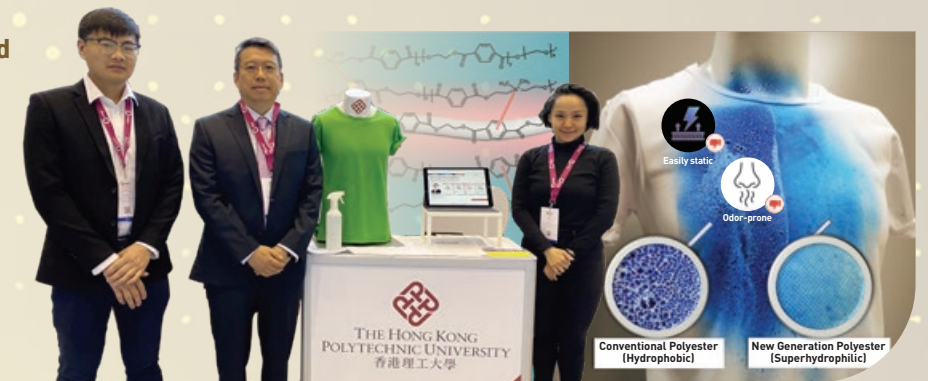
**Revolutionary mussel-inspired polyester for next generation sportswear and functional clothing**

**Principal Investigator:**

**Professor John Xin Haozhong**

(second from left)

Lee Family Professor in Fashion and Textiles; Chair Professor of Textile Chemistry, School of Fashion and Textiles



■ The invention makes polyester clothing more comfortable and gives it anti-bacterial properties by adding a special polymer that forms a strong long-lasting bond with the polyester. It was inspired by the way marine mussels stick to rocks.

## Gold Medal



■ The innovation involves using novel proprietary technologies to create highly-efficient, eco-friendly antimicrobial polyhydroxyalkanoate oligomers (PHAOs). The PHAO materials are ideal for medical applications, as they are fully biodegradable, transparent, non-toxic and non-allergic. With wide-spectrum antimicrobial properties, they can eliminate more than 99.99% of *S. Aureus*, *K. pneumoniae*, *C. albicans*, Methicillin-resistant *S. aureus*, as well as COVID-19, H1N1 and H3N2 viruses.

**Safe and eco-friendly antimicrobial materials with high efficiency**

**Principal Investigators:**

**Professor Tao Xiaoming** (second from left)

Vincent and Lily Woo Professor in Textiles Technology; Chair Professor of Textile Technology, School of Fashion and Textiles; Director of Research Centre for Smart Wearable Technology  
**Dr Zhang Ziheng** (second from right)  
Postdoctoral Fellow, School of Fashion and Textiles; CEO, Ecolar Technology Limited (a PolyU academic-led start-up)

## Gold Medal

**Advanced intelligent system for radiation-free scoliosis and posture evaluation**

**Principal Investigators:**

**Mr Jackal Xu Zhenda** (left)

PhD student, Department of Computing; Founder, Zero Dynamic Medical Technology Company Limited (a PolyU academic-led start-up)

**Professor Guo Song**

Professor, Department of Computing; Chief Scientist, Zero Dynamic Medical Technology Company Limited (a PolyU academic-led start-up)



■ The innovative edge intelligence system provides a radiation-free, non-contact and cost-effective way to screen, diagnose, monitor, and provide real-time treatment feedback for common spinal deformities in teenagers.



## Gold Medal

## Novel AI automated histological system for carcinoma detection

## Principal Investigator:

**Dr Martin Yeung Ho-yin** (right)  
Research Assistant Professor,  
Department of Health Technology  
and Informatics; Co-founder,  
Anatomic Technologies Limited  
(a PolyU academic-led start-up)



■ The cost and time-effective AI solution enables more efficient and accurate cancer diagnosis by predicting and prioritising carcinoma cases for histopathological analysis without requiring pixel-level annotation.

## Gold Medal



## A portable non-invasive and ultrasensitive saliva glucose sensor

## Principal Investigator:

**Professor Yan Feng** (second from left)  
Chair Professor of Organic  
Electronics, Department of Applied  
Physics; Associate Director of  
Research Institute for Intelligent  
Wearable Systems

■ This new type of ultra-sensitive glucose sensor is portable, cost-effective, and non-invasive. Based on a flexible organic electrochemical transistor, it detects real-time saliva glucose levels using a portable meter and a smartphone, making it possible to calculate corresponding blood glucose levels.

## Gold Medal

## Gold-LAMP: A portable ultra-fast nucleic acid testing system

## Principal Investigators:

## Professor Yip Shea-ping

(second from right)  
Chair Professor and Head,  
Department of Health Technology  
and Informatics; Co-founder, Pocnat  
Limited (a PolyU academic-led start-up)

## Dr Thomas Lee Ming-hung

(second from left)  
Associate Professor and Associate Head  
(Academic), Department of Biomedical  
Engineering; Co-founder, Pocnat Limited  
(a PolyU academic-led start-up)



■ Gold nanoparticle-based loop-mediated isothermal amplification (Gold-LAMP) technology offers a portable, fast, low cost, and highly accurate nucleic acid testing method that is convenient and efficient, especially in on-site and decentralised settings. Clinical validation conducted for on-site COVID-19 testing in a hospital's accident and emergency department achieved 98.4% sensitivity and 100% specificity with a total assay time of 25 to 45 minutes.

## Gold Medal

## High-throughput microfluidic platform for CTCs detection in cancer precision diagnostics

## Principal Investigator:

**Professor Yang Mo** (left)  
Professor and Associate Head  
(Research), Department of Biomedical  
Engineering



■ Detecting tumours early through analysing circulating tumour cells (CTCs) in the bloodstream is difficult due to the small proportion of these cells in the blood. The portable and non-invasive nanosensor-integrated digital microfluidic flow cytometry (Nano-DMFC) platform addresses this challenge by isolating CTCs from clinical samples within ten minutes, offering a CTC purity of greater than 95%.

## Gold Medal



## Long-lasting self-disinfecting materials technology

## Principal Investigators:

## Dr Chris Lo Kwan-yu (left)

Associate Professor, School of Fashion  
and Textiles; Co-founder, Immune  
Materials Limited (a PolyU academic-  
led start-up)

## Professor Kan Chi-wai (right)

Professor, School of Fashion and Textiles;  
Co-founder, Immune Materials Limited  
(a PolyU academic-led start-up)

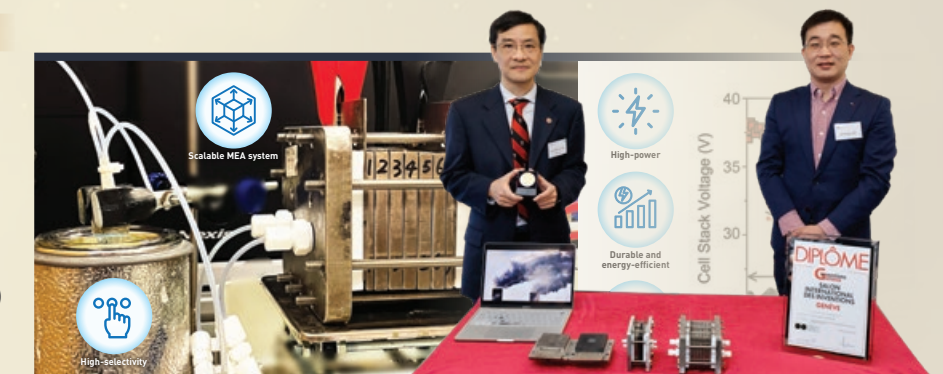
■ The world's first antiviral 3D printing technology developed by Immune Materials Limited is used to create products that can eliminate 70% of the pathogens on their surface within two minutes and 99.2% within 20 minutes. It is highly effective in preventing the spread of pathogens, e.g. E. coli and human coronavirus.

## Gold Medal

Durable, high-selectivity and energy efficient CO<sub>2</sub> electroreduction system

## Principal Investigator:

**Professor Daniel Lau Shu-ping** (left)  
Chair Professor of Nanomaterials and  
Head, Department of Applied Physics;  
Director of University Research Facility  
in Materials Characterization and  
Device Fabrication; Associate Director  
of Photonics Research Institute



■ This durable, energy-efficient CO<sub>2</sub> electroreduction system offers a promising solution for reducing CO<sub>2</sub> emissions. It comprises a sandwich-structured membrane-electrode-assembly with a combined anion- and proton-exchange membrane separating the cathode and anode. The system converts CO<sub>2</sub> to C<sub>2</sub>H<sub>4</sub> with a high selectivity of up to 50% Faradaic efficiency and remains stable for more than 1,000 hours.

## Driving positive change

These innovations by the PolyU community embody the University's motto: "To learn and to apply, for the benefit of mankind." As society faces an array of complex challenges, PolyU will continue to focus on nurturing future-ready talents and empowering visionary academics and researchers to uncover knowledge and transform research excellence into impactful innovations that benefit Hong Kong, the Nation and the world.

Scan the QR code  
to learn more  
about the full list  
of winners and  
awarded projects.







We proactively search and connect with world-class universities around the globe through academic collaborations and student exchange programmes.



# STRENGTHENING POLYU'S GLOBAL CONNECTIONS

**A conversation with Associate Vice President  
(Global Partnerships) Professor Geoffrey Shen**

Professor Geoffrey Shen has been a part of PolyU for 28 years and has achieved remarkable success in construction management and value management research, leading to his promotion to Chair Professor of Construction Management in 2008. He was appointed Director of Global Engagement in 2021 and Associate Vice President (Global Partnerships) in 2022. He is leading PolyU's efforts to build closer partnerships and networks worldwide, attracting the best students to study at PolyU, and preparing students to succeed and thrive in the global environment.

**PolyU has been ranked sixth in the Times Higher Education "World's Most International Universities 2023" list. What are the factors contributing to this recognition?**

This recognition reflects our longstanding commitment to internationalisation, which has been a key focus of PolyU for many years. We have established strong partnerships with more than 280 leading universities and institutions spanning 40 countries and regions for student exchange. Our emphasis on global engagement, along with our world-class research and teaching, has helped us attract talented students and faculty members from more than 70 countries and regions around

the globe to study and work at PolyU, furthering academic exchanges and research collaborations.

**What distinguishes PolyU from other universities around the world?**

PolyU is an innovative world-class university with a unique blend of academic excellence, professional relevance, a global outlook, and a dedication to strong societal impact. We have more than 200 scholars who are ranked among the world's top 2% most-cited scientists in an index compiled by Stanford University. We are also highly ranked in a number of disciplines, such as hospitality and leisure management, architecture and built environment, and art and design. All of them are among the top 20 worldwide, according to the QS World University Rankings by Subject 2023.

**What are PolyU's strategies and initiatives for building global partnerships and networks?**

We proactively search and connect with world-class universities around the globe through academic collaborations and student exchange programmes. We also actively participate in global conferences on international education to maintain good relationships with existing partners and establish dialogues with potential partners to create more exchange opportunities for our students.

**As Chair Professor of Construction Management, you have a keen interest in sustainable construction and are an expert in value management. You have led a large number of research projects. Can you share your recent projects and research expertise with us?**

I have participated in several large research projects funded by the Research Grants Council, the Innovation and Technology Commission in Hong Kong, the Ministry of Science and Technology in China, and other external funding bodies such as the Qianhai Authority in Shenzhen. I also feel very proud that I led the submission of a research proposal under the Theme-based Research Scheme of the Research Grants Council this year to tackle grand challenge problems in the assembly process of modular integrated construction. It has been shortlisted for the selection interview in June.



■ Prof. Geoffrey Shen (second from right) visited universities in Europe recently, with a view to further expanding the University's network of partnerships with tertiary and research institutions worldwide.

As a certified Value Management Facilitator (List A), I have professionally designed and facilitated a large number of value management and related workshops for various large and complex construction projects. I have also received the Presidential Citation Award from SAVE International (the premier international society in advancing and promoting the Value Methodology) for my "energetic and engaging effort to enhance value research and education".

**You completed your undergraduate studies at Tsinghua University in China and pursued your PhD studies in the UK. How did these experiences help shape your global outlook?**

As an undergraduate student at Tsinghua University, I was privileged to attend lectures and seminars by famous professors locally and internationally. In addition, I was honoured and grateful to receive a scholarship in 1988 to pursue my PhD in the UK, which enabled me to gain significant exposure to different cultures and develop my global outlook.

**What advice would you give to young people?**

We hope our students will make the most of their opportunities at PolyU, realising their aspirations and full potential to develop themselves into future leaders who positively contribute to society.

**Do you have a motto that you live by?**

Be humble and be grateful.

**What are your hobbies?**

I like all sorts of sports, such as table tennis, hiking, and swimming. I was also a sports team member representing Tsinghua University in many competitions when I was a student. I also like to listen to classical music and sing songs when I have time.



## PolyU and Shenzhen Institute of Advanced Technology collaborate to nurture PhD students and postdoctoral fellows



■ In a hybrid signing ceremony, the collaborative agreement and MoU were signed by Prof. Christopher Chao, PolyU's Vice President (Research and Innovation) (left photo, centre); Prof. Cao Jiannong, Dean of Graduate School (left photo, right); and Prof. Wei Zhao, Deputy Director of the Preparatory Office and Chair of the Academic Council of SIAT (right photo, centre). Prof. Christina Wong, Director of Research and Innovation at PolyU (left photo, left) and Mr Chuangzhi Wu, Vice President of SIAT (right photo, second left), as well as other SIAT representatives witnessed the signing.

PolyU and the Shenzhen Institute of Advanced Technology (SIAT) of the Chinese Academy of Sciences have signed an agreement to offer a Collaborative PhD Training Programme. They also signed a Memorandum of Understanding (MoU) to establish a Collaborative Postdoctoral Training Programme.

Under the Collaborative PhD Training Programme, dual programmes for PhD students will be set up,

enabling them to obtain a doctoral degree from PolyU and a certificate of completion from the partner institution, upon completion of the necessary programmes and graduation requirements of both institutions. In addition, the other agreement establishes a new postdoctoral training model between Mainland China and Hong Kong to maximise higher education resources to nurture young talents.

## PolyU and EdUHK to establish Hong Kong's first Research Centre for Immersive Learning and Metaverse in Education



The metaverse opens up new horizons to educators to deliver impactful immersive experiences to learners.

Scholars from PolyU and The Education University of Hong Kong (EdUHK) have joined forces to explore the possibilities. In February, the two universities signed a Memorandum of Understanding to establish the Centre for Immersive Learning and Metaverse in Education. The Centre will focus on how immersive experiences, including those from virtual reality and the metaverse in general, can enhance students' cognitive processing, attention, memory, brain function and ultimately learning outcomes.

Under the agreement, the two universities will:

- conduct both basic and applied research in immersive technologies and the metaverse
- develop practical guidelines to shape the educational values of these technologies for students
- promote immersive learning among teachers and educators through regular workshops, seminars and conferences.

