

# Excel x Impact

## **ANEW ERA** IN HONG KONG'S **1&T DEVELOPMENT**

PolyU pledges full support



Contents | Summer 2022



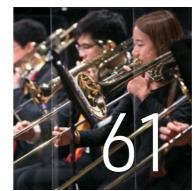














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### President's Message

While this year marks the 25th Anniversary of the establishment of the HKSAR, it also represents the 85th Anniversary of PolyU. Hong Kong is entering a new era of development, and PolyU stands ready to support the vision of 'starting a new chapter for Hong Kong together'.

PolyU, which is ranked as a Top 100 University worldwide by both QS and Times Higher Education, strives to play an active role in developing Hong Kong into an international innovation and technology (I&T) hub. Our research capabilities were recognised when, to our great pride, we were selected to showcase our impactful research during President Xi Jinping's visit to Hong Kong. President Xi inspected innovation and technology developments in Hong Kong, and addressed a group of representatives of local researchers, including academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering, young scientists and entrepreneurs. As one of the representatives, I had the great honour of listening to President Xi's very inspiring address. President Xi's visit demonstrated that the Central Government places great importance on Hong Kong's I&T development as well as Hong Kong's ability to make greater contributions in the future to the Nation's development in science and technology.

PolyU is committed to being a significant force in Hong Kong's I&T development through its education, research, knowledge transfer and entrepreneurship initiatives. Building upon our heritage of excellence in world-class education and research, PolyU will make further contributions to the long-term development and prosperity of our city, the Greater Bay Area and the Nation.

Jin-Guang Teng President



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# A NEW ERA in Hong Kong's 1&T DEVELOPMENT

### - PolyU pledges full support

022 is a momentous year, as it marks the 85th Anniversary of The Hong Kong Polytechnic University (PolyU), as well as the 25th Anniversary of the establishment of the Hong Kong Special Administrative Region. The new Chief Executive Mr John K. C. Lee and his administration have pledged to transform the city into an international innovation and technology (I&T) hub, which integrates into the Nation's overall growth and prosperity. During this new era, PolyU, which is recognised as a Top 100 University worldwide in rankings by both QS and Times Higher Education, is committed to being a significant force in Hong Kong's I&T development, through its education, research, knowledge transfer and entrepreneurship initiatives.

These initiatives range from developing impactful innovations, spearheading interdisciplinary research, and redesigning the curricula, to supporting young researchers, nurturing technopreneurs and collaborating with industry. In fact, PolyU's capabilities were recognised when it was selected to showcase its research for the Chinese President Mr Xi Jinping's visit

to the Hong Kong Science Park (see page 4). PolyU has also contributed to the Government's flagship InnoHK initiative, which aims to promote I&T in Hong Kong through international research collaboration (see page 17). In addition, PolyU held a Flag-Raising Ceremony for the 25th Anniversary of the Hong Kong SAR (see page 18), highlighting the University's support for the continued success and advancement of Hong Kong and the Nation.

The University's efforts to promote I&T were showcased at the first-ever PolyU InnoTech Open Day, which was recently held on campus, as a signature event of PolyU's 85th Anniversary celebrations. The event was officiated by Professor Sun Dong, Secretary for Innovation, Technology and Industry of the Hong Kong SAR Government, and attended by Chairman of the PolyU Council Dr Lam Tai-fai, government officials, entrepreneurs, industry partners, startups, researchers, and young talents, as well as prospective university students and their parents. The Open Day was backed by 19 supporting organisations (see page 16), all of which are key players in Hong Kong's I&T ecosystem.



■ The PolyU InnoTech Open Day was launched by (front row, from left) Dr Miranda Lou, PolyU's Executive Vice President; Dr Roy Chung, PolyU's Honorary Court Chairman; Mr Liu Maozhou, Inspector of the Department of Educational, Scientific and Technological Affairs of the Liaison Office of the Central People's Government in HKSAR; Professor Jin-Guang Teng, PolyU's President; Professor Sun Dong, Secretary for Innovation, Technology and Industry; Dr Lam Tai-fai, Chairman of PolyU's Council; Ms Rebecca Pun, Commissioner for Innovation and Technology; Dr Lawrence Li, Deputy Chairman of PolyU's Council; Professor Wing-tak Wong, PolyU's Deputy President and Provost; together with representatives of the supporting organisations.

### PolyU's research showcased at Science Park during Chinese leader's visit

To mark the 25th Anniversary of Hong Kong's return to the Motherland, President Xi Jinping visited Hong Kong, and was introduced to the city's innovation and technology development during a visit to the Hong Kong Science Park. He encouraged local researchers to strive for excellence, and encouraged Hong Kong to continue building its I&T ecosystem. PolyU's Research Centre for Deep Space Explorations and the Chinese National Engineering Research Centre (CNERC) for Steel Construction (Hong Kong Branch) were honoured to have the opportunity to showcase their research during the visit.

PolyU is the only university in Hong Kong that has participated in China's historic space exploration projects, including the Nation's first lunar sample

return mission Chang'e-5 and its first Mars exploration mission Tianwen-1. Meanwhile, the CNERC showcased its research work including the world's first application of Chinese Q690 high strength steel in a large-scale infrastructure project, the Cross Bay Link Double Arch Steel Bridge in Tseung Kwan O, promoting Chinese steel products to the world.

PolyU will continue to seize the opportunities offered by the 14th Five-Year Plan and the development of the Guangdong-Hong Kong-Macao Greater Bay Area. Capitalising on its research expertise, PolyU will further strengthen collaboration with universities in Mainland China and worldwide to empower I&T development in Hong Kong and beyond.



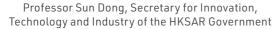




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### Government praises PolyU's contribution to I&T development

Over the years, PolyU has been playing a long-supporting and pioneering role in driving I&T development in Hong Kong. With the Government's solid commitment to I&T development, coupled with our strong capabilities in scientific research and academic excellence of our universities, Hong Kong's I&T ecosystem is flourishing and increasingly vibrant.







### PolyU is committed to supporting Hong Kong's I&T development

PolyU will seek to work closely with the Government, as well as our strategic partners across all sectors of society, to create innovative technologies and nurture leading talents to support the development of Hong Kong and the Greater Bay Area into an international I&T hub, and the development of science and technology in our Nation.

Professor Jin-Guang Teng, PolyU President









### PAIR to lead interdisciplinary research

The PolyU Academy for Interdisciplinary Research (PAIR) combines expertise across disciplines to support innovation and find practical solutions to major global and societal issues. PAIR, which is made up of 11 Research Institutes (RIs) and five Research Centres (RCs), was inaugurated at the PolyU InnoTech Open Day. It is the largest research platform of its kind in Hong Kong and the Greater Bay Area (GBA) to foster interdisciplinary research, partnerships with internationally renowned scholars, and technology transfer.



■ PAIR combines PolyU's research strengths to spearhead interdisciplinary work to address major global issues. The officiating party and the representatives of the RIs and RCs posed at the Inauguration Ceremony.

#### **Research Institutes under PAIR**

Research Institute for Advanced Manufacturing

Research Institute for Artificial Intelligence of Things

Research Institute for Future Food

Research Institute for Intelligent Wearable Systems

Research Institute for Land and Space

Photonics Research Institute

Research Institute for Smart Ageing

Otto Poon Charitable Foundation Smart Cities Research Institute

Otto Poon Charitable Foundation Research Institute for Smart Energy

Research Institute for Sports Science and Technology

Research Institute for Sustainable Urban Development

### **Research Centres under PAIR**

Research Centre for Chinese Medicine Innovation

Research Centre for Deep Space Explorations

Mental Health Research Centre

Research Centre for SHARP Vision

Research Centre for Resources Engineering towards Carbon Neutrality





■ An exhibition introducing PAIR's cutting-edge research projects caught the attention of visitors.



More about PAIR

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### President's Awards for Outstanding Achievement in Knowledge Transfer 2021

### PolyU's ten most impactful innovations

PolyU strives to ensure that alongside advancing technological and industry standards, the work of its researchers also has impactful applications that benefit society. The ten individuals or teams that won the President's Awards for Outstanding Achievement in Knowledge Transfer (KT) have made contributions in areas ranging from space exploration, smart energy, smart city, and optometry, to education, transportation, healthcare, and fabric and printing technology.

The Awards were presented for the first time at a ceremony during the PolyU InnoTech Open Day.

### **Industry Individual Awards**

(Listed in alphabetical order of researchers' surnames)



Awarded research:
3D Mapping Aided GNSS for
Effective Positioning and
Navigation in Urban Areas

**Dr Hsu Li-ta**, Associate Head and Associate Professor, Department of Aeronautical and Aviation Engineering

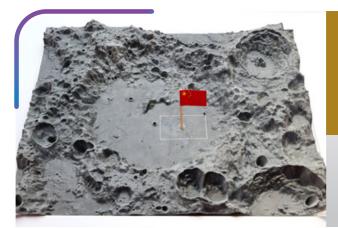




Awarded research:
Nano-based Anti-erasing
Ink for Printing on Plastic
Surfaces

**Professor Li Pei**, Professor,
Department of Applied Biology and
Chemical Technology





### Awarded research:

Advanced Topographic Mapping and Geomorphological Analysis Technologies Contributing to Landing Site Selection in Space Exploration Missions

Professor Wu Bo, Associate
Head (Research) and Professor,
Department of Land Surveying and
Geo-Informatics





### Awarded research: Scolioscan: a 3D Ultrasound

Imaging System for Radiation-free Scoliosis Assessment

Ir Professor Zheng Yongping, Chair Professor of Biomedical Engineering, Department of Biomedical Engineering



### **Society Team Award**

### Awarded research:

Academic Research on Chinese
Language Education with Impact on
Knowledge Construction, Policy and
Teaching Practice

### Department of Chinese and Bilingual Studies

\*Professor Chan Shui-duen (left), Research Professor

Professor Zhu Xinhua (right), Professor

\*Principal Investigator



### Industry Team Awards \_\_

(Listed in alphabetical order of \*Principal Investigators' surnames)

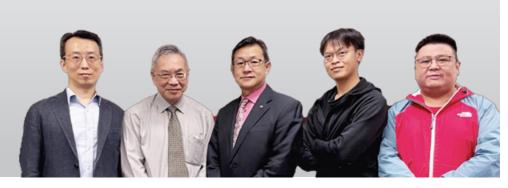


### Awarded research:

Predictive Maintenance Railway Monitoring System Based on Optical Fibre Sensing

### **Department of Electrical Engineering**

\*Professor Tam Hwa-yaw (centre), Chair Professor of Photonics
Ir Dr Lee Kang-kuen (second from left), Professor of Practice
Dr S. Y. M. Liu (first from left), Senior Scientific Officer
Dr Stephen Cho Lok-hin (second from right), Research Fellow
Mr David Au Ho-yin (first from right), Project Associate



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**School of Fashion and Textiles** 

\*Professor Tao Xiaoming (centre), Chair Professor of Textile Technology

Professor Xu Bingang (right), Professor **Dr Hua Tao** (left), Associate Professor









**School of Optometry** 

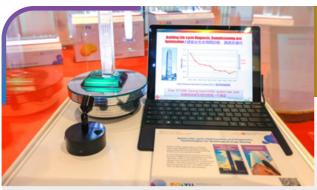
Awarded research:

Textile Properties

Nu-Torque™: Breakthrough in Yarn

\*Professor To Chi-ho (centre), Chair Professor of Experimental Optometry

Professor Carly S. Y. Lam (left), Professor Dr Dennis Tse Yan-yin (right), Associate Professor



### Awarded research:

Smart Life-cycle Optimisation and Diagnostic Technologies for **Buildings Energy Saving** 



\*Ir Professor Wang Shengwei (second from left), Chair

**Dr H. X. Li** (first from right), Research Assistant



Professor of Building Energy and Automation **Professor Xiao Fu** (second from right), Professor

> **Dr Shan Kui** (first from left), Research Assistant Professor





### Awarded research:

Advanced Precision Engineering for Space Missions and Industrial Applications



### **Department of Industrial and Systems Engineering**

\*Ir Professor Yung Kai-leung (centre, in black), Chair Professor of Precision Engineering Mr Ko Sui-man, Senior Scientific Officer Mr Sam C. W. Lam, Scientific Officer **Dr Kwan Folk-year**, Senior Project Fellow Mr Chan Chi-leung, Project Fellow **Dr James Abbott Foster**, Project Fellow Mr Tang Jing-jung, Project Fellow Ms Nicole Chan Chi-wa, Project Associate Mr Eno Lam Ho-yat, Project Associate Mr Michael Lok Ching-ho, Project Associate **Mr Sky Tam**, Project Associate Ms Joanne Wong, Project Assistant Mr Choi Sheung-wai, Research Assistant

### **Industrial Centre**

Ir Dr Robert Tam Wai-man, Associate Director Mr Kong Kang-hoi, Senior Engineer Ir Juliana Tam Mei-yuk, Engineer Mr Chan Kwan-yau, Associate Engineer Mr Chang Ka-ho, Associate Engineer Mr Cheung Cheuk-kin, Associate Engineer Mr Dragon Li Yan-lung, Associate Engineer Mr Wan Chan-tong, Associate Engineer Mr Alan Yu Tin-lun, Associate Engineer Mr Tang Wing-lok, Assistant Engineer Mr Billy Wan Chin-ting, Assistant Engineer Mr Ho Yiu-cheong, Technical Assistant Mr So Kin-tak, Project Assistant Mr Chan Chi-keung, Project Technical Assistant Mr Chan Hon-man, Project Technical Assistant

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### Young Innovative Researcher Award 2022

Talent is a key asset in an I&T ecosystem. As a result, the University strives to support and encourage its young researchers. The PolyU Young Innovative Researcher Award (YIRA) is a new university-level award that recognises faculty members aged under 35 who demonstrate research excellence in addressing global challenges. The work of this year's winners covers areas as diverse as engineering, education, sustainability, transportation, and social care. Further details about the awardees and their innovations can be found on page 52.



The Young Innovative Researchers 2022 are (in alphabetical order):

- Dr Sarah Chen Si, Assistant Professor, Department of Chinese and Bilingual Studies (third from right)
- Dr Chen Zibin, Assistant Professor, Department of Industrial and Systems Engineering (second from right)
- Mr Daniel Keith Elkin, Assistant Professor, School of Design
- Dr Franco Leung King-chi, Assistant Professor, Department of Applied Biology and Chemical Technology (third from left)
- **Dr Benedict Lo Tsz-woon**, Assistant Professor, Department of Applied Biology and Chemical Technology and Department of Applied Physics (second from left)
- **Dr Tommy Wei Minchen**, Associate Professor, Department of Building Environment and Energy Engineering (fourth from right)

#### Nobel Laureate Sir Michael Houghton provides inspiration



Sir Michael Houghton, the 2020 Nobel Laureate in Physiology or Medicine, gave a virtual seminar on the topic of 'Eliminating hepatitis C virus (HCV) infection as a major public health threat'.

Sir Michael is the director of the Li Ka Shing Applied Virology Institute at the University of Alberta in Canada and a professor in the Department of Medical Microbiology and Immunology of the Faculty of Medicine & Dentistry. His discovery in 1989 opened a new field of viral hepatitis research that led to improved blood safety and hepatitis C treatment, to the point where the viral infection can now be cured in all patients. He created a successful vaccine for the SARS-CoV-1 virus in 2004, and has recently been leading an effort to produce a vaccine for COVID-19.



Dr Choo Qui-lim, who worked closely with Sir Michael in the HCV research, was in the audience and enjoyed an inspiring discussion with the Nobel Laureate.

### **PolyVentures InnoTech Showcase**

PolyVentures is the University's signature technology startup ecosystem tailored for aspiring entrepreneurs among PolyU students, alumni, academics, and research staff. It aims to foster an entrepreneurial mindset, and to accelerate the translation of innovations and technologies from the University to the marketplace, thereby creating impact.

The PolyVentures InnoTech Showcase at the PolyU InnoTech Open Day provided a key opportunity for

innovation and technology entrepreneurs, industry partners, startups and young talent to network and share their views and experience. The event included a Startup Exhibition, which showcased the impressive achievements and innovations of 14 PolyU startups, a ceremony to show appreciation for PolyVentures' strategic partners, a startup pitching session, and sharing by PolyU unicorns and students.



Enthusiastic participants, including the University's Court and Council members, senior management, strategic partners, technopreneurs and young talents, showed their support for PolyU-nurtured startups and the PolyVentures initiative.

### **PolyVentures**

Through PolyVentures, the University nurtures entrepreneurs, accelerating their startup journeys and equipping them for long term success. So far:

7.600+



**Young Entrepreneurs Trained** 

1,000+



Entrepreneurs Nurtured

310+



Startups of Social / Design /

**International and Local Awards** 

220+



**Tech Startups** 

9 6



**Academic-led Startups** 

**Business Innovation** 

13



Ponies (US\$10M+ valuation)

4



Unicorns (US\$1Bn+ valuation)

### Generous support from industry

Dr Winnie Tang (left), Founder and Chairman of Esri China (Hong Kong) Limited, presented a cheque for HK\$5 million to set up a scholarship promoting entrepreneurship among students at PolyU. Deputy Chairman of PolyU's Council Dr Lawrence Li (second from left), PolyU President Professor Jin-Guang Teng (second from right), and Dr Miranda Lou (right) received the cheque on the University's behalf.



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### Ceremony of appreciation for PolyVentures' strategic partners



PolyU honoured PolyVentures' strategic partners in the appreciation ceremony.

### **Startup Exhibition**

Fourteen PolyU-nurtured startups, each with unique business ideas and high technical competence, were featured in the Exhibition. These budding companies employ advanced technologies, ranging from artificial technology and biotechnology to medical robots and wearable electronics, to meet the needs of the medical, hotel, and education sectors.