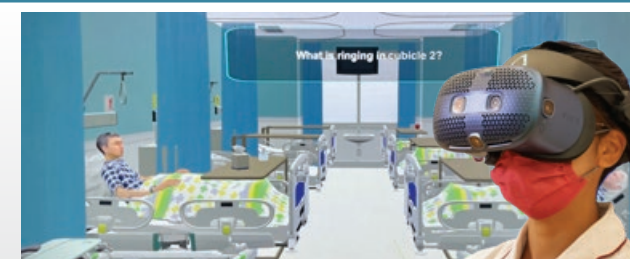
## PolyU innovations win two prestigious education awards

PolyU strives to enhance students' learning experiences through educational innovations. The University's efforts were recognised at the Quacquarelli Symonds (QS) Reimagine Education Awards 2022, where PolyU received both a Gold and a Silver award. Furthermore, PolyU was the sole institution in Hong Kong to be honoured with two awards, in a global contest that had over 1,200 applicants.

Known as the Oscars in the education sector, the Reimagine Education Awards are co-organised by QS and the Wharton School of the University of Pennsylvania. They reward higher education institutions that have created and implemented outstanding new approaches to teaching and learning.

### PolyU's winning projects are:

#### Virtual Hospital: An Immersive Virtual Reality System for Nursing Education Regional Award – Asia (Gold Award)



Virtual Hospital is a first-of-its-kind virtual learning system in Hong Kong that simulates the complex and chaotic environment of a real-life hospital ward.

The system provides more than 1,200 combinations of randomised situations and multiple choices, in which students are required to provide instant responses to numerous tasks and make appropriate nursing decisions.

Student users have been impressed by the fidelity of the Virtual Hospital in terms of the environmental details and emotional demands. The immersive VR experience strengthened their confidence in clinical practice.



Read more



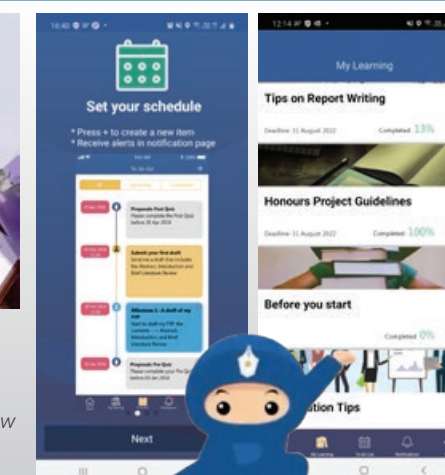
■ The project team comprises academics from the School of Nursing including Dr Kitty Chan, Senior Teaching Fellow (centre); Dr Justina Liu, Associate Professor (second from left); Dr Kin Cheung, Associate Professor (first from left); Mr Timothy Lai, Senior Clinical Associate (first from right) and Dr Patrick Kor, Assistant Professor (second from right).

#### Capstone Ninja: A Breakthrough Education App

International Category Award – Breakthrough Technology Innovation in Education (Silver Award)



■ The project team is formed by Dr Julia Chen, Director of PolyU's Educational Development Centre (right); Dr Grace Lim, Teaching Fellow of PolyU's English Language Centre (left); and educators from CityU, HKBU and HKUST.



Capstone Ninja is an interactive mobile app enabling undergraduate students to access discipline-specific, customised learning materials in real-time, while they complete their capstone projects.

Student users reflected that they have learnt the importance of precision and conciseness in language use thanks to the app.



Read more



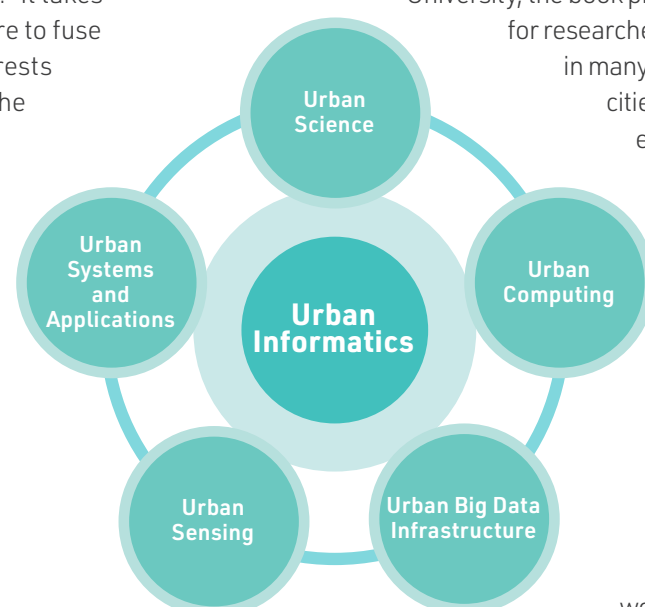
# Laying the foundation of future Smart Cities with URBAN INFORMATICS

The development of smart cities involves many sectors. However, a systematic guide to finding better compromised solutions between different sectors and stakeholders was missing. Professor Shi Wenzhong, Director of Otto Poon Charitable Foundation Smart Cities Research Institute (SCRI), Chair Professor of Geographical Information Science and Remote Sensing, and Otto Poon Charitable Foundation Professor in Urban Informatics, noticed this gap more than ten years ago. Together with his team in 2013, he proposed the study of urban informatics as the scientific and technological foundation for smart city development.

## Leading a new interdisciplinary field for Smart Cities

"Urban informatics is an interdisciplinary approach integrating urban science, informatics, and geo-informatics for understanding, managing, and designing the city using systematic theories and methods based on new information technologies," Professor Shi explains. "It takes computation as the core to fuse the dynamics and interests of multiple sectors in the understanding of cities and investigation of urban solutions."

Leading the development of the discipline, Professor Shi and his team proposed a theoretical framework of urban informatics comprising five dimensions:

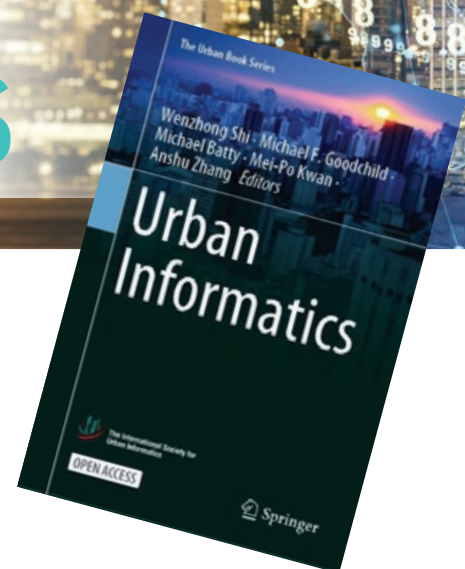


■ A theoretical framework of urban informatics

Following this framework, the PolyU team published a book titled *Urban Informatics*, which is the first to systematically introduce the principles, technologies, and smart cities applications of urban informatics. Bringing together over 140 authors from more than 40 world-leading research teams, including those from University College London (UCL) and Cambridge University, the book provides a comprehensive reference for researchers, professionals, and students in many disciplines related to smart cities, e.g., planning, geography, environment, transportation, and data science.

Since its release in April 2021, the book has attracted more than 1.32 million chapter downloads. Commented as a 'must-read book' and 'the best introduction book to the smart cities field (for planners)', *Urban Informatics* has been selected as a textbook or reference book by many universities worldwide, including MIT.

■ The book *Urban Informatics* pushes the frontiers of smart city studies.



## Leading global development of urban informatics research and education

As one of the world's pioneering universities to offer education in urban informatics, PolyU offers programmes available at the BSc, MSc and PhD levels. To further strengthen the academic development of urban informatics for smart cities, The International Society for Urban Informatics (ISUI) and international journal *Urban Informatics (UI)* were founded in 2019, with the full support of international leading scholars and Professor Shi serving as ISUI's founding President and UI's founding Editor-in-Chief. ISUI and UI have helped put the new discipline in the limelight among global academia. For example, the Webinar on Urban Informatics held by ISUI in March 2022 attracted around 200,000 participants from various live-broadcasting platforms.

Professor Shi and his team also held the International Conference on Urban Informatics (ICUI) twice in 2017 and 2019 respectively at PolyU with an overwhelming global response. The third ICUI and the Global Smart Cities Summit 2023, scheduled to take place in August 2023, are expected to attract worldwide attention to Hong Kong's world-leading position in smart cities.

SCRI aims at becoming a global centre of excellence in urban informatics and a living smart cities laboratory for Hong Kong and the GBA in order to promote smart cities development.

**Professor John Shi Wenzhong**, Director of SCRI, Chair Professor of Geographical Information Science and Remote Sensing, and Otto Poon Charitable Foundation Professor in Urban Informatics



## Establishing the Smart Cities Research Institute (SCRI)

With a generous donation from the Otto Poon Charitable Foundation, PolyU established SCRI as a constituent unit of the PolyU Academy of Interdisciplinary Research (PAIR) in 2020. SCRI aims at becoming a global centre of excellence in urban informatics and a living smart cities laboratory for Hong Kong and the Guangdong-Hong Kong-Macao Greater Bay Area in order to promote smart cities development. In response to the Hong Kong Smart City Blueprint laid down by the HKSAR Government in 2017, SCRI sets its research focus on areas including:

- High-Definition Map for Autonomous Driving
- Connected Environment for Urban Mobility
- Smart Positioning and Navigation
- Ageing Mobility Analytics
- Data Science for Smart Cities
- Smart Environment
- Smart Living
- Smart Government
- Smart Economy

SCRI has been bringing benefits to society with its research on smart cities applications. For example, based on its long-term advantage in the field of spatiotemporal big data analytics and smart cities software platform, a research team led by Professor Shi developed the extended Weighted Kernel Density Model for continuously predicting the COVID-19 symptom onset risk with an accuracy of more than 85%.

Another example of SCRI's societal contributions is a portable 3D Mobile Mapping System which can build spatial data infrastructure to provide accurate 3D maps to support smart cities applications in many fields. The System is particularly suitable for use in high-density and complex urban landscapes, such as reconstruction and maintenance of old residential buildings.

SCRI is collaborating with some of the world's top universities including the University of Cambridge and UCL, as well as major industrial players to develop innovative solutions. Its innovations have received worldwide recognition and won three Gold Medals at the 2021 and 2023 Geneva International Exhibitions of Inventions and two prizes in the 2021 Smart 50 Awards.





# DELIVERING INNOVATION for a sustainable community

PolyU had the highest number of projects among local universities to receive funding from the Research Impact Fund (RIF) 2022/23.

Five research projects led by PolyU scholars have been awarded a total of HK\$27.55 million by the RIF 2022/23. The fund, which is under the Research Grants Council (RGC), recognises impactful solutions that address societal needs in a sustainable way. The PolyU projects cover research areas ranging from medical innovation, smart buildings and construction, and green technology, to materials science and advanced

manufacturing, demonstrating the University's strengths in converting academic research into real-world applications. The RIF awards up to HK\$10 million to each successful project for a three to five-year period. A PolyU study on developing deconstruction and reuse technologies for steel and composite structures received the highest level of funding in the latest exercise at HK\$9.75 million for a five-year duration.

## PolyU-led projects receiving RIF 2022/23

**Project:** Achieving the Circular Economy in Construction through Deconstruction and Reuse Technologies for Steel and Composite Structures

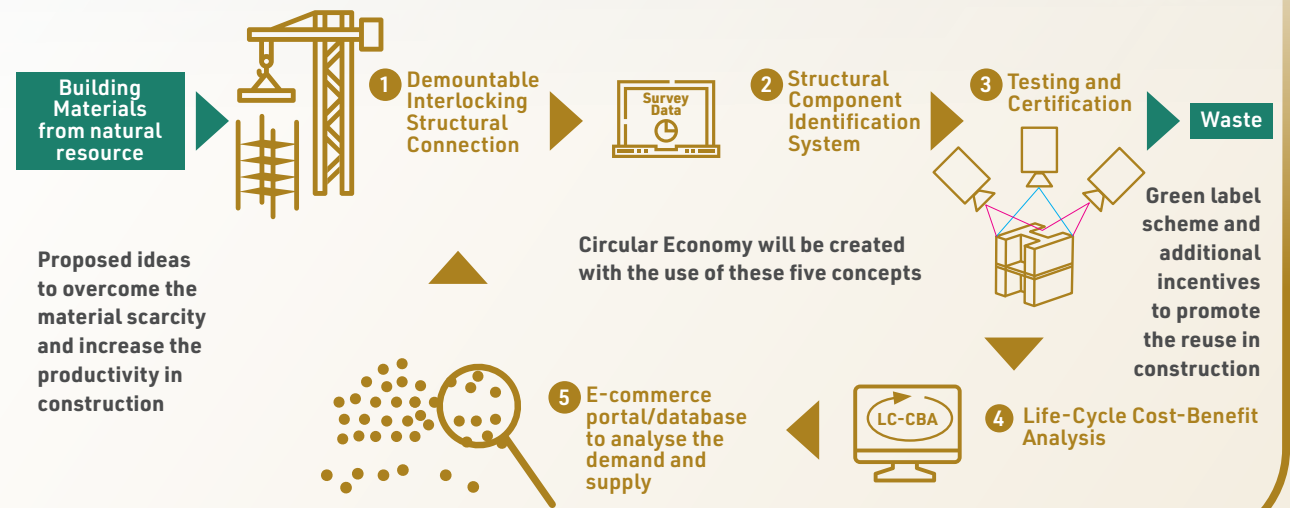
**Description:** Developing productive construction technologies through circularity design (Design for Deconstruction and Reuse) and management strategies (Digital Component Passport)

**Budget to be Funded by RGC\*:** HK\$9,750,000

**Project Coordinator:**  
**Dr Chan Tak-ming**  
Associate Professor, Department of Civil and Environmental Engineering  
(in collaboration with City University of Hong Kong and The University of Hong Kong)



### Framework idea for achieving the concept of Circular Economy in Construction



**Project:** Flexible and Stretchable Batteries for Wearable Applications

**Description:** For wearable technologies, smart electronic textiles, electronic skins, soft robotics, bioelectronics and the Internet of Things

**Budget to be Funded by RGC\*:** HK\$5,550,000

**Project Coordinator:**  
**Professor Zheng Zijian**  
Chair Professor of Soft Materials and Devices, Department of Applied Biology and Chemical Technology  
(in collaboration with City University of Hong Kong and The Chinese University of Hong Kong)



**Project:** Next Generation of In-situ Precision Three-dimensional Surface Metrology: A Smart Self-adaptive Multiscopic Approach for Industrial 4.0

**Description:** Can be embedded in different machine tools, manufacturing equipment and portable measurement devices under various manufacturing or measurement scenarios for Industry 4.0

**Budget to be Funded by RGC\*:** HK\$4,650,000

**Project Coordinator:**  
**Professor Benny Cheung Chi-fai**  
Chair Professor of Ultra-precision Machining and Metrology, Department of Industrial and Systems Engineering  
(in collaboration with The University of Hong Kong)



**Project:** A novel approach to target cancer stemness using peptidic chimeric antigen receptor (pCAR) macrophages

**Description:** New scientific knowledge for a novel therapeutic strategy against liver cancer stem cells for hepatocellular carcinoma

**Budget to be Funded by RGC\*:** HK\$4,150,000

**Project Coordinator:**  
**Professor Terence Lee Kin-wah**  
Professor, Department of Applied Biology and Chemical Technology  
(in collaboration with The University of Hong Kong)



**Project:** Industry 4.0 Smart Prefabrication Yard for Modular Construction Fitout

**Description:** Bringing benefits to housing production and supply in Hong Kong with smart prefabrication yard innovations

**Budget to be Funded by RGC\*:** HK\$3,450,000

**Project Coordinator:**  
**Professor George Q. Huang**  
Chair Professor of Smart Manufacturing, Department of Industrial and Systems Engineering  
(in collaboration with The University of Hong Kong)



\* The RGC funds 70% of the project's cost with the university/organisational partner(s) contributing the remaining 30%.