Active Biotechnology (Hong Kong)



Asiabots



Blue Pin (HK)



**CLAIRE Clinical AI Research** 



EightOSix Technology



Fleming MedLab



**Grand Rise Technology** 



iMeddy



Immune Materials



PlusD Technology



**Storius** 

13

### Unicorn sharing

The event also saw three founders of PolyU unicorns share their success stories with aspiring technopreneurs.



Mr Fang Bing (Electronic and Information Engineering, 2014) is Chief Operating Officer and Cofounder of Hai Robotics, which uses logistics robots to increase warehouse and factory efficiency.



Mr James 0 (Advertising Design, 2008) is Co-founder of GoGoX, one of the first mobile app-based logistics platforms in Asia.



■ Dr Bruce Wang (Mechanical Engineering, 2010) is Founder and CEO of EcoFlow, which develops portable power and clean energy products.



**Telefield Medical Imaging** 



viAct



WeExpand

### **Startup pitching**

The event came to a climax with a pitching session in which participating startups had the opportunity to introduce their business ideas to industry guests.

The panel of judges of the startup pitching included PolyU Council Members Dr Lawrence Li, Ir Arthur Lee, Dr Daniel Yip; Court Members Dr Raymond Leung, Ms Amy Lung; and Members of the Entrepreneurship Investment Fund Steering Committee Mrs Sophia Chan and Ir Dr Samson Tam.



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### A wide array of activities

### Breakout sessions introducing PolyU technologies to industry partners

A series of breakout sessions were organised to provide an opportunity for industry practitioners and PolyU researchers to exchange views and explore collaboration possibilities on various subjects covering technology innovation and development, as well as industry trends and applications. The topics included life science, smart cities, neurohealth, future society, energy technology for carbon-neutrality, healthy food and lifestyle management, future manufacturing, artificial intelligence of things and intelligent wearable systems.











### Exhibitions showcasing PolyU's impactful innovations and research strengths

Participants at the Open Day had the opportunity to learn more about a wide range of PolyU research projects and their impact on society through a number of exhibitions and panel sessions.



### Special attractions: Al robots and dragon horses



 Sophia, a world-renowned AI robot, interacted with visitors during the Open Day.



Grace, the caring AI nurse, who has a thermal camera in her chest to take temperatures, was designed to interact with the elderly and people isolated during the COVID-19 pandemic.



 Dragon Cavallo, an art showcase featuring mini dragon horses, injected creativity into the campus atmosphere.

### Guided tours of labs and facilities

Campus tours to laboratories in the disciplines of healthcare, advanced manufacturing, smart city, design, sustainability, textiles, new materials, and hospitality, as well as the library, were arranged for interested participants.



 The tour of Pao Yue-Kong Library included its new state-of-the-art facilities for collaborative learning.



 Visitors stopped and listened to a design student introducing her project while they toured around the Jockey Club Innovation Tower.



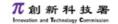
■ Students showed great interest in the study of Physiotherapy.

### Information seminars for prospective students

To further nurture I&T talents, the University is introducing artificial intelligence and data analytics, and innovation and entrepreneurship into its undergraduate curriculum. Secondary school students and parents were interested to know more about the new approach during the information seminars. Consultation sessions about PolyU's programmes offered by individual faculties and schools were also well attended.



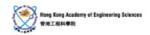
### Special thanks to 19 supporting organisations







































### PolyU supports the Government's InnoHK initiative

InnoHK is a flagship innovation and technology (I&T) initiative of the HKSAR Government that aims to promote international research collaboration with a view to putting Hong Kong on the global advanced technology map. After a rigorous selection and assessment process, 28 research laboratories have been admitted to the InnoHK initiative, pooling around 2,000 researchers locally and from all over the world.

The InnoHK Launch Ceremony was successfully held in May, officiated by Mrs Carrie Lam, the then Chief Executive of the Hong Kong Special Administrative Region; Professor Tsui Lap-Chee, President of the Hong Kong Academy of Sciences; Dr Sunny Chai, Chairman of the Hong Kong Science and Technology Parks Corporation; and heads of universities.

PolyU is strongly supporting this landmark initiative, and in partnership with world-renowned institutions, has established three pioneering research centres under InnoHK, which focus on artificial intelligence, design, and vision science technologies to positively impact the world. The three research centres are the Laboratory for Artificial Intelligence in Design (AiDLab) with the Royal College of Art; the Centre for Advances in Reliability and Safety (CAiRS) with the University of Maryland, College Park; and the Centre for Eye and Vision Research (CEVR) with the University of Waterloo. At the launch event, PolyU's President, Professor Jin-Guang Teng, met the researchers at the centres and learned about their latest activities and research endeavours.

Scan the QR code to read comprehensive details about the centres:



Centre for Eye and Vision Research 眼视覺研究中心









 Mrs Lam (fourth from left), PolyU senior management and other guests celebrate the inauguration of AiDLab, CEVR and CAIRS under InnoHK. PolyU has also become the first local collaborating institution of the Centre for Artificial Intelligence and Robotics, Hong Kong Institute of Science & Innovation, Chinese Academy of Sciences (CAS). Established by the Institute of Automation of CAS, the Centre has been admitted to AIR@InnoHK (Artificial Intelligence and Robotics) under InnoHK Clusters.

PolyU will remain devoted to leveraging its expertise in interdisciplinary research and technological innovation for the benefit of Hong Kong, the Nation and the world

Mrs Carrie Lam (centre), Professor Tsui Lap-chee (sixth from left), Dr Sunny Chai (sixth from right), PolyU's President Professor Jin-Guang Teng (fourth from right), and other guests officiate at the InnoHK Launch Ceremony.





### PolyU celebrates the 25th anniversary of the establishment of the HKSAR

To celebrate the 25th anniversary of the establishment of the Hong Kong Special Administrative Region (HKSAR), as well as to wish our Nation prosperity and vibrancy and to show support for the HKSAR's new administration in starting a new chapter, PolyU held a flag-raising ceremony on campus on 1 July 2022. More than 800 participants including University Council and Court members, senior management, staff, alumni, students and supporters of PolyU attended the ceremony. Among them were Dr Katherine Ngan, Chairman of the University Court; Dr Roy Chung Chi-ping, Honorary Chairman of the University Court; Dr Lawrence Li Kwok-chang, Deputy Council Chairman; Professor Wing-tak Wong, PolyU Deputy President and Provost; and Dr Miranda Lou, Executive Vice President.

Dr Lam Tai-fai, Council Chairman of PolyU, said, "Our Nation has not only strongly supported Hong Kong, but has also placed its full confidence in PolyU, bringing us opportunities to contribute to the development of Hong Kong and the Nation by capitalising on the University's excellence in education and scientific research."

Professor Jin-Guang Teng, President of PolyU, said, "This year not only marks the 25th anniversary of the establishment of the HKSAR, but also the 85th anniversary of PolyU. The University has been working relentlessly to contribute to the development of Hong Kong, our Nation and the world by meeting societal needs through the nurturing of numerous talented leaders as well as innovative research. All of us at PolyU will join hands to grow and progress together with Hong Kong."

■ (Front row, sixth from right) Professor Wing-tak Wong, Dr Roy Chung, Dr Katherine Ngan, Dr Lawrence Li, and Dr Miranda Lou, together with University management and members, attended the ceremony.





### A conversation with Vice President (Campus Development and Facilities) Mr Simon Wong

An accomplished architect, Mr Simon Wong had assumed senior management positions in sizable organisations and listed companies before joining PolyU as Vice President (Campus Development and Facilities) in May 2022. He is responsible for spearheading the development and implementation of strategies to enhance campus space and environment, as well as the management of facilities to meet the University's growing needs. With more than 30 years of experience in the public and private sectors, he had led major development projects such as InnoCell, the first high-rise building adopting Modular Integrated Construction technology in Hong Kong.

### What attracted you to join PolyU? What is your impression of its signature red-brick architecture?

The University's red-brick architecture is iconic, symbolising its close ties with industry and society. Nowadays, there are more contemporary buildings on campus; they have enhanced PolyU's image as a modern university. I have noticed that many people like taking pictures of the Jockey Club Innovation Tower designed by world-renowned architect Zaha Hadid. The building has enhanced PolyU's international status.

On a personal note, I studied at the then Hong Kong Polytechnic for two years in the mid-1980s, after graduating from secondary school, and had a strong bond with fellow students. I even met my wife here. In those days, we schoolmates had a strong sense of belonging to the institution.

### Can you share some of the initiatives under the University's master plan of campus development?

One major development is the campus expansion project at the Ho Man Tin slope. The project involves the construction of a new academic building to provide more than 10,000m² floor area to meet the healthcare training needs of allied health services in Hong Kong. It will also include a hostel building providing accommodation for about 1,300 students.

With the University's further emphasis on interdisciplinary research, more laboratory facilities that can drive the development of technology and innovation are indispensable.

Our campus redevelopment projects can present us with a challenge, as we must avoid causing disruptions to campus operations. We have to make careful planning for those projects.

We are also exploring how to enhance the communal spaces on campus, for example, by creating more leisure spaces where staff and students can mingle, learn and share with each other, or even busk together. The aim is to foster a stronger sense of belonging among the PolyU community and to optimise the use of campus space.

I hope that my experience in property design and planning as well as construction innovation could help steer the development of our campus.

### What is your vision for a smart campus?

A smart campus is one with extensive adoption of Internet of Things (IoT). Our blueprint is to first develop a backbone for the system that uses smart technology to enhance efficiency, save energy and help reach the goal of carbon neutrality.

Through the installation of sensors and the gathering of building data, we can switch off the air conditioning system in rooms when no one is using them. Through artificial intelligence, we can adjust the temperature of rooms automatically according to the pattern of use of those rooms, if rich data are available.

### How can PolyU researchers' expertise be used to support the development of a smart sustainable campus?

PolyU researchers have long been working in the fields of smart energy, smart cities and sustainable urban development. I found when I was working in the private sector that there were many research talents at PolyU, and the University also has extensive collaboration with the construction industry. I do hope to work with more professors here so we can create a positive impact on society.

I will try to integrate the research work of professors on new technology that is ready for adoption. I am keen to promote the use of new technology.

## Based on your extensive professional experience, what is your advice for young people and students who aspire to be successful architects, or master planners?

Attitude is the key to success. It is important to have a 'can do' spirit, determination and innovative thinking. Have a sense of mission in what you do, and try to develop a broader perspective. Think about 'we' instead of 'me'

Interdisciplinary knowledge is also crucial nowadays. Do not limit yourself to knowledge in one field alone, but try to acquire broader knowledge.

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

Give meaning to your work by regarding it as a mission, rather than just a task to be completed.

Another motto is "When there is a will, there is a way."

### How do you spend your free time?

I enjoy watching movies and travelling. When travelling, I like observing people's lifestyles, learning about the history of ancient buildings. I love visiting markets because they tell a lot about people's lives in a different culture.



 Mr Wong shares his vision on PolyU's campus development with colleagues in the Strategic Planning Forum.

Education Excel x Impact



[The Service-Learning programme] gives students a chance to apply what they have learned in their professional fields to solving real-life problems. In this way, PolyU instils a sense of social responsibility in its students.



The judges of THE Awards Asia 2022

### Service-Learning pedagogy wins international award

PolyU strives to give future leaders a strong sense of social responsibility and a global perspective by offering a holistic education and varied learning opportunities. The success of this approach was recently recognised when the University received the Times Higher Education Awards Asia 2022: Teaching and Learning Strategy of the Year award.

The University, which competed against nearly 500 entries to win the award, has integrated a comprehensive Service-Learning component into its undergraduate curriculum to help meet demand for adaptable, socially responsible, and civic-minded



■ PolyU students have a long history of helping African villages install solar power systems. This photo is from a Service-Learning project in Rwanda in 2014.

professionals. The mandatory pedagogy focuses on experiential learning, and integrates meaningful community service with academic study and critical reflections to deepen students' understanding of academic concepts and how they can be applied for the betterment of society. It also trains students to collaborate with others, solve problems creatively and think critically, and builds their character, preparing them to be 21st-century global citizens.

The programme has had a positive impact on its community partners and beneficiaries, while also contributing to multicultural and cross-cultural engagement, and the enhancement of international efforts for service learning and community engagement.

Since the introduction of the pedagogy in 2012, nearly 29,000 students have engaged in Service-Learning projects in Hong Kong, Mainland China, Cambodia, Vietnam, Rwanda and beyond, contributing close to 1.2 million service hours. In 2021 alone, 4,508 students took part, contributing 180,000 hours of service, including 33,000 hours of offshore online service to communities in Mainland China, Southeast Asia and Africa.

Mobile app offers timely English support to students on capstone projects

To facilitate final year students' preparation of their capstone projects as part of the graduation requirements, PolyU has led a joint-university team of English language teachers and academics from multiple disciplines to develop the 'Capstone Ninja' mobile app, offering discipline-specific English support to students.

### Discipline-specific English materials and project management solutions

Spearheaded by PolyU, the development of Capstone Ninja is an inter-institutional English Across the Curriculum (EAC) project funded by the University Grants Committee. The project team includes experienced educators and technical staff from City University of Hong Kong, Hong Kong Baptist University, The Chinese University of Hong Kong, and The Hong Kong University of Science and Technology.

Capstone Ninja addresses the needs that finalyear students have when writing and presenting their capstone projects. It delivers customised and discipline-focused English learning materials specific to the needs of students from different disciplines and institutions, and offers mobile learning solutions through its interactive features.

Dr Julia Chen, Director of the Educational Development Centre, described Capstone Ninja as both a 'language skills app' and a 'one-stop shop app': "We have designed this app to help improve students' overall competence in writing, organising, presenting and defending their capstone projects."



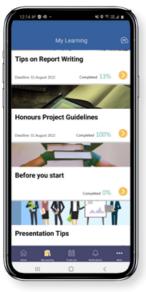
■ Dr Julia Chen

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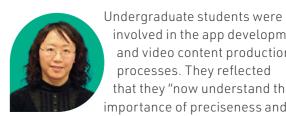
■ The main project team members of Capstone Ninja at the international EAC conference that they organised in May 2021.

- Contain discipline-focused English learning materials
- Provide a customisable to-do list to
- manage project timelines
- Facilitate single and/or group chats between students and supervisors
- Enable effective remote learning





■ Dr Grace Lim of PolyU's English Language Centre explained that the app contains a scheduler to help students self-manage their capstone progress, and provides language tips on oral presentation and report writing.



involved in the app development and video content production processes. They reflected that they "now understand the importance of preciseness and conciseness" in language use.

International recognition for this widely used app

Capstone Ninja contains 76 English learning modules that have been used by students and teachers from 21 departments across the five universities on the project team, as well as over 10 other tertiary institutions in Hong Kong, Mainland China and East Asia.

Capstone Ninja won a Community Award in the 2020 Learning Technologist of the Year Awards organised by the Association for Learning Technology (UK) and was selected as a Finalist in the 2021 EdTech Cool Tool Awards from EdTech Digest.

**Education** \_\_\_\_\_ Excel x Impact

**NEW SCHEMES** 

attract students with diverse talents



o give due recognition to applicants with diverse talents for admission to undergraduate programmes, PolyU has taken a step further by supporting three new non-academic talents schemes commencing in the academic year 2022/23. The three new schemes are:

- Student-Athlete Learning Support and Admission Scheme (SALSA)
- School Nominations Direct Admission Scheme (SNDAS)
- Special Talents Admission and Recognition Scheme (STARS)

They serve as alternative admission routes for students whose exceptional achievements – in sports, arts, STEM, and leadership etc. – are not fully reflected in their HKDSE results.

### **SALSA funded by UGC**

For local students with exceptional talents in sports, the newly launched SALSA Scheme funded by the University Grants Committee (UGC) aims to support outstanding athletes who aspire to pursue dual-track career development, with a commitment of up to HK\$100million for allocation among PolyU and seven other UGC-funded universities in Hong Kong, in the 2022/23 to 2024/25 triennium.

This year, 11 student-athletes who have excelled in athletics, swimming, badminton, fencing, table tennis, etc. have joined PolyU through SALSA. The freshmen student-athletes are enrolled in a wide range of undergraduate programmes: Four will study Physiotherapy, while the rest have opted for programmes including Medical Laboratory Science, Linguistics and Translation, English and Applied Linguistics, Applied Social Sciences, and Hotel and Tourism Management.

Holistic and personalised support services at both university and individual levels will be provided to SALSA students throughout their study at PolyU. A designated coordinator will be assigned to them, offering individual consultation in handling their learning needs from admission to graduation, and teaching assistants will be assigned to provide additional academic support.

Triathlete Yip Tak-long, one of the SALSA student-athletes who has recently started his university life as a Physiotherapy major at PolyU, said: "Injuries are the greatest enemy for every athlete, who must learn to avoid them. Therefore, I am interested in learning physiotherapy and finding ways to prevent injuries. I hope to strike a balance between my training and studies, as an athlete and a physiotherapy student." He believes his passion for triathlon has fuelled his interest in physiotherapy.

■ Triathlete Yip Tak-long



SNDAS spearheaded by EDB

Spearheaded by the Education Bureau (EDB) of the HKSAR, SNDAS provides opportunities for secondary students who have demonstrated exceptional talents and interests in specific areas, to be considered for direct admission to local universities. SNDAS applicants are required to take the HKDSE Examination and apply through JUPAS in parallel. In this 'programme-student matching exercise', a total of 146 publicly-funded undergraduate programmes from the eight UGC-funded universities are included in SNDAS in the 2022/23 academic year.

SNDAS nominations are submitted by secondary school principals and verified by EDB. After that, universities will arrange interviews with the nominees to assess their suitability for specific programmes.

Through SNDAS, 24 students will be taking the undergraduate programmes in Biomedical Engineering, Applied Social Sciences and other disciplines at PolyU.