**The RIF**  
The RIF encourages academics to harness the potential of their research to deliver benefits to the wider community, spurring impactful and translational research projects. It also promotes collaboration between academia and government departments, the business sector, industry and research institutes. In total, 13 projects were supported by the RIF in the 2022/2023 exercise.



Ten PolyU-led projects awarded funding for  
**MULTI-DISCIPLINARY  
MAINLAND-HONG KONG  
COLLABORATIVE RESEARCH**

As part of an ongoing commitment to harness innovation to create a more sustainable future, ten research projects led by PolyU scholars have been awarded funding by the National Natural Science Foundation of China and the Research Grants Council (NSFC/RGC). The grants were made under the Joint Research Scheme (JRS) and the new Collaborative Research Scheme (CRS) 2022/23 Exercise.

Eight PolyU research projects have been awarded a total funding of HK\$9.4 million under the JRS, while under the CRS, two research projects led by PolyU scholars have received funding totalling HK\$7.2 million. The research projects cover topics in the fields of information technology, management science, marine and environmental science, new materials science, applied mathematics and biomedical engineering. Both schemes support research projects for a period of four years.

PolyU projects funded under NSFC/RGC Joint Research Scheme 2022/23

Research Field	Project Title	PolyU Principal Investigator	Mainland Principal Investigator/Institution
Information Technology	Enhancing Digital Asset Security Based on the Blockchain Technology	Professor Xiao Bin Department of Computing	Professor Deng Xiaotie Peking University
Management Science	Mechanism and Optimisation for Hospital Bed Sharing	Professor Ye Hengqing Department of Logistics and Maritime Studies	Professor Wan Guohua Shanghai Jiao Tong University
Marine and Environmental Science	Investigation of Rainstorm - Storm Surge Joint Occurrence Pattern and Induced Flooding Risk Assessment in Coastal Cities within the Greater Bay Area (GBA)	Dr Duan Huanfeng Department of Civil and Environmental Engineering	Professor Zheng Feifei Zhejiang University
	An Integrated System of Unmanned Aerial Vehicles and Unmanned Surface Vehicles for Smart Maritime Support in Guangdong-Hong Kong-Macao Greater Bay Area	Dr Liu Wei Department of Aeronautical and Aviation Engineering	Professor Ma Yong Wuhan University of Technology
New Materials Science	Tin-Based Metal Halide Perovskites for X-Ray Detectors	Professor Yan Feng Department of Applied Physics	Professor Yang Shihe Peking University
Others	Mathematical Modelling and Analysis on the Predator-mediated Competitions and their Biological Consequences	Professor Wang Zhian Department of Applied Mathematics	Professor Lou Yuan Shanghai Jiao Tong University
	Stochastic Multi-objective Optimisation and Applications	Professor Chen Xiaojun Department of Applied Mathematics	Professor Yang Xinmin Chongqing Normal University
	Time-sequence Regenerative Repair of Atherosclerotic Blood Vessels with Janus Cardiovascular Stents	Dr Zhao Xin Department of Biomedical Engineering	Professor Yang Zhilu Southern Medical University

PolyU projects funded under NSFC/RGC Collaborative Research Scheme 2022/23

Research Field	Project Title	PolyU Project Coordinator	Mainland Principal Investigator/Institution
Information Technology	Monolithically Integrated Electronics with Two-Dimensional Semiconductors - from Controllable Growth to Device Integration	Professor Chai Yang Department of Applied Physics	Professor Zhang Wenjing Shenzhen University
New Materials Science	Long-cycle and High-energy-density Flexible Li Batteries Using Hollow Multishelled Structure and Hierarchical Composite Electrode	Professor Zheng Zijian Department of Applied Biology and Chemical Technology	Professor Yang Mei Institute of Process Engineering, Chinese Academy of Sciences

The NSFC/RGC supported research projects were jointly proposed by Mainland China and Hong Kong researchers for their scientific merit. The CRS, which was introduced in 2022/23, aims to support larger-scale collaborative research across disciplines and/or across universities in Mainland China and Hong

Kong with a view to enhancing research output and impact. The grant for each Hong Kong applicant is limited to HK\$3.6 million. The JRS promotes collaboration between researchers in the Mainland and Hong Kong to complement each other's strengths. Funding for Hong Kong applicants is limited to HK\$1.25 million.

PolyU intelligent transport projects promote smart mobility

Two PolyU intelligent transport projects have been awarded HK\$13.8 million by the Government's Smart Traffic Fund. The projects use intelligent simulation platforms and extended reality to train drivers and enhance their skills in order to improve road safety. They are part of PolyU's innovative research in traffic and transportation to promote smart mobility in Hong Kong.

The Government launched the Smart Traffic Fund in November 2021. As of January 2023, a total of 11 projects led by PolyU researchers, out of a total of 29 projects, have been granted funding. A total of around HK\$37 million has so far been granted through the fund.



Project Title: Intelligent Driving Training and Evaluation System for Container Trucks  
Principal Investigator: Professor Fu Xiaowen  
Associate Dean (External Engagement), Faculty of Engineering, and Professor, Department of Industrial and Systems Engineering  
Approved Funding: HK\$ 12,042,800  
Summary: This project aims to use extended reality technology to develop a simulation system, which is comparable to the actual driving environment, to provide training to learner drivers of container trucks.

Project Title: Driving Style-based Adaptive Virtual Training Platform: Build Safe Human Driving Habits in Autonomous Driving  
Principal Investigator: Dr Li Fan  
Assistant Professor, Department of Aeronautical and Aviation Engineering  
Approved Funding: HK\$ 1,774,381  
Summary: This project aims to design and develop a virtual reality-based training platform to improve driving habits in level 2 and level 3 autonomous vehicles, i.e. human-machine co-driving, providing customised training for drivers with different driving styles.





## PolyU health science experts help promote mental health of different community groups

PolyU researchers are devoted to creating solutions for the betterment of society with the integration of academic, scientific, and pragmatic expertise. To enhance the psychosocial well-being of different community groups, five PolyU projects have received funding support under Phase 2 of the Government's Mental Health Initiatives Funding Scheme coordinated by the Advisory Committee on Mental Health. The projects will develop innovative social services programmes to enhance public mental health.

The five awarded projects are conducted by the Faculty of Health and Social Sciences, covering periods of 15 to 24 months. They aim at devising sustainable solutions to address the mental health issues of different people, by applying new technology such as virtual reality and electronic platforms to meet the needs of various stakeholders including caregivers, secondary school students, adolescents with special educational needs (SEN), carers of attention deficit/ hyperactivity disorder (AD/HD) children, and persons with disabilities.



**Project Title:** Reducing Social Avoidance and Enhancing Prosocial Behaviour among Adolescents with SEN

**Principal Investigator:** **Professor Sylvia Chen**  
Associate Dean, Faculty of Health and Social Sciences; Professor, Department of Applied Social Sciences

**Summary:** The project implements social anxiety interventions based on a cognitive-behavioural approach. It involves the development of a virtual coach acting as a therapist and a gamified prosocial virtual reality intervention which can foster the prosocial behaviour of adolescents with SEN.



**Project Title:** Healing Together – Building Positive School Mental Health in Post-COVID Hong Kong

**Principal Investigator:** **Dr Angel Lai**  
Assistant Professor, Department of Applied Social Sciences

**Summary:** The project adopts a train-the-trainer approach to help secondary students become mental health ambassadors, promoting the mental health awareness among students, teachers, administrative staff and management of secondary schools.



**Project Title:** Enhancing the Mental Health of Carers of Persons with Disabilities with Support Services Delivered by Trained Carer Support Ambassadors

**Principal Investigator:** **Professor Hector Tsang Wing-hong**  
Cally Kwong Mei Wan Professor in Psychosocial Health; Chair Professor of Rehabilitation Sciences and Head, Department of Rehabilitation Sciences

**Summary:** The project implements a short-term certificate programme for frontline workers to become Carer Support Ambassadors to deliver mental health support to carers.



**Project Title:** Increasing Mental Health Literacy and Peer Support among Caregivers: An Electronic Painting and Peer Supportive (EPPS) Platform

**Principal Investigator:** **Professor Angela Leung**  
Professor and Associate Head (Research), School of Nursing

**Summary:** The project develops an EPPS Platform to enhance caregivers' mental health literacy and peer support.



**Project Title:** Peer Support Virtual Reality-based Intervention for AD/HD Carers - Stress Relieving and Empathy Improving Programme

**Principal Investigator:** **Dr Harry Qin**  
Associate Professor, School of Nursing

**Summary:** The project develops a novel peer support virtual reality-based therapy for carers to reduce their stress and improve their empathy in handling children with AD/HD.

## PolyU joins Hanson Robotics in humanistic AI and robotics research

PolyU and Hanson Robotics Limited have signed a Memorandum of Understanding (MoU) to establish the Centre for Humanistic Artificial Intelligence and Robotics (CHAIr). The Centre will focus on translational research in artificial intelligence (AI) and humanistic social robots, leveraging PolyU's strengths in interdisciplinary research and Hanson Robotics'

well-known humanoid robotics platform to explore technology applications.

As an interdisciplinary research and development centre, CHAIr will facilitate cross-faculty collaboration in research fields including AI, the Internet of Things, neuroscience, design, computer science, mechanical engineering, material science, healthcare and the humanities. Academia-industry collaboration is one of the most productive mechanisms for creating and implementing innovations. CHAIr is well-positioned to refine and improve the performance of humanistic social robots to promote the growth of a new service robot industry. In collaboration with Hanson Robotics, CHAIr will support innovation and entrepreneurship in Hong Kong and the Greater Bay Area.

■ Prof. Christopher Chao, PolyU's Vice President (Research and Innovation) (front row, right) and Dr David Hanson, CEO and Founder of Hanson Robotics (front row, left) signed the MoU to establish CHAIr. Witnessing the signing were Prof. Jin-Guang Teng, President of PolyU (back row, right) and Mr Doug Glen, Executive Director of Hanson Robotics (back row, left).



■ Sophia, Hanson Robotics' most advanced human-like robot, is the world's first robot citizen and the first robot Innovation Ambassador for the United Nations Development Programme.

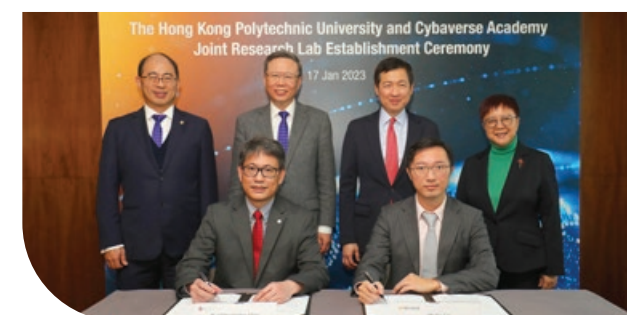
## PolyU partners with Cybaverse Academy to set up Hong Kong's first research laboratory on law and Web3

PolyU and the Cybaverse Academy Limited have signed a Memorandum of Establishment to set up the PolyU and Cybaverse Academy Joint Lab on Law and Web3 in Hong Kong. It will be a first-of-its-kind research laboratory, focusing on the intersection between the law and Web3, as well as pursuing research and development into technological solutions and looking at relevant legal and industry standards.

and protection of privacy of Web3 users. The joint lab also aims to provide regulators and other stakeholders with essential tools to enhance protection for the investment community and the general public, as well as to provide a solid foundation for a better Web3 ecosystem.

Web3 is a decentralised internet built on an open blockchain network that is not owned and controlled by large entities. As such, governments worldwide are considering how to provide an appropriate regulatory environment for the development. PolyU and Cybaverse Academy will collaborate to promote the safety, security

PolyU's expertise in blockchain technology has previously been recognised by CoinDesk, which ranked it first in the "Best Universities for Blockchain 2022" list. Leveraging the University's excellence in blockchain technology education and research, the Research Centre for Blockchain Technology of PolyU, the first research centre in Hong Kong to cover research in full-stack blockchain technology, will provide a training programme related to Web3.



■ Prof. Jin-Guang Teng, President of PolyU (back row, second from left); Prof. Wing-tak Wong, Deputy President and Provost of PolyU (back row, first from left); Mr. Johnny Mok SC, Co-founder of Cybaverse Academy (back row, second from right); and Dr. Winnie Tang, Co-Founder of Cybaverse Academy (back row, first from right), witnessed the signing of the Memorandum of Establishment by Prof. Christopher Chao, Vice President (Research and Innovation) of PolyU (seated, left); and Mr. Paul Li, Managing Director of Cybaverse Academy (seated, right).



Double grand awards attest to PolyU's research excellence in steel construction

PolyU research projects on the application of Chinese high-strength steel in construction have successively won industry grand awards in both the Mainland and Hong Kong recently. These accolades are yet another testament to PolyU's leading position in engineering research on steel construction.

The projects were conducted by research teams led by Professor Chung Kwok-fai, Director of the Chinese National Engineering Research Centre for Steel Construction (Hong Kong Branch) (CNERC-Steel) and Professor of the Department of Civil and Environmental Engineering at PolyU.

Typical applications of the projects include long-span roof structures and footbridges, large-scale noise closure, piles supporting heavily loaded structures and buildings, and supporting members in road bridges. The innovations have been used in construction projects in Hong Kong, including the Double Arch Steel Bridge of the Cross Bay Link in Tseung Kwan O, and the Fourth Bridge between Macau and Taipa.

Capitalising on PolyU's expertise in steel construction and the huge potential of the Chinese steel construction industry, CNERC-Steel at PolyU was established with the approval of the State Ministry of Science and Technology, People's Republic of China in 2015 to promote the technological advancement of the steel construction industry in both Hong Kong and the Mainland.



■ Professor Chung Kwok-fai (front row, second from right) was presented with the Grand Award of the CSCS Science and Technology Awards 2022 by senior members of Chinese Academy of Engineering on 10 February 2023 in Guangzhou.

Project:  
Basic Theory, Key Technology and International Application of Chinese High Strength 690MPa Steel Structures

Led by CNERC-Steel, the project was completed in collaboration with academics from Tsinghua University and Imperial College London, experts from famous consulting and construction companies in Hong Kong, and leading steel fabricators and suppliers in China.



■ Members of PolyU showed their support when Professor Chung (sixth from right) received the HKIE Grand Award from Ms Winnie Ho, Secretary for Housing of HKSAR Government (sixth from left), and Ir Aaron Bok Kwok-ming, President of HKIE (centre), on 9 March 2023.

Project:  
Innovative construction technology and application of high strength S690 steel in construction

The project provides a comprehensive solution enabling the effective use of Chinese high-strength steel in construction to achieve significant savings in materials, manpower demand and carbon footprints without any adverse effect on its strength and ductility.

Esteemed PolyU scholars elected as HKAES Fellows

Three PolyU scholars have been elected as 2022 Fellows of the Hong Kong Academy of Engineering Science (HKAES). HKAES is an organisation of Hong Kong's most eminent engineers across various disciplines. The Fellowship was awarded in recognition of their engineering expertise, distinguished achievements and commitment to serving society. Only up to eight Fellows are honoured each year. Congratulations!



**Professor Cao Jiannong**

- Dean of Graduate School
- Director of Research Institute for Artificial Intelligence of Things
- Chair Professor of Distributed and Mobile Computing, Department of Computing

Professor Cao is an internationally renowned scholar in distributed systems, mobile computing and wireless networking, and big data analytics.