### STARS launched by PolyU

As for PolyU's STARS, it recognises students with special talents in sports, arts and culture, leadership and community services, and STEM. To support this scheme, STARS Scholarships of up to HK\$400,000 for a four-year undergraduate study period per student were established, along with the new STARS Residential College in the Homantin Student Halls, providing students a

vibrant living and learning environment with diverse opportunities for their talent and holistic development alongside their pursuit of academic excellence.

At PolyU's Strategic Planning Forum 2022, Vice President (Education) Professor Kwok-yin Wong said that four dedicated selection panels have been set up to assess the suitability of students with special talents for admission. "In the coming year, we plan to extend these schemes to non-local undergraduate students, and we will also keep on reviewing the schemes to make them more efficient and to attract more students."

### A quick glance – PolyU's admission schemes for special talents

Besides SALSA, SNDAS and STARS, PolyU has four other non-academic talents schemes which are open for admission from students with diverse talents:

- Outstanding Sportsmen Recommendation Scheme (OSRS)
- School Principal's Nominations (SPN)
- Multi-faceted Excellence Scholarship (MES)
- Other Experiences and Achievements in Competitions / Activities (OEA)

### Harnessing

# ARTIFICIAL INTELLIGENCE

technology to fulfill key environmental goals

o foster interdisciplinary research, partnership with world-renowned scholars, and the transfer of technologies to stakeholders, PolyU has recently established the PolyU Academy for Interdisciplinary Research (PAIR), which comprises 16 research institutes and centres, each focusing on a distinct research area.

Two of the research institutes under PAIR, the Research Institute for Artificial Intelligence of Things (RIAIoT) and the Otto Poon Charitable Foundation Research Institute for Smart Energy (RISE), are working together to generate synergy to enhance buildings' energy efficiency by leveraging data analytics and artificial intelligence. The interdisciplinary research is poised to help reach the Government's goal of achieving carbon neutrality by 2050.

Buildings account for 90% of electricity consumption and 60% of carbon emissions in Hong Kong. Worldwide, over 40% of carbon emissions come from buildings. It is therefore imperative for efforts to be made to minimise energy consumption in built environments, through optimising building operations and energy management systems; and that is the focus of the joint research.

### When AI meets smart energy

RISE draws on the strengths of researchers from different departments and focuses on developing innovative and sustainable energy technologies and solutions, such as smart buildings and advanced energy storage technologies. For more than a decade, it has deployed a solution called 'IBmanager' at the International Commerce Centre (ICC), as well as other edifices in Hong Kong. By analysing the collected data to generate better control decisions for









■ Professor Wang Shengwei, Director of RISE (top) and Professor Jiannong Cao, Director of RIAIoT

air systems and the chiller plant in the ICC building, IBmanager has helped it save more than 10GWh of energy, or about 18% of the total consumption, per year. The savings from the institute's other projects related to buildings ranged from 15% to 40% of the overall consumption.

At RIAIoT, a cross-disciplinary platform developing next generation smart Internet of Things (IoT) empowered by AI, its researchers are seeking to develop novel building automation and energy management platform solutions that leverage and integrate different technologies, including IoT, edge computing, big data, and AI technologies, for smart buildings.

Director of RISE Professor Wang Shengwei, who is also Chair Professor of Building Energy and Automation at the Building Environment and Energy Engineering (BEEE) Department, is leading the project. Co-principal investigators from RIAIoT and RISE include Professor Jiannong Cao, Director of RIAIoT, Chair Professor of Distributed and Mobile Computing, and Otto Poon Charitable Foundation Professor in Data Science; Professor Wang Dan of the Department of Computing; and Professor Xiao Fu of BEEE.

#### A new generation of smart buildings

The system solution to be developed through the RISE and RIAIoT collaboration is an AIoT platform for enhancing buildings' energy efficiency. Researchers from RIAIoT are working on developing the big data analysis framework to collect data and deploying data-driven analytics solutions to generate insights and knowledge for real-time control and optimisation.

On the other hand, researchers from RISE are working on designing cross-system coordination and real-time optimal control strategies by combining their expertise on building and energy management with data-driven knowledge. The system will be deployed in parallel with existing

### Strengths of AloT-empowered smart buildings and energy management system:

- Different types of devices and subsystems are connected for efficient interaction and collaboration.
- Large amounts of building data are collected in a big data analysis framework.
- Insights and knowledge from building data are generated for cross-system coordination and design of real-time optimal control strategies
- The health monitoring and diagnosis of energy systems and different components run automatically in complex building management system.

The system can help significantly reduce energy, management and maintenance costs.

building management systems, so that insights from the AloT platform can be used to optimise the existing systems.

Professor Wang has no doubt that the combination of their specialised knowledge and advanced control, IT and data science technologies can bring forth a new generation of smart buildings capable of responding and adapting to changing operational conditions and requirements. This helps create a more comfortable, healthy, efficient and safe environment in a sustainable manner.

### **Backing from multiple sectors**

The RISE and RIAIoT collaboration is backed by several research and industry grants, including a HK\$ 6.14 million funding from the Research Grants Council (RGC)'s Collaborative Research Fund (CRF). Grants have also been received from the International Commerce Centre, MTR, hospitals, and multiple pharmaceutical factories.

Interdisciplinary Research \_\_\_\_\_ Excel x Impact

# Joint research on the impact of COVID on Hong Kong people's

# MENTAL HEALTH





MHRC's members Professor David
Shum, Dean of Faculty of Health and
Social Sciences (centre); and Dr Sally
Cao, Research Assistant Professor
of the Department of Rehabilitation
Sciences (right); joined hands with Dr
Judy Siu, Associate Professor of the
Department of Applied Social Sciences
(left), to conduct the study.

ental health is another significant area being tackled by PolyU through its interdisciplinary research efforts. Recently, the University's Mental Health Research Centre (MHRC) announced the findings of a research project involving scholars from different disciplines who had joined forces to explore the level of adult psychological trauma one year after the onset of the COVID-19 pandemic.

The research team comprises MHRC's members Professor David Shum, Dean of Faculty of Health and Social Sciences and Yeung Tsang Wing Yee and Tsang Wing Hing Professor in Neuropsychology; and Dr Sally Cao, Research Assistant Professor of the Department of Rehabilitation Sciences; as well as Dr Judy Siu, Associate Professor of the Department of Applied Social Sciences.

With the support from the Health and Medical Research Fund of the former Food and Health Bureau, the team conducted the research from late 2020 to early 2021 when Hong Kong was under the fourth wave of the pandemic. The study results were published in the academic journals *BMC Psychiatry* and *BMC Geriatrics* in April 2022. The study comprised two parts:

### More than one in ten showing PTSD symptoms

Part 1 of the Study

Format: telephone survey Sample size: over 3,000

 ${\bf Target: Hong\ Kong\ residents, mostly\ working\ adults}$ 

Period: December 2020 - February 2021

The survey found that:

- 12.4% of the respondents had exhibited posttraumatic stress disorder (PTSD) symptoms.
- A higher chance of having PTSD symptoms was seen among the unemployed or people with no personal income and lower educational attainment.
- Married females in their middle age or older with higher educational attainment were consistently more likely to comply with the various antiepidemic measures.
- Among all the measures, maintaining good hand-hygiene and environmental hygiene were reported to be the most difficult to follow.
- About 46% of the respondents were willing to receive the COVID-19 vaccine; the majority of them were married males in their middle age or older who were family caregivers with lower educational attainment.
- Respondents who watched pandemic-related news for more than one hour a day were more compliant with anti-pandemic measures and related advice, and showed more severe PTSD symptoms.

### Elderly people's perception towards vaccination

Part 2 of the Study

Format: in-depth interview

Sample size: 31

Target: adults over the age of 65, ~70% were retired

Period : November 2020 - February 2021

The purpose of this interview was to discover the mental status of the older adult population in the face of the pandemic, e.g. their understanding, feelings, behaviour, and perception of vaccines. The interviews found that:

- The elderly respondents generally believed COVID-19 was highly transmissible.
   Consequently, most of them avoided leaving home for exercise and halted many regular activities.
- While most of the interviewees reported having felt worried, helpless or depressed, some of them even expressed frustration during the interview.
- The interviewees' willingness to be vaccinated was primarily affected by their personal experiences and opinions of their peers and families.
- Lack of understanding about the vaccines, cultural perception and peer pressure were the main contributors to hesitancy, while fragile social networks and weak family support posed the greatest barriers to vaccination.

### Mental health advice on living with the pandemic

Professor David Shum who led the research team advised, "The public should carefully assess PTSD symptoms caused by the pandemic and pay close attention to changes in their own bodies, feelings, behaviours and socialising activities. They should seek help from professionals or social welfare organisations once symptoms begin to affect their daily lives for a period of time."

Dr Judy Siu advised that clearer health information about the vaccines should be disseminated to the elderly, and support for the elderly before and after vaccination should be strengthened to ease their concerns about receiving jabs. "We suggest strengthening the ties between non-governmental organisations (NGOs) and the elderly to help ensure the latter's physical and mental health," Dr Siu said.

According to Professor Shum, the team will take the interdisciplinary research forward to provide to NGOs professional advice tailored to the elderly's physical and mental health needs during

the pandemic.

■ Ms Cheung Wah-chun, a 75-year-old lady who lives alone, was among the elderly interviewees who experienced anxiety and depression under the COVID-19 pandemic. Luckily, she managed to overcome her anxiety with the support provided by an NGO.

### Building a clean city by monitoring illegal dumping activities

In addition to occupying valuable space, illegal dumping of construction and demolition (C&D) waste undermines a healthy, clean living environment by clogging waterways, causing landslides or other public health hazards. Indeed, it has since 2020 become the third-largest source of pollution complaints in Hong Kong.

**Interdisciplinary** Research

A joint project between the Research Institute for Land and Space (RILS) and the Department of Land Surveying and Geo-Informatics (LSGI) has helped tackle the long-standing issue.

### Interdisciplinary research funded by the Government

Led by Dr Zhu Xiaolin, Associate Professor of PolyU's Department of Land Surveying and Geo-Informatics, the joint project seeks to provide a solution by leveraging on high spatiotemporal satellite images (PlanetScope satellite constellation) to monitor land cover changes. It is on track to develop an advanced cloud detection method incorporating machine learning to make monitoring of the illegal activity easier and more effective.

Entitled 'Developing Low-Cost Remote Sensing System for Detecting Illegal Dumping of Construction Waste in Hong Kong', the project is one of the two projects awarded the first-round of the Public Policy Research Funding Scheme managed by the Government's Policy Innovation and Coordination Office.

### Spatial images to mitigate the problem

"We have collected daily imagery covering the entirety of Hong Kong and tested the imagery over

the Northeastern part of the New Territories," Dr Zhu said. "We have found that all the plots with dumped C&D could be correctly identified, and some of the dumping activities were not registered legally. In addition, we have been able to identify changes over landfill areas, which would help departments gauge the latest capacity of landfill sites and manage waste more effectively."



 Dr Zhu Xiaolin,
 Associate Professor of PolyU's Department of Land Surveying and Geo-Informatics

Information in the geographical distribution of the illegal dumping sites, together with other complementary data, such as land use maps, can help government departments better deploy resources and manpower.

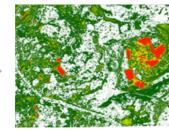
### Continued efforts to improve land use

Dr Zhu believes firmly in the multiple benefits or innovations that could be derived from his project, such as using hyperspectral images to detect methane gas released from illegal dumping, or pattern analysis of illegal dumping, or other new approaches.

Established by PolyU in May 2021, RILS focuses on major issues surrounding land and space development in Hong Kong, the Greater Bay Area and beyond. It also has a bold vision of becoming a world leader in developing innovative solutions for creating environmentally friendly and economical use of land and space.



 Dr Zhu's detection system can process daily images over Hong Kong with a spatial resolution of three meters.



 Plots with dumped construction and demolition waste can be observed through the imageries.



 Dumping activities that have not been legally registered can be discovered.

### Innovations that benefit society honoured with global awards

Research teams from The Hong Kong Polytechnic University (PolyU) have won three prestigious Innovation Awards in the areas of artificial intelligence (AI), materials science, and biotechnology at the TechConnect World Innovation Conference and Expo 2022. The event is the world's largest multi-sector conference for fostering the development and commercialisation of innovations. It is the sixth consecutive year that PolyU research teams have been honoured with the awards, and the University was the only higher education institution in Hong Kong that took home the awards this year.

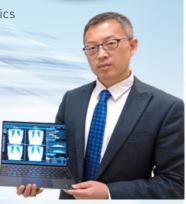


### **Al-Enhanced Clinical Imaging Technique**

**Researcher**: Professor Cai Jing, Department of Health Technology and Informatics Innovation: AI-Empowered Chest X-Ray and CT Quantitative Analysis for COVID-19 Patient Management

**Novelty:** The AI-enhanced techniques for COVID-19 clinical applications provide accurate and low-cost imaging solutions for the diagnosis, severity stratification and prognosis of COVID-19 patients.

**Benefits:** The innovation's high accessibility will benefit developing countries that do not have the necessary resources to accurately diagnose and monitor COVID-19.



### Eco-friendly Moisture Absorbing Fabric

**Researcher:** Professor Hu Hong, School of Fashion and Textiles (formerly known as Institute of Textiles and Clothing)

**Innovation:** Moisture-Absorbing and Sweat-Releasing Multilayer Polylactic Acid Fabric and Manufacturing Technology

**Novelty:** By employing double weft knitting technology, the new multilayer fabric structure, which has improved moisture-absorbing and sweat-releasing properties, can be manufactured through a single process. It also has inherent biological resistance properties.

**Benefits:** The fabrication technique is simpler, cheaper, and more environment-friendly than alternatives. The fabric is ideal for use for school uniforms and sportswear, etc.



**Researcher:** Dr Shou Dahua (right photo), Professor Fan Jintu and Dr Huang Guanghan, School of Fashion and Textiles

Innovation: Omni-Cool-Breath - a Smart Air-Conditioned Mask

**Novelty:** It is the first automatic temperature-controllable mask. It reduces the temperature by 12°C and humidity by 65% through a low voltage, innovative miniature thermoelectric cooling system.

**Benefits:** It offers revolutionary access to all-day cool breathing and thermal comfort under various activities and thermal conditions.



Research and Innovation \_\_\_\_\_ Excel x Impact

## Seven PolyU intelligent transport projects awarded

### **SMART TRAFFIC FUND**

or a densely populated city like Hong Kong, a safe and convenient transport environment is crucial. The Government launched the Smart Traffic Fund in November 2021, and out of a total of 17 approved projects, seven innovative projects led by PolyU researchers were granted the Fund with a total amount of around HK\$21 million. The technologies developed in the PolyU projects employ AI, deep learning, 3D geo-spatial models, wireless transmission, data-driven techniques and more to enhance the commuting convenience of the public and improve driving safety. Details of the seven projects are as follows:



Project Title: Principal Investigator:

Smart Assessment of Bridge Deck Efficiency and Safety in Hong Kong Professor Tarek Zayed, Associate Head (Research) and Professor, Department of Building and Real Estate

Approved Funding: HK\$8,099,657

Summary:

This project aims at developing a multi-tier inspection method for detecting surface and subsurface defects in concrete bridge decks; and designing a smart efficiency assessment model for bridge decks using non-destructive evaluation techniques to improve road safety.

**Project Title:** 

Investigation of an online data-driven intelligent automation platform for drivers considering the psychological condition

instability and behaviours for a sustainable and safe

transportation system

Principal Dr Ng k

Dr Ng Kam-hung, Assistant Professor, Department of Aeronautical

**Investigator:** and Aviation Engineering

**Approved Funding:** HK\$4,990,230

Summary:

The project aims to develop an online data-driven risk-taking behavioural prediction mechanism by identifying the driver's psychological condition

instability using intelligent automation techniques.





Project Title:

The smart charging development of zero-emission autonomous electric vehicles by the X2V and V2X technologies with respect to the

dynamic traffic, grid and energy information

Principal Investigator: Approved Funding: Dr Cao Sunliang, Assistant Professor, Department of Building

Environment and Energy Engineering

Approved Funding: HK\$2,205,792
Summary: This project ain

This project aims at developing a smart charging energy management system to recommend where, when and how to charge electric vehicles with a view to minimising mileage for locating available

charging facilities.

**Project Title:** Network-wide Traffic Speed-Flow Estimator

**Principal** Ir Professor William Lam Hing-keung, Chair Professor of Civil and **Investigator:** Transportation Engineering, Department of Civil and Environmental

Engineering

**Approved Funding:** HK\$1,976,187

**Summary:** The project proposes a model-based data-driven approach to

develop a network-wide traffic speed-flow estimator for estimating

traffic speeds and traffic flows simultaneously.



**Project Title:** Road Safety Assessment using Advanced Driving Simulation

Approach with 3D Geo-spatial Model

**Principal** Dr Sze Nang-ngai, Associate Professor, Department of Civil and

**Investigator:** Environmental Engineering

Approved Funding: HK\$1,456,137

**Summary:** This pro

This project aims to develop a 3D geo-spatial model that can be used for safety assessment in driving simulation experiments. An evidence-based decision support tool will be developed for identifying accident-prone locations and recommending safety

improvement measures.

**Project Title:** Prediction of Traffic Speed and Volume considering Malfunctioning

Detectors using Deep Learning

**Principal** Professor Edward Chung, Professor, Department of Electrical

Investigator: Engineering
Approved Funding: HK\$1,300,075

**Summary:** This project aims to develop a Deep Learning model for predicting

traffic speed and volume within one hour when some detectors malfunction. The Deep Learning model is also applicable for

inputing missing data in offline applications.