**Professor Chen Qingyan**

- Director of PolyU Academy for Interdisciplinary Research
- Chair Professor of Building Thermal Science, Department of Building Environment and Energy Engineering

Professor Chen's areas of expertise include computer simulations and experimental measurements of built environments, in addition to energy-efficient, healthy, and sustainable buildings.



**Professor Li Xiangdong**

- Dean of Faculty of Construction and Environment
- Director of Research Institute for Sustainable Urban Development
- Chair Professor of Environmental Science and Technology, Department of Civil and Environmental Engineering

Professor Li's major research interests include regional environmental pollution, the urban environment, and the remediation of contaminated sites.

PolyU scholars shine in Young Scientist Awards

PolyU is a cradle of scientific talent. Two PolyU scholars have been recognised in the 2022 Young Scientist Awards, which was organised by the Hong Kong Institution of Science to honour Hong Kong postgraduate research students and recent graduates showing great promise in the fields of Physical or Mathematical Science, Life Science, or Engineering Science.

Award: Winner - Engineering Science  
Research Area: Development of new architecture and mechanisms for high-efficiency water energy harvesting and liquid manipulation  
Supervisor: Professor Wang Zuankai, Associate Vice President (Research and Innovation) and Chair Professor of Nature-Inspired Engineering, Department of Mechanical Engineering



□□ The recognition provided by the award will motivate me to strive to make new discoveries in my research area.

□□ **Dr Xu Wanghuai**  
Postdoc Fellow, Department of Mechanical Engineering

Award: Honourable Mention - Physical / Mathematical Science  
Research Area: The acceleration of flash droughts  
Supervisor: Dr Wang Shuo, Assistant Professor, Department of Land Surveying and Geo-Informatics



□□ The prize has encouraged me to continue to explore the dynamics and mechanisms of extreme weather and climate events under global warming.

□□ **Ms Qing Yamin**  
PhD Student, Department of Land Surveying and Geo-Informatics



# PolyU and GL Ventures

## join hands to back promising tech startups

PolyU has been building partnerships with like-minded investors to nurture its high-potential research teams and startups. Recently, the University and GL Ventures signed a Memorandum of Understanding (MoU) to collaborate in promoting the integration of the University's scientific research with innovative industries. The collaboration will advance the transformation of the University's research outputs into practical applications and the commercialisation of its technological innovations, contributing to the innovation and technology (I&T) development of Hong Kong and the Greater Bay Area (GBA).



■ Witnessed by Prof. Sun Dong, Secretary for Innovation, Technology and Industry (centre); Prof. Jin-Guang Teng, President of PolyU (back, left); and Mr Luke Li, Founding Partner of Hillhouse (back, right), the MoU was signed by Dr Miranda Lou, Executive Vice President of PolyU (front, left); and Ms Yan Li, Partner of Hillhouse (front, right).



Addressing the signing ceremony, Mr Luke Li hailed PolyU as one of the world's top 100 universities. He said that GL Ventures, with its capability built from promoting the development of innovative industries for years, would forge closer ties with PolyU to explore new ideas and solutions in the areas of technological innovation and talent development for industries.

The partnership was welcomed by the HKSAR Government. Secretary for Innovation, Technology and Industry Professor Sun Dong commended the PolyU-GL Ventures partnership as a fine example of industry-university-research collaboration. Leveraging Hong Kong's distinct advantages of enjoying the strong support of the Nation and being closely connected to the world, the partnership seizes the golden opportunities offered by the GBA's development.



### Connecting innovation with investment

After the MOU signing the University held the Innovation & Investment Connect Panel Session to bring together industry leaders and I&T stakeholders for a stimulating panel discussion titled "How to facilitate research commercialisation from policy maker and investor perspectives".

Mr Duncan Chiu, Legislative Council member, Technology and Innovation Constituency; Ms Yan Li; and Professor Zheng Yongping, PolyU's Chair Professor of Biomedical Engineering had an in-depth exchange about the opportunities and challenges of unlocking the University's scientific research for successful commercialisation.

Two thematic parallel sessions were also held with the participation of PolyU scholars and representatives from six investees of GL Ventures.

### Parallel Thematic Session 1 - Opportunities in the Biomedical Innovation Ecosystem in Hong Kong

In this session, Professor Zheng Yongping (right photo, second from left) and Professor Thomas Leung from the Department of Applied Biology and Chemical Technology (right photo, second from right) were engaged in discussion with representatives from GL Ventures' investees including ATLATL, Helixon and Elpiscience.

### Parallel Thematic Session 2 - Clean Energy Technologies and Related Industry Development Trends

The other parallel session saw the participation of PolyU's Associate Dean (Faculty of Construction and Environment) from the Department of Building and Real Estate Professor Ni Meng (below, second from right) and Chair Professor of Soft Materials and Devices Professor Zheng Zijian (below, second from left). They exchanged views and ideas on sustainable innovation with Dr Bin Chen (below, first from left), Founder of HydroPro, a PolyU startup, and representatives from Yaoneng Technology, CIQTEK and CarbonStop, three other GL Ventures' investees.





## PolyU startup develops **ADVANCED SPECTACLE LENS** for **MYOPIA CONTROL** with ultra-precision machining technology



■ Prof. To Chi-ho, Visiting Chair Professor of the School of Optometry (SO) of PolyU and Co-founder of VST (third from left); Prof. Benny Cheung, Chair Professor of Ultra-precision Machining and Metrology and Director of SKL-UPMT at PolyU (third from right); Mr Jackson Leung, Director of VST (second from left); Mr Kelvin Wong, Director of Knowledge Transfer and Entrepreneurship Office (first from right), together with the research team behind DISC technology, including Prof. Carly Lam, Professor of SO (first from left) and Dr Dennis Tse, Associate Professor of SO (second from right), showcased the new Nano Multi-rings Defocus Incorporated Lens for myopia control.

PolyU is committed to addressing pressing societal challenges through research innovation and knowledge transfer. To slow down myopia progression in children and adolescents, a PolyU supported startup, Vision Science and Technology Co. Ltd (VST), has developed a novel, effective spectacle lens called the Nano Multi-rings Defocus Incorporated Lens using two PolyU patented technologies.

### How prevalent is myopia?

Myopia, or short-sightedness, affects around 30% of people worldwide. Close to half of the global population is expected to become short-sighted by 2050. People with severe myopia have a high risk of developing cataracts, retinal detachment, and glaucoma, and the condition may even lead to blindness.

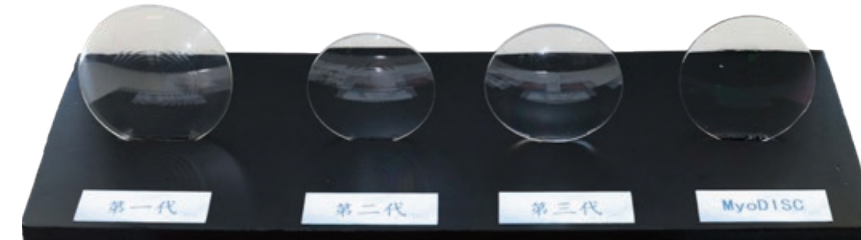
The VST team created the spectacle lens by integrating PolyU's Defocus Incorporated Soft Contact (DISC) technology with Ultra-precision Nano Multi-rings Machining Technology, in collaboration with researchers from the State Key Laboratory of Ultra-precision Machining Technology (The Hong Kong Polytechnic University) (SKL-UPMT) and PolyU's School of Optometry (SO).

### Two PolyU technologies combined for huge benefits

The DISC technology was invented by SO and commercialised by VST in 2018. The DISC lens is a multi-zone soft contact lens that provides clear vision and at the same time projects blurred, out-of-focus (defocused) images onto the retina to slow down axial elongation of the eye of myopic patients. In clinical trials, DISC lenses were proven to retard myopia progression among children aged between 8 and 13 by 60% on average.



■ PolyU's patented DISC technology was commercialised by VST in 2018.



■ The new lens has gone through four generations of development to reach the marketable product MyoDISC.

On the other hand, the Ultra-precision Nano Multi-rings Machining Technology developed by SKL-UPMT is a patented technology based on advanced optics design, ultra-precision machining, ultra-precision measurement, and ultra-precision mould-making.

The multi-zone property of the DISC lens poses a major challenge to applying the technology to spectacle lenses. Concentric rings are apparent, causing the wearer to look odd and the final product unmarketable. To overcome this issue, the SKL-UPMT team tried several rounds of refining the ultra-precision process to come up with the natural-looking spectacle lens, which not only provides added comfort for wearers, but also offers stable vision. The convenient and non-invasive design also makes it more suitable for children of different ages.



■ The launch of the new lens is a testament to PolyU's continuous efforts in facilitating knowledge transfer and innovative solutions by supporting cutting-edge technology startups.

### Spearheading ultra-precision machining technology

SKL-UPMT focuses on the development and application of advanced technologies, including ultra-precision machining technology, which is the backbone of industries such as optometry, semiconductors, advanced optics, aerospace, energy, biomedical and new materials development.

Professor Benny Cheung, Chair Professor of Ultra-precision Machining and Metrology of the Department of Industrial and Systems Engineering and Director of SKL-UPMT, said, "We will continue to create new technologies and solutions for diverse industries to benefit society, and further Hong Kong and Mainland China's competence and strategic advantages in design and advanced manufacturing."

"VST is pleased to partner with SKL-UPMT and the School of Optometry in launching the new Nano Multi-rings Defocus Incorporated Lens, resulting in a major breakthrough in DISC technology," said Professor To Chi-ho, Visiting Chair Professor of SO and Co-founder of VST.

Founded by Professor To and a PolyU graduate in 2016, VST has received financial support from the PolyU Micro Fund and the PolyU Tech Launchpad Fund.

Through PolyVentures, the University's signature technology startup ecosystem, PolyU fosters academic- and student-led entrepreneurship by providing support at each stage of the entrepreneurship journey, from education and ideation to incubation and acceleration, with the goal of commercialising impactful technologies for the benefit of society.



Angel Fund Scheme launched to accelerate PolyU tech startups

To reinforce its commitment to supporting entrepreneurship and startup development for the betterment of society, PolyU has recently introduced the Angel Fund Scheme. The Scheme aims to accelerate the growth of high potential technology startups founded by PolyU students, graduates and professors. Leveraging the additional annual funding from the Innovation and Technology Commission (ITC) under the Technology Start-up Support Scheme for Universities, the two-tier

Angel Fund Scheme supports early-stage startups which require a higher starting capital for research and development.

Almost 100 applications were received for the \$1M tier of the 2023-24 Scheme, out of which 15 startups were selected to each receive HK\$1 million in funding. Eight startups out of 37 applications were selected for the \$3M tier.

The two-tier Angel Fund Scheme

Tier One - HK\$1M Fund	Tier Two - HK\$3M Fund
Funding amount	
HK\$0.5 million grant by ITC + HK\$0.5 million top-up investment by PolyU (optional)	HK\$1.5 million secured private investment + Up to HK\$1.5 million dollar-to-dollar matching grant by ITC
No. of approved startups / applications (2023/24)	
15 / 100	8 / 37

PolyU's holistic entrepreneurship development framework

PolyU has built a technology startup ecosystem named PolyVentures to nurture aspiring entrepreneurs among PolyU students, alumni, and academics, supporting them throughout their entrepreneurial journeys and equipping them for long-term success.

- Education/Ideation - nurturing future leaders with an entrepreneurial mindset, as well as equipping them with skills, knowledge and practice
- Incubation support - including the PolyU Micro Fund Scheme and the GBA Startup Postdoc Programme
- Investment for acceleration - including the Angel Fund Scheme and the PolyU Entrepreneurship Investment Fund, with a goal of nurturing 20 deep tech ventures each year

Partnering with HKXF to nurture young entrepreneurs and foster the GBA's I&T development



The MoU was signed by Dr Miranda Lou, Executive Vice President of PolyU (front row, right) and Ms Jessica Chen, Vice-president of Sequoia China, Executive Director of HKXF, and Project Lead of Hong Kong InnoX Academy (front row, left). Prof. Jin-Guang Teng, President of PolyU (back row, centre); Prof. Zexiang Li, Co-founder of Hong Kong X-Tech Startup Platform, Professor of the Department of Electronic and Computer Engineering of The Hong Kong University of Science and Technology, and Dean of Hong Kong InnoX Academy (back row, left); and Prof. Guanhua Chen, Co-founder of Hong Kong X-Tech Startup Platform, Director of the Centre of Hong Kong Quantum AI Lab, and Professor of the Department of Chemistry of The University of Hong Kong (back row, right); witnessed the signing.

PolyU has signed a Memorandum of Understanding (MoU) with the Hong Kong X Foundation (HKXF), spearheaded by Sequoia China, to foster the development of Hong Kong's innovation and technology (I&T) ecosystem. The partnership will support student- and researcher-led innovation and entrepreneurship, as well as assisting with Hong Kong's integration into the Greater Bay Area (GBA) and the implementation of the National 14th Five-Year Plan, which aims to transform Hong Kong into an international I&T hub.

Alongside providing I&T education, the two parties will collaborate on incubation and investment funding

through the Hong Kong InnoX Academy, a non-profit educational institution wholly owned by HKXF. They will also offer young I&T entrepreneurs all-round support and assistance through entrepreneur workshops, company visits, seminars and mentorship schemes.

Dr Miranda Lou, Executive Vice President of PolyU, said: "PolyU is dedicated to nurturing I&T talents, and this adheres to the same philosophy and vision of HKXF. Through signing the MoU, the parties will combine their expertise in promoting I&T to nurture more talents, optimise the I&T ecosystem in Hong Kong and the GBA, and create better opportunities for the younger generation."

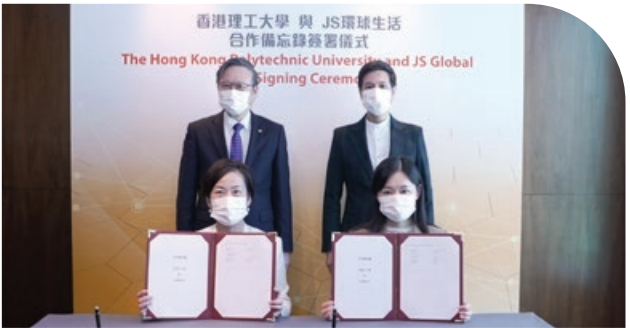
Joining forces with JS Global to explore aerospace, food and smart living technologies

To inject new momentum into the I&T industry, PolyU and JS Global Lifestyle Company Limited (JS Global) have signed an MoU, which will see them jointly engage in research and development, as well as nurturing I&T talents.

Leveraging PolyU's strengths in applied research and JS Global's leading position in the small household appliance market, the two parties will collaborate in three core areas, namely aerospace technology and its applications, future food, and smart living.

To help meet JS Global's technological needs, PolyU will provide resources in areas such as collaborative research, patent licensing, and project cooperation.

In addition to fostering the transformation of research excellence into real-world applications, the partnership will also explore the feasibility of establishing the "PolyU-JS Global Innovation Centre" and the "PolyU-



Witnessed by Prof. Jin-Guang Teng, President of PolyU (back row, left); and Dr Johnny Ng Kit-chong, Member of the National Committee of the Chinese People's Political Consultative Conference and Member of the Legislative Council (back row, right); the MoU was signed by Dr Miranda Lou, Executive Vice President of PolyU (front row, left); and Ms Han Run, Executive Director and Chief Financial Officer of JS Global (front row, right).

JS Global Scholarship Programme" to nurture I&T talents through offering scholarships and internships opportunities, with the aim of enhancing the quality of talent in the Greater Bay Area's I&T ecosystem.



PolyU startup co-founder honoured with Hong Kong Innopreneur Award



Dr Tenny Lam (left) and Prof. Li Pei (right) sharing the honour at the award presentation ceremony

Dr Tenny Lam, a PolyU DBA graduate and co-founder of the PolyU academic-led startup Grand Rise Technology, has won the Excellence in Research Application Award of the inaugural Hong Kong Innopreneur Awards organised by the Federation of Hong Kong Industries.

Dr Lam co-established Grand Rise with Professor Li Pei from PolyU's Department of Applied Biology and Chemical Technology, translating the University's patented core-shell nanoparticle technology invented by Professor Li into impactful products and innovative solutions.

Efforts by the pair have enabled a new class of amphiphilic core-shell particles with wide-ranging applications including:

- a bio-based anti-microbial coating, non-toxic and eco-friendly, offering a prolonged effect of protection against viruses and bacteria
- an edible coating for extending the shelf life of fruit, reducing food waste and lowering the risk of cross-infection of viruses during transportation.

The Awards, launched in 2022 with HSBC as the title sponsor, aim to honour forward-looking and promising startup founders who have attained breakthrough innovation in their businesses, out of a commitment to bring positive impacts on society.

To foster a sustainable future, Grand Rise focuses on developing green and safe biomaterials-based coatings and related applications. In 2022, it won the Environmental Impact Award in the Alibaba Entrepreneurs Fund/HSBC JUMPSTARTER 2022 Global Pitch Competition, in addition to being included in the Forbes Asia 100 to Watch List.

Two PolyU startups awarded in Inno Impact contest

Two PolyU startups, Fleming MedLab and UNI Green, have been honoured with awards in the youth entrepreneurship competition "Inno Impact Project 2022" organised by The Hong Kong Federation of Youth Groups. They received a grant of HK\$200,000 in startup funds as well as other support to implement their creative proposals so as to contribute to a better future for Hong Kong.

The competition encouraged youth aged 18 to 35 to submit innovative proposals that create social value and shared returns under the five subject areas, including FinTech, Elderly Health Care, Housing Development Planning, Sustainable Development and Cultural and Creative Industries.



Representatives of the winning PolyU startups, Dr Kelvin Heung Ho-lam, Research Assistant Professor of the Department of Building and Real Estate and Co-founder of Fleming Medlab (centre), Mr Edwin Ty, Co-founder of Fleming Medlab (right) and Ms Emma Yu, Designer of UNI Green (left)



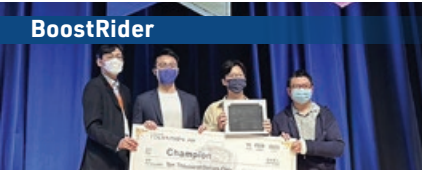
"Elderly Health Care" Award Winner	"Sustainable Development" Award Winner
Fleming MedLab, a medical technology startup, won the "Elderly Health Care" award for its innovative solution using patented technologies based on neuroscientific principles and soft robotics. They developed Fleming Ankle, a lightweight, easy-to-use, medical-grade, wearable robot that helps stroke patients rebuild neural pathways and regain mobility.	UNI Green won the "Sustainable Development" award for their commitment to creating a greener future. The design-driven social enterprise aims at recycling old school uniforms and remaking them into different products. Their innovative solutions promote sustainable fashion and create meaningful employment opportunities for disadvantaged individuals.

PolyU-trained future entrepreneurs win awards at Hong Kong Techathon 2023

Teams of entrepreneurial-minded PolyU students and graduates won seven out of 16 prizes at Hong Kong Techathon 2023 with their business ideas. Teams which included PolyU students were named champions in three of the four categories in the competition. PolyU students also won one first runner-up and two second runner-up awards and the Best Presentation prize.

Hong Kong Techathon 2023 is jointly organised by Hong Kong Science and Technology Parks Corporation (HKSTP) and nine local universities to promote the development of Hong Kong's innovation and technology startup ecosystem. The one-week challenge saw more than 900 aspiring entrepreneurs from the nine universities, including nearly 200 from PolyU, work in teams to pitch for seed funding and incubation support for their business solutions. The winning teams will be admitted to the HKSTP Ideation Programme.

The PolyU champion teams are:

Team/Project	Category	Project description
 <b>417 Tech</b>	ArtTech & EdTech	"PresentAR" interactive presentation system - integrating computer vision and augmented reality technology to make speech delivery more engaging (The team also won the Best Presentation prize.)
 <b>Fleming MedLab</b>	Healthcare & GeronTech	Uses robots to help stroke survivors walk again and recover brain function
 <b>BoostRider</b>	Smart Cities & Sustainability	A device for wheelchair uses that integrates artificial intelligence and robotics technology to help physically impaired people move around without straining their arms

Micro Fund Scheme awards 18 outstanding teams to support their entrepreneurial endeavours



PolyU provides comprehensive incubation support to nurture the growth and development of startups, such as through the pioneering Micro Fund Scheme launched in 2011. This Scheme aims to cultivate innovation and entrepreneurship in the PolyU community and promote knowledge transfer and commercialisation of PolyU's innovations and technologies, assisting awardees in implementing high-quality business propositions with a positive societal impact.

The first cohort of winning entrepreneurial teams under the Micro Fund 2022-23 was announced after a 2-day competitive finals presentation. Over 130 applications were received and 35 finalists made their pitches to the judging panels. The 18 winning teams demonstrated their innovation and creativity, business model, team members' competence, core R&D activity, and achievable milestones in their business proposals. Each awarded team will receive HK\$120,000 from the Micro Fund and support of up to HK\$1.29 million from HKSTP's Incubation Programmes.



# PolyU establishes RESEARCH CENTRE FOR CHINESE HISTORY AND CULTURE



■ Witnessed by Mr Kevin Yeung, Secretary for Culture, Sports and Tourism (back row, third from left); Mr Zhang Guoyi, Deputy Director-General of the Department of Publicity, Cultural and Sports Affairs of the Liaison Office of the Central People's Government (back row, third from right), and leaders of PolyU and Tsinghua University, Prof. Li Ping, Dean of the Faculty of Humanities of PolyU (seated) and Prof. Zhong Weimin, Chairman of the Department of History, Tsinghua University (in video conferencing, seated) signed the MoU. PolyU witnesses (back row): Dr Lam Tai-fai (second from left); Prof. Jin-Guang Teng (second from right); Prof. Wing-tak Wong (first from left) and Dr Miranda Lou (first from right). Tsinghua University witnesses (in video conferencing, back row): Prof. Peng Gang, Vice President (third from right); Prof. Ni Yuping, Associate Dean of School of Humanities (third from left), and Department of History's Prof. A Feng (second from right), Dr Gu Tao (second from left), Dr Sun Zhengjun (first from right), and Dr Huang Zhengping (first from left).

With the aim of promoting Chinese culture and history, strengthening national education, and enhancing the pride of local youth and their sense of belonging to the Nation, PolyU has established the Research Centre for Chinese History and Culture.

The Centre's Opening Ceremony was held in January 2023 and was officiated by Mr Kevin Yeung Yun-hung, Secretary for Culture, Sports and Tourism, and Mr Zhang Guoyi, Deputy Director-General of the Department of Publicity, Cultural and Sports Affairs of the Liaison Office of the Central People's Government in the Hong Kong Special Administrative Region. They were joined by Dr Lam Tai-fai, Council Chairman of PolyU; Professor Jin-Guang Teng, PolyU's President; Professor Wing-tak Wong, PolyU's Deputy President and Provost; and Dr Miranda Lou, PolyU's Executive Vice President. Additionally, Professor Peng Gang, Vice President of Tsinghua University, participated via video conferencing.

## Partnering with the Institute of Humanities of Tsinghua University

At the same event, PolyU signed a Memorandum of Understanding (MoU) with the Institute of Humanities of Tsinghua University. The MoU was signed by Professor Li Ping, Dean of the Faculty of Humanities of PolyU and Professor Zhong Weimin, Chairman of the Department of History of Tsinghua University.

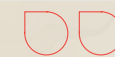
Under the MoU, the two parties will collaborate in various areas including training teachers, editing teaching materials, conducting thematic research, and organising joint seminars, with a view to enhancing academic exchange and promoting Chinese culture together.

Aspiring to become an influential academic institution in humanities and striving to promote Chinese culture, the Research Centre has gained the support of local top historians or leading advocates of cultural development, who form its distinguished panel of advisors. Together with the Advisory Committee Chairman Dr Lam Tai-fai, they will offer guidance and recommendation on the development of the Research Centre.



The establishment of the Research Centre by PolyU will facilitate the promotion of Chinese history and cultural education on campus as well as in Hong Kong, helping our young people to learn and understand our country's history.

Mr Kevin Yeung  
Secretary for Culture, Sports and Tourism



PolyU is committed to nurturing a new generation of young people who love the Nation and Hong Kong, who are aspirational, have a global perspective and adopt positive values. We believe that one should learn and understand the Nation's history and culture in order to love and contribute to the motherland.

Dr Lam Tai-fai  
Council Chairman of PolyU



■ The establishment of the Centre represents an important milestone in PolyU's commitment to serving Hong Kong and the Nation through education, research and social engagement. At the Opening Ceremony, Mr Kevin Yeung Yun-hung (front row, centre) and Mr Zhang Guoyi (front row, third from right) were among the distinguished guests. Standing at the back row are the members of the Centre's Advisory Committee, as well as scholars from PolyU's Department of Chinese Culture.

## Advisory Committee for the Research Centre for Chinese History and Culture

Chairman	<b>Dr Lam Tai-fai</b>	Council Chairman of PolyU
Members	<b>Mr Kenneth Fok Kai-kong</b>	Member of the Legislative Council
	<b>Dr Louis Ng</b>	Museum Director of the Hong Kong Palace Museum
	<b>Dr Chan Man-hung</b>	Honorary Curator of Jao Tsung-I Academy
	<b>Professor Joseph Ting Sun-pao</b>	Adjunct Professor and Honorary Senior Research Fellow of the Department of History at The Chinese University of Hong Kong
	<b>Professor Cheng Pei-kai</b>	Former Director of the Chinese Civilisation Centre and Emeritus Professor at City University of Hong Kong
	<b>Professor Elizabeth Sinn</b>	Honorary Professor of the Hong Kong Institute for the Humanities and Social Sciences at The University of Hong Kong

Since the 2022/23 academic year, PolyU undergraduate students are required to study a subject related to Chinese history and culture to enhance their interest towards Chinese heritage and identification with the Nation through systematic education.



# New AI and ROBOTICS Lab to foster co-creation and innovation

Artificial intelligence (AI) and robotics are game-changing technologies that are rapidly shaping many different aspects of life. Recently, PolyU established the Artificial Intelligence and Robotics Laboratory (AIR Lab) at the University's Industrial Centre to help empower students and researchers with the two transformative technologies. With the AIR Lab, PolyU will better fulfill its goals of nurturing future-ready leaders and transforming its research excellence into impactful applications to enable Hong Kong to develop into an international innovation and technology centre.

Occupying a total floor area of 1,800m<sup>2</sup>, the AIR Lab serves as an innovative teaching and research platform for teaching staff, students, young entrepreneurs and researchers to explore various aspects of collaborative robotics, including application development, component fabrication, control system design, and autonomous system development.

## Featuring Hai Robotics' state-of-the-art system

With the strong support of Hai Robotics, the AIR Lab boasts its cutting-edge warehouse automation solution, the Smart Delivery System, which comprises three components:

- Hai Robotics' pioneering autonomous case-handling robotic system
- Autonomous Mobile Robots
- an enterprise resource planning software system.

The System supports researchers in developing various collaborative robot application technologies, encourages co-creation and innovation, and offers a communal logistics service for the Lab's users.

Besides, the Lab is also equipped with advanced robotic arms, legged robots, automatic guided vehicles, drones, as well as machine learning kits related to AI robotics and Industry 4.0. Currently, it houses 15 PolyU project teams focusing on the use of AI and robotic technologies in areas such as healthcare, rehabilitation, sports technology, engineering, energy, computing, and sustainability.

**Hai Robotics** is a world-leading provider of autonomous case-handling robotic systems founded by two graduates of PolyU's Department of Electronic and Information Engineering – Mr Richie Chen (2012) and Mr Fang Bing (2014) in 2016. Nurtured under PolyU's entrepreneurship ecosystem, the technology startup grew rapidly by capitalising on the manufacturing advantages of the Greater Bay Area (GBA) and the opportunities of the Mainland China market. It thereafter expanded its global presence, with a valuation that has now reached around US\$2 billion.

The Smart Delivery System in the AIR Lab was launched with Hai Robotics' world-leading autonomous case-handling robotic system HAIPICK, which is able to respond swiftly to changes in storage requirements.



Read more



Watch video

## Some examples of AIR Lab projects



Collaborative robot for assistive rehabilitation



A robot driving module to navigate in underground water mains and networks for inspection and repair



Robotic guide dog



Mr Fang Bing's (centre) entrepreneurial journey started during his undergraduate study with Prof. Lu Chao (left). Mr Kelvin Wong (right) moderated the discussion.

## Unicorn founder grateful for alma mater's support

Hai Robotics grew to become a unicorn in 2021, valued over US\$1 billion in just five years after its establishment. In April, the company's Co-founder Mr Fang Bing was invited to the Lab to share its success story. Mr Fang thanked his alma mater for the entrepreneurship education and funding support he received. He encouraged young people to stick to their dreams and grasp the opportunities for innovation and entrepreneurship offered by the Greater Bay Area.

## PolyU Industrial Centre

Founded in 1976, the Industrial Centre (IC) serves to provide engineering education as well as technical and research support to PolyU researchers and students. The only establishment of its kind among the local UGC-funded universities, the 'technical library' is equipped with a complete collection of engineering facilities and equipment together with a pool of expertise in different engineering disciplines. As PolyU's innovation and technology hub, IC is migrating from an engineering support centre to a cluster of central facilities connecting science, engineering, health and arts.



PolyU alumnus Mr Fang Bing, Co-founder of Hai Robotics (fourth from right), was invited to share the company's success story with guests visiting the AIR Lab. Welcoming him on behalf of PolyU were Prof. Wing-tak Wong, Deputy President and Provost (fourth from left); Dr Miranda Lou, Executive Vice President (third from right); and Prof. Christopher Chao, Vice President (Research and Innovation) (third from left). They were joined by the Industrial Centre's Director Dr Wai Hon-wah (second from left) and Associate Director Ir Dr Robert Tam (first from left); as well as Mr Kelvin Wong, Director of the Knowledge Transfer and Entrepreneurship Office (first from right); and Prof. Lu Chao, Chair Professor of Fibre Optics, Department of Electronic and Information Engineering (second from right).

Dr Miranda Lou, PolyU's Executive Vice President, was gratified to see the PolyU alumnus' achievement. She said, "Over the years, PolyU has been strengthening its PolyVentures startup ecosystem to support academics, researchers, alumni and students in their entrepreneurial endeavours. The University has also provided all-round support to startups at different stages of their development, helping them translate and commercialise their research outputs for the benefit of society."