**Project Title:** Development and Deployment of an AI-enabled Parking Vacancy

Prediction Framework using Multi-source Data

Principal Dr Ma Wei, Assistant Professor, Department of Civil and Investigator: Environmental Engineering

Approved Funding: HK\$985,034

Approved Funding: HN\$965,034

**Summary:** This project aims to develop a framework for predicting short-

term parking vacancies for both on-street and off-street parking in Hong Kong. A website and mobile phone-based parking guidance application will then be developed to provide predicted parking

vacancy information to the public.

With a view to achieving 'Smart Mobility' in Hong Kong, as one of the areas of Hong Kong's Smart City Blueprint, PolyU will continue to develop novel technologies and promote transport-related applications to assist the industry and authorities in establishing appropriate strategies.

#### **Smart Traffic Fund**

In the 2019 Policy Address Supplement, the Chief Executive announced the setup of the Smart Traffic Fund to provide funding support to local organisations or enterprises for conducting research and application of innovation and technology with the objectives of enhancing commuting convenience, enhancing efficiency of the road network or road space, and improving driving safety.

3.

Research and Innovation \_\_\_\_\_ Excel x Impact

### House of Dreams captures prestigious Human City Design Award Grand Prize



The 'House of Dreams', a pioneering and impactful collaborative design project led by PolyU researchers, brought home the Grand Prize of the Human City Design Award, in a three-stage competition that had over 100 entries from around the world. The Award scheme, now in its third year, is organised by the Seoul City Municipal Government, Seoul Design Foundation and UNESCO to recognise design projects that benefit people, society and the environment.

### An exemplar of human-centred design

The House of Dreams, which aimed to revitalise and re-energise a cave settlement in Zhoushan village in Henan Province, is a community action research by design project by the Insitu Project research platform, led by Associate Dean Peter Hasdell of PolyU's School of Design and Kuo Jze Yi, Assistant Professor of the School of Architecture and Urban Planning at Shenzhen University. The revitalised cave settlement, completed in 2020, was co-designed and implemented by the Insitu Project together with Liang Jun of the Zhoushan Community Group, Dr Ku Hok-bun from the Department of Applied Social Sciences of PolyU and other parties.

The three-year project involved participatory design and construction, with the area being rebuilt by local villagers from recycled construction and household waste. The revitalised space has guest rooms, amenity facilities, a shared kitchen, a dining room and an exhibition space. A villager who participated in the project said, "Through this project, we were able to take pride in our community and deeply understood ways to reuse waste."

The House of Dreams re-vitalised a cave settlement, with spectacular results. The title of the project, 'House of Dreams', symbolises the collective memory of the old people who grew up in the cave.



 Dr Ku Hok-bun (left) from PolyU's Department of Applied Social Sciences and Associate Dean Peter Hasdell from PolyU's School of Design led the award-winning project.

Professor Rachel Troye, a jury member, praised the project, saying "It created and developed a model by allowing participation of under skilled local residents based on true cooperation and community. Its result was also aesthetically excellent."

Apart from the Human City Design Award Grand Prize, the project has also received the 2022 International Union of Architects 2030 Award, the 2022 Azure Magazine Award for Social Good, a Golden Award in the Taipei International Design Award 2021, and First Prize in the 2021 Architecture MasterPrize.

Scan the QR code to watch the project video:



### Multiple partnerships propel scientific research, knowledge transfer and talent cultivation

PolyU has built strong ties with industry partners in order to advance research and technology transfer, as well as the cultivation of startups and future talents. Recently, the University signed Memorandums of Understanding (MoUs) with the MTR Corporation and MTR Academy (MTRA), the Federation of Hong Kong Industries (FHKI), and the Hong Kong Applied Science and Technology Research Institute (ASTRI) to promote the development of innovation and technology in Hong Kong.

### Developing smart rail solutions with MTR and MTRA

Leveraging the research competence in smart railway technologies of PolyU and the railway expertise of MTR and MTRA, the tripartite MoU sets out a three-year collaborative framework to explore innovative solutions and technology applications to further enhance the performance of railway operations and smart maintenance with smart sensing technology.

■ PolyU, MTR and MTRA join hands to co-develop smart solutions for smart rail. Dr Jacob Kam, CEO of MTR Corporation (second right, front row), Ms Margaret Cheng, Acting President of MTR Academy (first right, front row), Professor Jin-Guang Teng (second left, front row) and Professor Christopher Chao (first left, front row) signed the tripartite MoU, witnessed by Dr Rex Auyeung, Chairman of MTR Corporation (right, back row) and Dr Lam Tai-fai, Council Chairman of PolyU (left, back row).



Witnessed by Professor Jin-Guang Teng, President of PolyU (left), and Dr Sunny Chai, Chairman of FHKI (right), Dr Miranda Lou, Executive Vice President of PolyU (second from left), and Mr Ricky Chan, Executive Deputy Chairman of FHKI (second from right), signed the MoU.

### Nurturing R&D talents with ASTRI

Last but not least, capitalising on their respective research strengths, PolyU and ASTRI will join forces to develop impactful innovations and translate intellectual properties into viable solutions. A new collaboration involving the Centre for Eye and Vision Research coestablished by PolyU under the Health@InnoHK cluster is set to help visually impaired people by using advanced technologies such as Augmented Reality. Furthermore, to equip PolyU students with the latest technologies, PolyU has just launched with ASTRI the Master of Science programme in Microelectronics Technology and Materials.



### Joining forces with FHKI to foster universityindustry collaboration

Meanwhile, PolyU and FHKI will promote in-depth exchange between industrialists and researchers, and share resources and networks to support the integration of startups and industry. Furthermore, FHKI members and the PolyU Entrepreneurship Investment Fund plan to co-invest in PolyU-related technology startups to accelerate their growth. The University and FHKI will also work together to explore partnership programmes covering various disciplines tailored for PolyU's students and researchers, such as mentorship programmes and translational research grants.



■ The MoU was signed by PolyU Vice President (Research and Innovation) Professor Christopher Chao (second from left) and ASTRI CEO Dr Denis Yip (first from right), with PolyU Deputy President and Provost Professor Wing-tak Wong (first from left) and ASTRI Chairman Ir Sunny Lee (second from right) witnessing the signing.



### Academic-led startup wins ENVIRONMENTAL IMPACT AWARD in global pitch competition

■ Professor Li Pei, Professor of the Department of Applied Biology and Chemical Technology at PolyU (left), receives the Environmental Impact Award on behalf of Grand Rise Technology at the JUMPSTARTER 2022 Grand Finale.

olyU encourages its researchers to translate research excellence into realworld applications by establishing startups for societal benefits. The achievements and contributions of PolyU startups are gaining industry and social recognition with their outstanding performance in various competitions.

Recently, in the Grand Finale of the Alibaba Entrepreneurs Fund/HSBC JUMPSTARTER 2022 Global Pitch Competition, a PolyU academic-led startup, Grand Rise Technology Limited, emerged as one of the top ten teams in the final round and won the Environmental Impact Award, in recognition of its eco-friendly products.

Grand Rise Technology was co-founded by Professor Li Pei of the Department of Applied Biology and Chemical Technology and PolyU DBA graduate Dr Tenny Lam. Its research team led by Professor Li has developed a biocompatible, non-toxic and eco-friendly antibacterial and antiviral coating called CareCoatex™. With proven effectiveness for rapidly killing 99% of common bacteria and viruses including COVID-19, the coating is ideal for disinfection, contamination control and epidemic prevention for up to six months.

### Anti-microbial products protect against COVID-19

Amid the world-ravaging COVID-19 pandemic, Grand Rise Technology further developed the CareCoatex™ Pro Ultra coating based on CareCoatex™, and manufactured the CareCoatex™ bio-based anti-microbial FFP2 3D face mask in collaboration with Foshan Nanhai Plus Medical Company Limited. The products have helped meet the huge demand for safe and eco-friendly antimicrobial products from the general public and different industries.

■ Grand Rise Technology developed the CareCoatex™ Pro Ultra coating, and manufactured the CareCoatex™ FFP2 3D face mask in collaboration with a partner to meet the huge demand for safe and eco-friendly anti-bacteria and anti-viral products in society.



CareCoatex™ Pro Ultra works the same as CareCoatex™ and is also formulated with rub resistance, enabling the coating to be highly resistant to water, bleach water and alcohol, providing much longer protection. It is especially suitable for clinics, hospitals and laboratories, as well as frequently touched areas such as door handles and elevator buttons. The coating is currently being used at a hospital under the Hospital Authority and is now available for various applications.

As for the CareCoatex™ bio-based antimicrobial FFP2 3D face mask, its outer layer fabric is processed using the CareCoatex™ technology. The mask is anti-viral (including against COVID-19 and Influenza A), substantially lowering the possibility of cross-infection arising

Under PolyVentures, the University strives to create a conducive and enabling environment for knowledge transfer endeavours, through different funding schemes and activities. These initiatives facilitate our interaction with industries, investors and stakeholders, and help us grow.