PolyVentures is the University's signature technology startup ecosystem aimed at fostering an entrepreneurial mindset and accelerating the translation of innovations and technologies from the University to the marketplace for positive societal impact.



The Hybrid Immersive Virtual Environment is another major facility installed in IC. As Hong Kong's first large-scale X-Reality hybrid classroom, it adopts fully immersive six-sided Cave Automatic Virtual Environment technology to significantly enhance teaching flexibility and the learning experience.



## PolyU and Jinjiang city to drive development of joint research institute



■ Witnessed by Dr Lam Tai-fai, PolyU Council Chairman (second from left); and Mr Wang Mingyuan, Mayor of Jinjiang (second from right); the five-year cooperation agreement was signed by Prof. Jin-Guang Teng, PolyU President (left); and Mr Huang Tiankai, Member of the Standing Committee of Jinjiang Communist Party Committee and Head of Jinjiang United Front Work Department (right).

To extend the impact of the University's research in support of the Nation's development, PolyU signed a framework agreement with the city government of Jinjiang to drive the establishment of the PolyU-Jinjiang Research Institute, during a visit by a delegation from Jinjiang to PolyU, which included the mayor of Jinjiang, Mr Wang Mingyuan.

Under the agreement, the Research Institute would be planned and managed by PolyU, while Jinjiang city would provide venues, funding, subsidies for research projects and industry-research collaboration, as well as support for talent attraction measures. Furthermore, PolyU scholars would visit Jinjiang for academic exchange, participate in expert panels for entrepreneurial teams, and

attend major planning meetings. Jinjiang city would also promote the establishment of laboratories for joint projects between enterprises and PolyU, and deepen cooperation in talent nurturing, innovation and entrepreneurship, technological innovation, knowledge transfer, and more, especially in the areas of textiles, smart manufacturing, integrated circuits, and green technology.

### Supporting industrial modernisation

In addition, PolyU's Policy Research Centre for Innovation and Technology (PReCIT) will collaborate with the Jinjiang Science and Technology Bureau to conduct research projects on harnessing Hong Kong's resources and advantages in innovation and technology in response to Jinjiang's industrial modernisation needs.

The mayor was accompanied by representatives from the Jinjiang government and executives from companies specialising in textiles and clothing, sports shoes and apparel, food, new materials and household products. They visited PolyU's various research institutes covering the areas of intelligent wearable systems, advanced manufacturing, and artificial intelligence of things (AIoT) to learn more about the University's industry-academia-research collaboration.

■ Representatives from Jinjiang's government and businesses visited PolyU.



■ Accompanied by Dr Lam Tai-fai (second from left); Prof. Jin-Guang Teng (right); and Prof. Christopher Chao, PolyU Vice President (Research and Innovation) and Director of PReCIT (left); Mr Wang Mingyuan (third from right) was introduced to some of PolyU's latest research projects.



## PolyU and The University of Waterloo share common aspirations in eye and vision research



■ Prof. Jin-Guang Teng, President of PolyU (third from right); Prof. Wing-tak Wong, Deputy President and Provost (third from left); Prof. David Shum, Dean of Faculty of Health and Social Sciences (first from right); Prof. Christina Wong, Director of Research and Innovation (first from left); and Professor Ben Thompson, CEVR CEO & Scientific Director (second from left) welcome The University of Waterloo delegation including Prof. Vivek Goel, President and Vice-Chancellor (centre); and Prof. Bob Lemieux, Dean of Science (second from right) at CEVR.

PolyU's leadership welcomed The University of Waterloo (UW) delegation led by UW President and Vice-Chancellor Professor Vivek Goel in February 2023. Together they toured the clinical facilities of the Centre for Eye and Vision Research (CEVR) at the Hong Kong Science and Technology Park and exchanged ideas on research collaboration.

Jointly set up by PolyU and UW in 2022, CEVR is one of the three world-class research centres developed by PolyU in partnership with world-leading institutions under the Hong Kong Government's InnoHK Clusters initiative, which aims to develop the city into a hub for international research collaboration.

Also the world's first international hub for vision science, it has the mission of generating technologies for preventing vision loss in the ageing population and preserving healthy vision through five key areas of research excellence – myopia and eye growth, ocular drug discovery and delivery, vision enhancement, tear film and ocular surface, and advanced optometric technology.



This collaboration connects two state-of-the-art facilities and exceptional researchers with a shared goal (of improving the vision health of patients around the world)

Professor Vivek Goel  
President and Vice-Chancellor,  
University of Waterloo





# Weaving AI into fashion design with the WORLD'S FIRST DESIGNER-LED AI SYSTEM



■ Prof. Calvin Wong Wai-keung (centre), Centre Director of AiDLab, and his development team, together with the fashion brands and young design units, showcased their latest collections designed with AiDA in the "Fashion X AI" fashion show.

Committed to impactful research and knowledge transfer, PolyU is ready to work with enterprises and practitioners to harness the power of AI to boost efficiency, innovations and economic outcomes.

The Laboratory for Artificial Intelligence in Design (AiDLab), a research platform specialising in interdisciplinary AI and design innovations jointly established by PolyU and the Royal College of Art in the UK under the InnoHK Research Clusters, launched the AI-based Interactive Design Assistant for Fashion (AiDA) in December 2022.

## Finding inspiration from AI

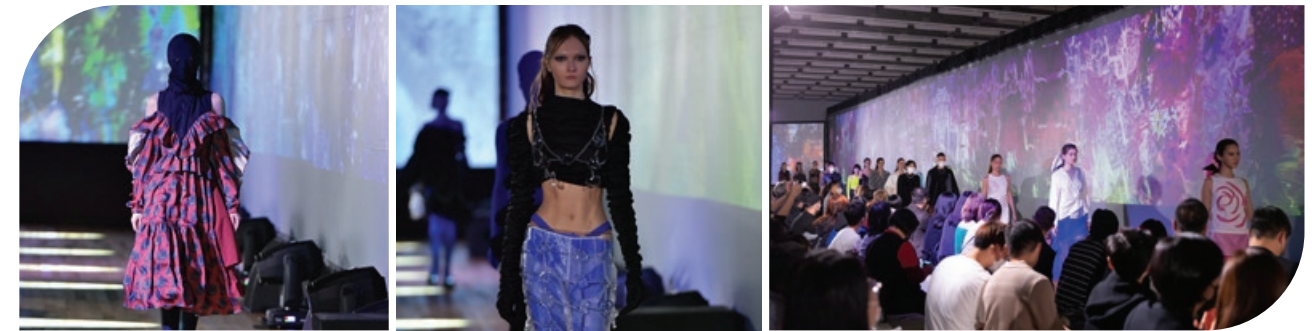
AiDA was developed by a team including AI specialists and designers led by Professor Calvin Wong Wai-keung, Centre Director of AiDLab and Cheng Yik Hung Professor in Fashion of PolyU's School of Fashion and Textiles. It is the world's first designer-led AI design system that empowers designers to maximise their creativity and streamline their design processes.

AiDA has been hailed by local and international fashion designers for streamlining the design process and

providing inspiration. Professor Calvin Wong said, "At AiDLab, we believe that AI should be used as a supporting tool for fashion designers. Our approach is human-centred and interdisciplinary, and we have worked with designers for over two years to develop and refine AiDA."



■ Ms Rebecca Pun, Commissioner for Innovation and Technology of the HKSAR Government (centre), Mr Victor Tsang Chiu-hok, Head of CreateHK (second from right), Prof. Jin-Guang Teng, President of PolyU (second from left), Prof. Calvin Wong Wai-keung (first from left), and Dr Jeanne Tan, COO & Centre Assistant Director of AiDLab (first from right) at the "Fashion X AI" fashion show



■ Korean fashion designer brand BESFXXXK showcased its latest collection on stage.

■ The latest collection of local young fashion designer Irene Siu was showcased.

■ Various fashion designers presented their latest collections inspired by AiDA.

## Year-round activities to forge Hong Kong's leadership

AiDA was officially unveiled in the "Fashion X AI" fashion show, the premier event of the "Fashion X AI: 2022-2023 International Salon" programme, which aims to nurture creative capital, future-proof the industry and promote Hong Kong as a leader in Fashion and AI. The 18-month programme comprises six key events, including Local Young Fashion Talent Mentorship, the "Fashion X AI" Fashion Show & Forum, an international symposium, a touring exhibition, workshops and a Massive Open Online Course.

The "Fashion X AI" Fashion Show & Forum was held at M+ Museum, with Create Hong Kong of the HKSAR Government as the lead sponsor. It

showcased collections developed by six international and local fashion brands and eight local young design units, all using AiDA for the first time. An exclusive AiDA collaboration with renowned fashion brand ANTEPRIMA, a one-off capsule collection developed by ANTEPRIMA's designers using AiDA, was also revealed. Held at the same time, the Forum highlighted PolyU's vision for AI in the fashion industry and featured discussion among designers on their experience with AI and the AiDA system.

Various "Fashion X AI: 2022-2023 International Salon" activities will be held throughout the year. More details can be found at:



## Media professional Janis Chan encourages students to explore the world

PolyU is holding a series of talks under the theme 'Together We Dream, We Fly' to inspire students to develop their full potential. The University invites renowned society leaders to share their experience and pass on their wisdom to students.

In March, media professional Ms Janis Chan, who was selected as an Inspirational Role Model by the Touching China Awards in 2021, gave a talk on her highly-praised documentary 'No Poverty Land'. During the talk, which was attended by more than 500 students and guests, Ms Chan talked about visiting six provinces and the most deprived regions in Mainland China for the production of the documentary. She witnessed first-hand the progress and efforts made by the Chinese government to alleviate poverty and improve the quality of people's lives.



■ Ms Janis Chan (centre) encouraged students to broaden their perspectives in the talk 'No Poverty Land' held at PolyU. Prof. Song Lai, Deputy Director-General of the Department of Youth Affairs of the Liaison Office of the Central People's Government in the HKSAR (fifth from right), Dr Lam Tai-fai, Council Chairman (fifth from left), PolyU management and distinguished guests attended the event.

Ms Chan has travelled to more than 30 countries during the course of her career, an experience she has found invaluable. She encouraged young people to explore the nation and the world, pursue their aspirations and make positive contributions to society.



# POLYU APPRECIATION DINNER

## in celebration of staff's outstanding achievements



■ The prize presentation ceremony of The President's Awards for Outstanding Achievement 2022 was held during the PolyU Appreciation Dinner in Celebration of Staff's Outstanding Achievements 2023 at Hotel ICON in April. (Front row) PolyU's Central Management Team. (Back row) Awardees of The President's Awards for Outstanding Achievement 2022.

PolyU is today recognised as one of the top 100 universities in the world, a feat that could not be accomplished without the collective efforts and contributions of our scholars, educators and researchers, who are the engines that power the University's progress. In April, the University hosted the 'PolyU Appreciation Dinner in Celebration of Staff's Outstanding Achievements' to acknowledge the extraordinary hard work, determination, and commitment to excellence of staff members. The event also paid tribute to their impressive accolades across various dimensions, including education, research, knowledge transfer, and entrepreneurship over the past few years, which have not only brought honour to themselves but also to the University.

### The President's Awards for Outstanding Achievement 2022

One of the main highlights during the Dinner was the award presentation of The President's Awards for Outstanding Achievement 2022. These Awards recognise the accomplishments of staff in the areas of teaching, research and scholarly activities, knowledge transfer, and services. Six individual staff members and two teams received the Awards. Let us meet the awardees!

#### Category of award: Teaching

**Dr Thomas Lee Ming-hung**  
Associate Professor and Associate Head (Academic), Department of Biomedical Engineering

Dr Lee has taught at PolyU for 17 years and places the learning experiences of students as his top priority. He has devoted great effort to student engagement. One example is his development of the Gongyeh e-platform to help students improve their presentation skills through peer feedback. He is the facilitator of the Community of Practice on Student-Staff Partnership from 2023 to 2025, and hopes that this initiative will enable colleagues to collaborate and learn from one another.



#### Category of award: Research and Scholarly Activities (Outstanding Researcher)

**Ir Professor Niu Jianlei**  
Chair Professor of Building Environment and Energy, Department of Building Environment and Energy Engineering

Professor Niu has made breakthroughs in multiple areas, including numerical planning for future low-carbon and livable cities, as well as thermal energy storage technology for a zero-carbon future. His research on ventilation and airborne-infection mechanisms provided evidence that influenced infection control practices in Hong Kong and helped change the World Health Organization's stance on the transmission mode of COVID-19 and its guidelines on the virus in 2021.



#### Category of award: Research and Scholarly Activities (Outstanding Researcher)

**Professor Cao Jiannong**  
Chair Professor of Distributed and Mobile Computing, Department of Computing

Professor Cao has received multiple accolades for his contributions to advancing mobile cloud and edge computing. He invented a new cooperative task scheduling methodology with high-performance algorithms for large-scale edge computing systems and enriched task scheduling theory. His research has attracted grants of over HK\$44 million in the past five years. Dr Cao received a Silver Medal in the 48th International Exhibition of Inventions Geneva in 2023 for the invention of an AI robot for autonomous in-pipe inspection.



#### Category of award: Knowledge Transfer: Industry

**Dr Tommy Wei Minchen**  
Associate Professor, Department of Building Environment and Energy Engineering

Dr Wei's research focuses on fundamental colour science to develop algorithms and solutions for lighting equipment, cameras, displays, smartphones, VR/AR/MR-enabled metaverse systems, and other products. He improved the colour calibration methods in the production of smartphone displays and advanced the white balance algorithm, which has enhanced the competitiveness and performance of Chinese chipsets.



#### Category of award: Services

**Team leader:**  
**Dr Amber Chiou Jiachi** (left)  
Associate Head and Assistant Professor, Department of Food Science and Nutrition

**Team member:**  
**Dr Cesar Wong** (right)  
Associate Professor, Department of Applied Biology and Chemical Technology

Dr Chiou's team set up the Molecular Diagnostic Laboratory at PolyU during the pandemic, the only testing laboratory in a university recognised by the HKSAR government. The lab provided COVID-19 testing for government-initiated testing and the minority population. The team also provided pandemic-related support to the PolyU community and the College of Professional and Continuing Education.

#### Category of award: Research and Scholarly Activities (Outstanding Young Researcher)

**Dr Zhao Xin**  
Associate Professor, Department of Biomedical Engineering

Dr Zhao is focused on researching Translational Regenerative Medicine, where she integrates multi-disciplinary approaches including material science, cell biology, engineering and medicine to address clinical issues. Her research output 'Biomimicking Photocrosslinkable Nanocomposite Bone Grafts' won the Silver Medal at the Special Edition 2021 Inventions Geneva and the 2023 TechConnect Global Innovation Award.



#### Category of award: Knowledge Transfer: Society

**Dr Gilman Siu Kit-hang**  
Associate Professor, Department of Health Technology and Informatics

Dr Siu's contribution to combating COVID-19 has been widely recognised by the HKSAR government and the community. He developed the nanopore sequencing-based platform for rapid monitoring of infectious disease transmission. The platform enables timely identification of sources and detection of transmission chains in the community. The Hospital Authority has adopted the sequencing protocol as a standard method to investigate hospital outbreaks.



#### Category of award: Services



**Team leader:**  
**Professor Alex Molasiotis**  
Honorary Professor, School of Nursing **1**



**Team members from the School of Nursing:**  
**Professor Engle Angela Chan, Professor and Interim Head** **2**  
**Mr Edmond Tong Tak-fai, Senior Clinical Associate** **3**  
**Mr Timothy Lai Kam-hung, Senior Clinical Associate** **4**  
**Ms Frankie Cheung, Clinical Associate** **5**

During COVID-19, the School of Nursing launched Hong Kong's first-ever pop-up community vaccination centre operated by a nursing school, administering a total of over 13,000 vaccine doses since mid-2022. It also set up an on-campus call centre to support the hotlines of the Hospital Authority. In addition, the School partnered with organisations to give vaccination and psychological support to the public and help distribute medical supplies to community isolation facilities and nursing homes.



### Celebrating the outstanding achievements by staff members

There were Appreciation Moments honouring staff's accomplishments during the Dinner, showcasing the impressive accolades and recognitions received by PolyU staff members from 2020 to 2022. The staff members who have received awards or honorary titles were invited to take group photos on stage with the Central Management Team, who congratulated and thanked them for helping PolyU scale new heights in the pursuit of excellence for the benefit of society.



■ Staff members who have received major teaching awards, including the QS Reimagine Education Awards, eLearning Forum Asia Awards, Times Higher Education Asia Awards, and the University Grants Committee Teaching Award 2022



■ Awardees of The President's Awards for Outstanding Achievement in Knowledge Transfer 2021



■ Awardees of major local and national awards in research and innovation



## Major external appointments and awards of PolyU members

From January to March 2023, the following PolyU members were either appointed significant duties to share their scholarly expertise to benefit the wider community or had their academic efforts duly recognised. (Listed in alphabetical order)



### Dr Fan Di

Assistant Professor, School of Fashion and Textiles

#### Award

- Winner of Reviewer Service Award 2023, *Journal of Operations Management*



### Dr Paul Lo Chi-hang

Teaching Fellow, School of Design

#### Award

- Good Design Awards 2022, The Chicago Athenaeum Museum



### Dr Pauli Lai Po-yan

Teaching Fellow, Department of Electronic and Information Engineering

#### Award

- Silver Award, Exemplary Teaching and Learning Award, eLearning Forum Asia 2022



### Dr Tulio Maximo

Assistant Professor, School of Design

#### Appointment

- Board of Directors, Creative Educators International Network, Inc.

#### Award

- Good Design Awards 2022, The Chicago Athenaeum Museum



### Dr Lam On

Associate Director and Teaching Fellow, Chinese Language Centre

#### Appointment

- Chief Examiner (Chinese Language Paper 2, Hong Kong Diploma of Secondary Education Examination), Hong Kong Examinations and Assessment Authority



### Professor David Shum

Yeung Tsang Wing Yee and Tsang Wing Hing Professor in Neuropsychology  
Chair Professor of Neuropsychology  
Dean, Faculty of Health and Social Sciences

#### Appointment

- Chairman, Hospital Governing Committee of Pamela Youde Nethersole Eastern Hospital



### Dr Li Wenjuan

Research Assistant Professor, Department of Electronic and Information Engineering

#### Award

- 2022 Award for Excellence (Early Career Researcher), IEEE Hyper-Intelligence Technical Committee



### Professor Michael Siu Kin-wai

Eric C. Yim Professor in Inclusive Design  
Chair Professor of Public Design  
Associate Dean (Research), School of Design

#### Award

- Good Design Awards 2022, The Chicago Athenaeum Museum





**Dr Elaine Wong Yi-lin**  
Research Assistant Professor,  
School of Design

**Award**

- Good Design Awards 2022, The Chicago Athenaeum Museum



**Professor John Zhang Lei**  
Chair Professor of Computer Vision and  
Image Analysis, Department of Computing

**Award**

- Listed among the Best Computer Science Scientists (9th edition) by Research.com

\*Note: Please refer to stories on p.3, 14, 17, 19, 20, 21, 23 and 24, for further information on the accolades received by other PolyU members.

Senior staff appointments and promotions  
(between 1 January and 31 March 2023)

Congratulations to the following PolyU members who have recently taken up a new capacity at the University. (Listed in alphabetical order)

Promotions



**Professor Benny Cheung Chi-fai**  
as Chair Professor of Ultra-precision  
Machining and Metrology  
Department of Industrial and Systems  
Engineering  
on 1 Feb 2023



**Professor Yan Feng**  
as Chair Professor of Organic Electronics  
Department of Applied Physics  
on 1 Feb 2023



**Professor Li Gang**  
as Chair Professor of Energy Conversion  
Technology  
Department of Electronic and Information  
Engineering  
on 1 Feb 2023



**Professor Zheng Zijian**  
as Chair Professor of Soft Materials  
and Devices  
Department of Applied Biology and  
Chemical Technology  
on 1 Feb 2023



**Professor Su Zhongqing**  
as Chair Professor of Intelligent Structures and  
Systems  
Department of Mechanical Engineering  
on 1 Feb 2023

Appointments



**Professor Chen Sheng**  
as Chair Professor of Microbiology  
Department of Food Science and Nutrition  
on 1 Mar 2023



**Professor Liu Aiqun**  
as Chair Professor of Quantum  
Engineering and Science  
Department of Electronic and Information  
Engineering  
on 1 Feb 2023



**Professor Erin Cho**  
as Dean and Professor  
School of Fashion and Textiles  
on 15 Feb 2023



**Dr Loo Ka-hong**  
as Assistant Dean (External Engagement)  
Faculty of Engineering  
on 1 Feb 2023



**Professor Chung Chi-nien**  
as Associate Dean (Research and  
Postgraduate Studies)  
Faculty of Business  
on 19 Mar 2023



**Ir Professor Arthur Mak Fuk-tat**  
as Chair Professor of Rehabilitation  
Engineering  
Department of Biomedical Engineering  
on 3 Jan 2023



**Professor He Mingguang**  
as Chair Professor of Experimental  
Ophthalmology  
School of Optometry  
on 1 Mar 2023



**Dr Raymond Sze Nung-sing**  
as Associate Dean (Academic Support)  
Faculty of Science  
on 1 Jan 2023



**Professor Wong Man-kin**  
as Associate Dean  
Faculty of Science  
on 1 Jan 2023



From startup entrepreneur to angel investor

# TACKLING CHALLENGES with AN INNOVATIVE MINDSET

**D**r Samson Tam developed the world's first electronic Chinese-English dictionary at the age of 24. His first business, which specialised in hand-held electronic devices, grew to become a listed company in just five years. That was in the early 1990s, when Hong Kong's economy was booming. Dr Tam used his technological knowledge and business acumen to seize the opportunities on offer. He attributes his success as an entrepreneur to his ability to move quickly and collaborate with others to leverage their combined strengths.

His company, Group Sense Limited, started out as a small enterprise. Dr Tam knew that in order to compete with larger corporations, he would have to expand his business quickly. He did this through technology licensing, forging partnerships with research institutes and universities to commercialise their research output, such as the Chinese Academy of Science's machine translation technology, and develop new products.

"At that time, we had little competition from Mainland China," Dr Tam recalls. "Nowadays, Hong Kong is losing its competitive advantages. Young entrepreneurs face more challenges and competition from the Mainland. Apart from acting speedily, it is critical for them to connect with information, data, and technology sources in order to succeed."

## Identifying the dream team

Dr Tam is currently a partner of the Hong Kong Inno Angel Fund, and has been acting as an angel investor for more than 20 years, connecting startups with funding and networks. When deciding which startups to invest in, a key feature he focuses on is the management team.

## Ir Dr Samson Tam Wai-ho, JP

- Partner, Hong Kong Inno Angel Fund
- Chairman, Group Sense (International) Limited
- Doctor of Philosophy, PolyU (2005)
- Outstanding PolyU Alumni Award (2007)
- President, Outstanding PolyU Alumni Association (2022-2024)



## Takeaways from his alma mater

In 1995, Dr Tam enrolled on to a PolyU Master of Science programme, offered jointly with The University of Warwick. He was encouraged by one of his professors to do a PhD, and began his studies in Knowledge Management in 1997. Dr Tam found presenting his dissertation to academics at overseas universities a memorable and fruitful experience. It not only helped him develop a global perspective but also extended his international network. He was also inspired to build a knowledge management system in his company, which he refers to as a "sharing and teaching organisation", in which the sharing of knowledge is key.



■ During his studies at PolyU, Dr Tam received much guidance from Ir Prof. Lee Wing-bun (left), Founding Director of PolyU's Knowledge Management and Innovation Research Centre and currently Emeritus Professor (Manufacturing Engineering).

"I always look for a dream team - a combination in which the individual members' outstanding skills and qualities complement each other," Dr Tam says. "To be competitive, you need someone who is good at finance, another who is good at execution; while some members need to be adept in technology, and others need to be innovative. Of course, the startup must secure a niche in technology in the first place."

Dr Tam considers the CEO to be of central importance to a startup's success, pointing out that they must have the vision, charisma, broad-mindedness, and competence to lead their team, while the team as a whole should be innovative enough to find solutions that target customers' pain points.

When it comes to innovation, Dr Tam thinks nurture plays as strong a role as nature. He believes young people are most likely to be innovative in an environment that is free from pressure and welcomes contrary ideas. Being exposed to diverse perspectives and ways of thinking is also critical to developing an innovative mindset. "An innovative mind always craves stimulation to challenge its frozen assumptions," he says.

## Acting as a connector

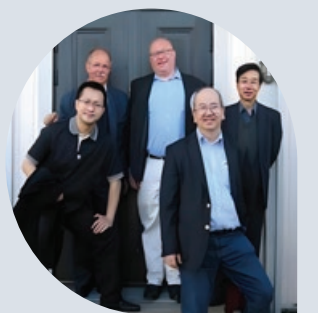
Dr Tam thinks an international environment offers the best exposure to different ideas, and he encourages aspiring entrepreneurs to gain global exposure. As President of the Outstanding PolyU Alumni Association (OPAA), Dr Tam believes the 84 members of the Association can help foster PolyU's entrepreneurial ecosystem by connecting the University's startups to their own networks, many of which are global.

"Our outstanding alumni are eager to support their alma mater, and are pleased to share not only their insights and experiences, but also their resources and connections with students and academics to empower their entrepreneurial pursuits. Many members told me that through sharing and collaboration, they themselves have also learnt something new," Dr Tam says.

"OPAA and the PolyU Foundation should consider working together to provide funding to PolyU startups," Dr Tam suggests. "We hope to see stronger cohesion among PolyU graduates, students and professors so that we will all be proud of being a member of PolyU."

Dr Tam encourages PolyU entrepreneurs to take bold steps and go global, or at least benchmark themselves against Asia's top performers. He says:

"As Asia is surging in technological strength, many opportunities will emerge in the region. Hong Kong teams have a niche over their regional competitors in terms of language and professionalism. So, aim high, make your mark and live a bigger life."



■ Dr Tam broadened his global outlook during a tour to Europe presenting his doctoral dissertation to local academics.

## Creating a herd of 'zebras'

Meanwhile, Dr Tam is taking on a new challenge as an investor, using his innovative mindset to champion the 'zebra spirit'. He brings together 'zebras' - small startups with a unique technological competence - and encourages them to share and collaborate, helping each other serve the different needs of the same customers. He explains that not only does each zebra have a unique pattern of stripes, but the black and white also symbolises the double contribution startups can make, namely profit and social benefits.



# Meet PolyU's OUTSTANDING STUDENTS

To inspire our students to thrive in academic as well as non-academic pursuits and foster their whole-person development, PolyU organises the Outstanding Students Award Scheme annually. The Award recognises full-time final-year undergraduates who have demonstrated academic excellence, strong leadership abilities, active participation in extra-curricular activities, extensive community service, and positive personal traits.



For the 2022/23 academic year, a total of 28 students were recognised as outstanding students. Among them, nine were selected at the faculty/school level. The Most Outstanding PolyU Student Award of the Year went to Miss Shah Muskan Sunish from the School of Fashion and Textiles. These students are all high-flyers and shining examples of PolyU's commitment to nurturing all-round future leaders for society.

## Awardees of the Outstanding Student Award 2022

Muskan has had an eye for fashion and has stayed on top of fashion trends since childhood. In high school, she became interested in the fashion retail industry. She believed sustainable fashion was the future trend and that it was possible to strike a balance between fashion, the economy and environmental protection.

At PolyU, Muskan has had many opportunities to pursue her passion. For instance, she was selected as a Fellow of the Millennium Fellowship programme organised by the United Nations Academic Impact and Millennium Campus Network. She also co-founded an Instagram page called 'Rethinking Fashion' to promote sustainable fashion in the campus community with her like-minded friends.

Muskan plans to work in the local fashion industry after graduation. She believes that Hong Kong's fashion market is full of potential.



I have enjoyed watching the story of my university life unfold before me, with both ups and downs to make me the lifelong learner I am today. I entered as a novice, facing hurdles, completely clueless about Hong Kong's culture. Learning from those around me, I did my best to make my journey fruitful, taking as many opportunities as possible along the way.

**The Most Outstanding PolyU Student  
Outstanding Student of School of  
Fashion and Textiles  
Shah Muskan Sunish**  
BA (Hons) in Fashion and Textiles  
(Retail and Marketing)

## Outstanding Student Awardees of Faculty/School

The group leaders in the non-local student orientation programme gave me valuable advice when I joined as a freshman. Their warm-hearted companionship helped me adapt quickly to the new living and study environment, and motivated me to serve as a group leader in the following year, to provide support and care to new students.

**Faculty of Business  
Zhou Zhuoting**  
BBA (Hons) in Accounting and Finance  
School of Accounting and Finance



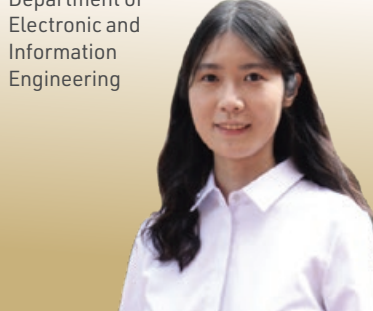
I am grateful for the various learning opportunities provided by PolyU. Through the research internship at the University of Wisconsin-Madison, I realised the unlimited potential of remote sensing in environmental monitoring, particularly in forestry, wildfire, and species modelling, which helped shape my future research directions.

**Faculty of Construction  
and Environment  
Xu Yi-nam**  
BSc (Hons) in Land Surveying and  
Geo-Informatics  
Department of Land  
Surveying and  
Geo-Informatics



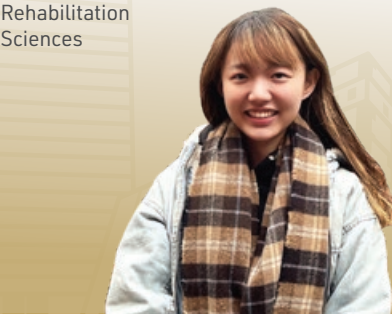
At PolyU, I had the opportunity to conduct research related to my interest. The academic exchange programme in Canada gave me the chance to explore the world and experience a different culture and teaching style. I joined a robotics lab as a research assistant at McGill University, which inspired me to further explore unmanned vehicles.

**Faculty of Engineering  
Fang Jiaying**  
BEng (Hons) in Electronic and  
Information Engineering  
Department of  
Electronic and  
Information  
Engineering



The ample learning resources provided by my Faculty and Department have equipped me with solid knowledge and helped me develop my professional competence as a proficient occupational therapist. With the abundant opportunities provided by the University, I have made use of every moment to strive for constant self-improvement.

**Faculty of Health and  
Social Sciences  
Cheung Chui-yee**  
BSc (Hons) in Occupational Therapy  
Department of  
Rehabilitation  
Sciences



I received valuable opportunities to study various branches of linguistics systematically, participate in different research projects, and familiarise myself with diverse cutting-edge techniques in modern language studies. At PolyU, I have been learning and researching in the field of linguistics, and realised how interesting language studies can be.

**Faculty of Humanities  
Xu Chenxi**  
BA (Hons) in Chinese and Bilingual Studies  
Department of  
Chinese and  
Bilingual  
Studies



One of the most fantastic experiences I had was the summer exchange at Exeter College of the University of Oxford, where I got a taste of world-class education and met so many lovely people from around the world. After graduation, I plan to pursue a PhD in Physics and eventually become a faculty member in the university.

**Faculty of Science  
Ong Chin-yuan**  
BSc (Hons) in Engineering Physics  
Department of Applied Physics





Not only did I learn professional knowledge from lectures at PolyU, but I also developed new skills and broadened my horizons from other valuable experiences, which I am sure will enable me to achieve my aspiration of being a responsible designer who brings positive change to people's lives.

#### School of Design

**Li Zihan**

BA (Hons) in Product Design



I have broadened my industry network and insights through various opportunities such as the exchange programme at Yonsei University, Korea and the six-month Work-Integrated Education internship at the International Conference Consultants Limited. I aspire to become an industry leader who inspires the next generation with vision, since I foresee nurturing talents as my life-long mission.

#### School of Hotel and Tourism Management

**Chan Lian**

BSc (Hons) in Tourism and Events Management



## Presidential Student Leadership Award recognises exemplary student leaders

PolyU places a significant emphasis on leadership development as part of its holistic education. To inspire and motivate students to further develop their leadership capabilities, the Presidential Student Leadership Award has been launched in the 2022/23 academic year.

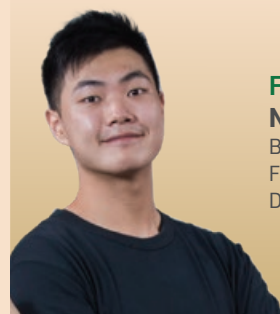
The Award honours students who have demonstrated exceptional leadership performance and qualities at PolyU and in the wider community, good academic achievement, strong communication skills, as well as a clear commitment to serving society.

A total of 27 students from different departments, faculties and schools received the Award this year. Nine of them received the Faculty/School Award. Among them, Ng Ka-ho, a student from the Department of Applied Mathematics, Faculty of Science, received the President's Distinguished Student Leadership Award.

The Award Presentation Ceremony of the Presidential Student Leadership Award was held in March alongside the Outstanding Student Award. PolyU's President, Professor Jin-Guang Teng, took the opportunity to

remind the awardees to make full use of their leadership abilities, expertise, and positive personal traits to address societal needs with a caring heart.

Professors, mentors, and peers from PolyU and my family have always encouraged me to pursue my passion for mathematics, finance and leadership. I think being a good listener is fundamental to being a great leader. Through understanding the views of teammates and the pros and cons of their ideas, one is able to lead the team with well-developed strategies and clear direction.



#### Faculty of Science

**Ng Ka-ho**

BS (Hons) in Investment Science and Finance Analytics  
Department of Applied Mathematics

## "INSPIRE" Annual Gathering connects mentors and students



The university-wide "INSPIRE" Mentorship Programme, launched in 2020, aims to enrich students' experience and enhance their personal, academic, and professional development through providing an extensive network of role models and prominent leaders from the PolyU community.

To express its gratitude to the mentors of the Programme, the University held the Annual Gathering in January 2023, bringing together more

than 250 mentors and mentees to celebrate their mentoring journeys.

The theme of this year's gathering was 'Celebration for Futurists'. Mr Vincent Tam, Head of Talent Management at the Hong Kong Productivity Council, and Mr Vincent Wu, People Partner – Hong Kong, Macau and Indonesia at Marsh, shared their insights on future talent trends, and advised students on how to equip themselves to enter the workforce.



PolyU's Central Management Team, and Council and Court members gave a toast to the "INSPIRE" community to kickstart the annual gathering at Hotel ICON.

## "INSPIRE" promotes the holistic development of students

Since its launch in 2020, the "INSPIRE" Mentorship Programme has gained huge support from over 270 local and international leaders and role models, including PolyU Council and Court members, University Fellows, outstanding alumni and Polypreneurs, who have served as mentors to offer insightful guidance to more than 1,140 student mentees with diverse cultural backgrounds and from all faculties and schools. An array of mentoring events are held through the programme, including face-to-face and online meetings, company visits, workshops, themed talks, and sharing sessions.

Undergraduate and postgraduate students of any discipline are eligible to become "INSPIRE" mentees. Through the Programme, they are able to:

- explore personal, academic, and professional development areas, as well as untapped potential
- make valuable contacts and expand their personal network
- keep abreast of changing business and operational practices and workplace culture
- seek constructive feedback for self-improvement.





## Creative students shine at PolyU-UNIQLO Sustainable Future Challenge Competition

PolyU's School of Fashion and Textiles (SFT) and Japanese clothing retailer UNIQLO recently co-organised the first Sustainable Future Challenge Competition. The event was created to promote the durability and repairability of clothing among young people and foster sustainable development in the fashion, textiles and design industries.

More than 120 SFT students took part in the competition, with 10 teams shortlisted to present their ideas and prototypes to the judging panel in February this year. The judges praised the three winning projects for being creative, practical, and well thought-out in terms of material selection, technology use, design aesthetics, environmental protection effectiveness, marketing, and brand philosophy.



■ The award presentation ceremony was officiated by Mr Ota Tomoyuki, Chief Operations Officer of UNIQLO Hong Kong (sixth from right); and Prof. Wong Wai-yeung, Interim Dean of SFT (sixth from left).

Mr Ota Tomoyuki, Chief Operations Officer of UNIQLO Hong Kong, said, "Through this competition, we have successfully identified many young talents in Hong Kong and were inspired by their visionary proposals."

Assistant Professors of SFT Dr Fan Di and Dr Magnum Lam Man-lok, who organised the competition, said: "Support from industry is important in providing education to nurture future industry leaders for the development of sustainable fashion."



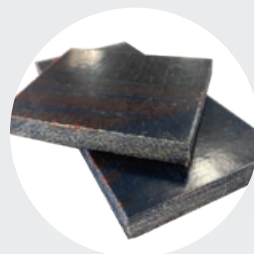
**Champion**

### Pet Toys

by Chung Wing-tin Nicole, Lam Tsz-shuen, and Leung Wing-yan

Inspired by traditional Japanese knots, the team made a set of cotton rope toys for pets out of recycled clothes, potentially creating a new business opportunity.

**1<sup>st</sup> runner-up**



**Recycle Textiles Composites for Sustainable Society**  
by Chung Ka-wai, Fok Chun-fung, Lam Chak-wai, Lam Tsz-ki and Wong Mei-shan

The team compressed recycled textile waste to make composite boards. The new material can be used to produce furniture, for sound proofing, and as a construction material.

**2<sup>nd</sup> runner-up**



### Green Fashion - Coffee Ground Fibre

by Au Man-yan, Cheung Mei-yan, Lau Tsz-yan, Pun Wai-jan, Sit Kai-man and Tse Ka-wing

The team upcycled coffee grounds and turned them into fibres that can be used in textile and apparel production. The fibre has unique odour-absorbing, fast-drying and UV protection features.

## PolyU students win two prizes in HKGCC Business Case Competition

Two teams of PolyU students won the championship and the second runner-up prize in different challenges at the HKGCC Business Case Competition 2022, organised by the Hong Kong General Chamber of Commerce (HKGCC).

The competition connects tertiary students with

businesses to exchange ideas and encourage students to use their skills and knowledge to develop creative solutions to real-life business problems. Contestants could choose from five different business challenges, each of which represented an influential corporation in Hong Kong. A total of 140 solutions were submitted to the competition from teams from different universities.

### Championing a design approach

A team of students from PolyU's Department of Management and Marketing and the School of Design won the championship in the Sino Group challenge. They received internship opportunities and a one-year student membership at HKGCC, as well as a cash prize of HK\$30,000.



<b>Team name</b>	Forest Y2K
<b>Team members</b>	Ng Hoi-kam, Department of Management and Marketing Justina Lam Nga-wing, School of Design Karen Ashley Yue, School of Design
<b>Challenge</b>	Sino Group – Achieving a Wellness Environment Where We Live and Play

The winning team's design-approach to creating a solution to raise the level of wellness in people's daily lives differentiated them from other entries. The team said: "We have seen an increased trend of adopting all-round wellness living practices for mental, physical, and spiritual wellness improvements. We aim to encourage people to use Sino Group's mobile application to take small steps to integrate wellness into their everyday life."

During the course of the competition, the students gained insights into presentation techniques through watching other teams, helping them to engage in an interactive way with the audience. They also learnt about industry through taking part in the competition.



### Applying NFT technology

Two third-year students from the Department of Computing won third place in the Chinachem Group challenge. They received an interview invitation for an internship and a one-year student membership at HKGCC, as well as a cash prize of HK\$10,000.



<b>Team name</b>	Jack Daniel
<b>Team members</b>	Jack Au Lok-to, Department of Computing Daniel Yu Man-fai, Department of Computing
<b>Challenge</b>	Chinachem Group – Embrace Cutting-Edge Technologies to Create Places with Heart

Jack and Daniel, undergraduate Financial Technology and Artificial Intelligence students, said they gained precious real-life experience from taking part in the competition, learning a lot from their industrial mentors. They considered their improved technical mindset and the international friendships they made as being the highlights of the experience.



Their solution, Ninaland, used non-fungible token (NFT) technology to digitalise exhibits and activities at Nina Park, a museum-grade fossil garden due to open in autumn 2023, with the aim of helping visitors connect with the attraction, promoting sustainability and enriching communities.





# PolyU Annual Talent Show organised by STARS

PolyU introduced the Special Talent Admission and Recognition Scheme (STARS) in the academic year 2022/23 to admit students with special talents in sports, arts and culture, leadership and community services, and STEM. To support this scheme, STARS Scholarships were established along with the new STARS Residential College in the Homantin Student Halls, which provides students a vibrant living and learning environment with diverse opportunities for their holistic development. To date, the University has admitted more than 130 students into the STARS Residential College.

## Dazzling performances by STARS students

To provide a platform for its students to showcase their exceptional talents, the STARS Residential College held its inaugural PolyU Annual Talent Show at the Chiang Chen Studio Theatre one evening in March. A wide variety of performances were featured, ranging from pop songs to classical music, performed with traditional Chinese musical instruments, violins, piano, drums, guitars and more. The show also included Chinese Kungfu, a puppet show, and a fashion show showcasing traditional Chinese

costumes. The event attracted an audience of 100 people, who enjoyed a memorable and exciting night.

Professor Jin-Guang Teng, President of PolyU, delivered a speech and thanked members of STARS, including resident fellows, tutors, residents and performers for their efforts in organising the show. He believed the event was an excellent opportunity for students to exhibit their unique capabilities.



Renowned singer Ms Sophie Chen (third from right) was one of the guests of the show.



PolyU places great emphasis on the whole-person development of students. To recognise students with diverse talents, the University has introduced various admission schemes. In 2022/23, three new schemes were launched: the Student-Athlete Learning Support and Admission Scheme, the School Nominations Direct Admission Scheme, and STARS.

Scan the QR code to learn more:



## PolyU students win second prize in Huawei ICT competition



From left: Dr Henry Chan, Associate Professor and Associate Head of the Department of Computing; students Bi Jingyun and Au-Yeung Chak-him from the Department of Electronic and Information Engineering (EIE); Dr Lawrence Cheung, Teaching Fellow of EIE and Mr Peter Yan, CEO of Cyberport.

A team of PolyU students won the Second Prize Award in the Huawei Information and Communications Technology (ICT) Competition 2022-2023 Hong Kong in December 2022.

Organised by Huawei Technologies Co. Ltd, with the Office of the Government Chief Information Officer of the HKSAR Government acting as advisor, the competition aims to deepen college students' knowledge of ICT through assessing their mastery of ICT theories. It attracted more than 600 participants from local institutions.

The PolyU team, hellowhat, was made up of year one students Au-Yeung Chak-him and Bi Jingyun from the Department of Electronic and Information Engineering (EIE), and Li Jingyu from the Department of Applied Mathematics. They attained the second highest score in the Hong Kong track of the competition.

Dr Lawrence Cheung Chi-chung, Teaching Fellow of EIE, who supervised the team, described them as being highly motivated and demonstrating innovation, as they integrated their knowledge on cloud storage and artificial intelligence. The students welcomed the opportunity to broadened their horizons through the competition.



## PolyU Artist-in-Residence Programme 2022-23: Maestro Leung Kin-fung 'Ode to Joy - Beethoven's Symphony No. 9 Concert'

PolyU was delighted to present the 'Ode to Joy - Beethoven's Symphony No. 9 Concert' in March 2023, attracting hundreds of staff, students, alumni and guests to the Jockey Club Auditorium. The concert was directed by Maestro Leung Kin-fung, PolyU's Artist-in-Residence 2022-2023, who was appointed as the Artistic Director and Conductor of the PolyU Orchestra in 2016 and was conferred a University Fellowship in 2022. Under the baton of Maestro Leung, the PolyU Orchestra offered a musical journey that included Mozart's Piano Concerto No. 21 in C, K. 467, featuring talented

young pianist Wong Ka-jeng. The concert reached a crescendo when Maestro Leung led the PolyU Orchestra and renowned vocal soloists Dr Julia Chen, a soprano and Director of the Educational Development Centre of PolyU; Ms Bobbie Zhang, mezzo-soprano; Mr Alex Tam, tenor and conductor of the PolyU Choir and Opera Hong Kong Chorus; and Mr Apollo Wong, bass-baritone, together with more than 100 members of the PolyU Choir and Opera Hong Kong Chorus, in a performance of the fourth movement of Beethoven's Symphony No. 9.



Conducted by Maestro Leung Kin-fung (left), PolyU's Artist-in-Residence 2022-23, the PolyU Orchestra performed Mozart's Piano Concerto No. 21 in C, K. 467 with talented young pianist Wong Ka-jeng (right).



Renowned musicians including Dr Julia Chen (second from left), Ms Bobbie Zhang (first from left), Mr Alex Tam (first from right) and Mr Apollo Wong (second from right), performed the fourth movement of Beethoven's Symphony No. 9, together with more than 100 members of the PolyU Choir and Opera Hong Kong Chorus.



## PolyU Press presents *Kaiwu: Science, Technology and Culture*

Jointly presented by the Department of Chinese Culture and the Research Centre for Chinese History and Culture of PolyU, and published by PolyU Press, *Kaiwu: Science, Technology and Culture* is a biannual journal that publishes accessible scholarly articles on developments of science and technology and their impact on society and culture. It covers topics on scientific ethics, medical humanities, digital humanities, environmental history, historical geography, archaeology, and other frontier areas in science and technology studies. The inaugural issue of this journal was published in March 2023 and can be read by scanning the QR code.



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