Department of Applied Biology and Chemical Technology

### **PolyVentures**

PolyVentures is the University's signature technology startup ecosystem tailored for aspiring entrepreneurs among PolyU students, alumni, academics, and research staff. It aims to foster an entrepreneurial mindset, and to accelerate the translation of innovations and technologies from the University to the marketplace, thereby creating impact. Until now, the PolyVentures ecosystem has nurtured over 1,000 entrepreneurs, more than 220 technology startups, 29 academic-led startups and 4 unicorns.

from the mask coming into contact with the human body or other objects. The brand-new mask meets the European FFP2 standard. It has recently been launched in Shanghai and will be rolled out in other markets.

### PolyU ecosystem nurtures startups and helps them grow

Professor Li Pei said, "It is very encouraging that the research team received an award in this major competition. We have been devoted to turning our research excellence into positive impacts with the aim to contribute to society."

Dr Tenny Lam, CEO of Grand Rise Technology Limited, said, "I am most grateful that PolyU proactively supports innovative research and knowledge transfer activities to help build a vibrant entrepreneurship ecosystem, providing us with strong support in terms of

resources, technology, experience and networking." Grand Rise Technology was granted funding of HK\$3 million in total from the PolyU Tech Launchpad Fund Scheme in 2020 and 2021 to drive the company's business growth.

■ Grand Rise Technology Limited was co-founded by Professor Li Pei (left), Department of Applied Biology and Chemical Technology at PolyU, and Dr Tenny Lam, a PolyU DBA graduate, in 2019.

### **Knowledge Transfer and Entrepreneurship**

'Dolphin' leads your way in indoor venues

POLYU-SUPPORTED
STARTUP
FINDS SUCCESS

with positioning system

r Gary Leung, Co-Founder and CEO of Blue Pin (HK) Limited, turned his PhD research project to a startup business with the help of PolyU's entrepreneurship education and funding support.

### Staunch support from PolyU

Gary has been granted considerable amounts of funding, coaching and support through PolyVentures' entrepreneurial programmes and connections:

- PolyU Micro Fund 2019: HK\$120,000
- PolyU Tech Launchpad Fund 2020: HK\$500,000
- PolyU Lean Launchpad Programme: business model validation
- IncuTech programme by The Hong Kong Science and Technology Parks Corporation: three-year grant





If you get lost in the streets, the apps in your phone with the global positioning system (GPS) can be a lifesaver. However, GPS satellite signals are blocked or reflected by walls and thus do not work indoors. Gary has spent years on research and development to find a solution. Now, his 'Dolphin' can be your indoor guide.

 Dolphin Indoor Positioning System helps users navigate in exhibition venues and other indoor

Dolphin Indoor Positioning System (IPS) is the flagship product of Blue Pin. It surpasses other IPSs with its accuracy, improved security, and convenience of use by incorporating two major technologies. It uses Bluetooth Low Energy (BLE) beacons instead of Wi-Fi, magnetic field and other popular IPS solutions in the market, and is powered with Blue Pin's patented Cooperative Positioning technology, which can extend the IPS network and strengthen its signal where reception is poor.

"The idea is to send the positioning signal from a beacon to nearby smartphones, which in turn act as beacons themselves to spread the signals like a relay race," Gary explained. "In this way, the signals can go around barriers and remain strong and stable throughout the whole venue without any dead spots."

### Dr Gary Leung

- MBA, PolyU (2001)
- MSc in Multimedia & Entertainment Technology, PolyU (2012)
- MSc in eCommerce, The Chinese University of Hong Kong
- Engineering Doctorate programme, PolyU (2022)
- Co-Founder and CEO of Blue Pin (HK) Limited

With an accuracy of up to three metres, Dolphin IPS helps users navigate indoors and find directions with ease, enhancing user experience. Besides, it also serves marketing or research purposes by providing data for people flow analysis on visitor behaviours and demographics.

### **Celebrating initial success**

The promising solution has been widely recognised locally and internationally. Patented in the US, China and Hong Kong, Dolphin IPS has already been deployed in various indoor spaces in Mainland China and Hong Kong, such as Hong Kong's Asia World Expo, InnoCentre, and PolyU's Industrial Centre, as well as exhibition centres and a shopping mall in the Mainland.

For its technological excellence, Blue Pin has won a string of awards including a Bronze Award at the Hong Kong ICT Awards 2021, a Gold Medal at the 2021 Special Edition of the Geneva International Exhibition of Inventions, and a Gold Medal at the 71st International Trade Fair for Ideas, Inventions and New Products (iENA 2019) in Germany.

### Launching a tech startup while pursuing an engineering doctorate

While doing his Engineering Doctorate study at PolyU, Gary received practical entrepreneurial training in areas such as financial management, marketing, and patent application. "That was a turning point in my life," he recalled. "My then project advisor Ir Dr Daniel Lun of the Department of Electronic and Information Engineering believed that my research has the potential to tackle real-life problems, so he encouraged me to translate the results of my research project into a product to capture market needs." In 2018, Gary plucked up the courage to start the tech enterprise Blue Pin, which successfully received funding support from PolyU's Micro Fund and PolyU Tech Launchpad Fund shortly after its establishment.

The University has also helped Gary and Blue Pin to take wing with its entrepreneurship programme, the Lean Launchpad. Gary was assigned a mentor, Mr Frank Yam, Founder and Chairman of Focus Strategic Group Inc. Mr Yam did not only broaden Gary's horizons, but also connected him with many industry players, including the management of Asia World Expo which subsequently became Blue Pin's first customer.



Gary (right) has joined PolyU's Lean Launchpad Programme in 2019 with Frank (centre) being his mentor. Gary later co-founded Blue Pin with Frank and Eric (left), who he met at the engineering doctorate programme in PolyU.

Blue Pin now has 13 team members, most of whom are from PolyU. Gary attributes Blue Pin's success to his partners, including Mr Yam and a current engineering doctorate student of PolyU Mr Eric Cheok, as well as other teammates who have demonstrated a good team spirit and the ability to cope with the daunting work pressure. "I am truly grateful to my alma mater PolyU, not only for its support for Blue Pin, but also for the creative and courageous talents it has nurtured."

Some of the five-star hotels in Hong Kong are using Blue Pin's guest services robots to minimise the need for face-toface interactions, enhancing privacy and convenience for visitors.

### $\label{eq:continuous} \textbf{Serving the hotel industry with guest services robot}$

By incorporating the IPS system, Blue Pin's guest services robot eases the pressure on hotel front desk staff by performing customer services such as check-in, on-the-spot payment, key cards pick-up, etc. This solution has been awarded a Silver Medal at the 2021 Special Edition of the Geneva International Exhibition of Inventions. Blue Pin is now a business partner in hotel management solutions with Oracle, the world's largest database management company, and has collaboration with PolyU's Centre for Advances in Reliability and Safety (CAiRS) on improving products' performance with AI algorithm.

Spotlights \_\_\_\_\_ Excel × Impact

# Eight distinguished individuals conferred UNIVERSITY FELLOWSHIP



The University Fellowship Conferment Ceremony 2021/2022 was held to honour the contributions of eight notable personalities to PolyU and the community.

t a solemn ceremony in July, PolyU conferred the title of University Fellowship on eight outstanding individuals in recognition of their significant contributions to the University and community.

Addressing the ceremony, PolyU's Council Chairman Dr Lam Tai-fai remarked: "The eight distinguished individuals bestowed with University Fellowship are outstanding members of the community and excellent leaders in various professions, business sectors and

industries. I strongly believe that our new Fellows will empower us to take our development to the next level, helping us excel even further."

President Professor Jin-Guang Teng welcomed the new Fellows to the PolyU family: "By joining forces with our new Fellows, who are exemplars of social responsibility, and with the continuous efforts and initiatives of the PolyU community, I am confident that the University will scale new heights in its pursuit of world-class education and research for the benefit of society."

The fellowship recipients are (in alphabetical order):



One of PolyU's greatest strengths is striking a fine balance between research and application in order to maximise the benefit for mankind.

### Mr Lawrence Chan Man-yiu

Mr Chan is the Chairman of Park Lane Capital Holdings Limited. During his days in the US, he spearheaded the development of the iconic Parc55 Hotel in San Francisco from scratch. Concurrently, he served as a Trustee on the board of the San Francisco Symphony and the San Francisco Museum of Modern Arts. In 2009, he founded the Seal of Love Charitable Foundation in Hong Kong, filling service gaps overlooked by major charities. Over the years, he and his family have donated substantially to PolyU's School of Hotel and Tourism Management (SHTM). A gift Mr Chan and his family gave to SHTM has led to the creation of the Mr and Mrs Chan Chak Fu Endowed Professorship in International Tourism, a scholarship for student development, and initiatives to advance hospitality and tourism research.

### Mr Ho Sai-chu, GBM, GBS, OBE, JP

Mr Ho is a notable business leader well-known for his remarkable philanthropic contributions to the construction industry, education, social well-being, as well as the promotion of Chinese art and culture. He has donated more than 360 pieces of his father's collection of Chinese artworks to the HKSAR government for the permanent collection of Hong Kong Museum of Art. For his tremendous contributions, he has been awarded a Silver Bauhinia Star, a Gold Bauhinia Star, and a Grand Bauhinia Medal by the HKSAR government. As the Chairman of the Ho Iu Kwong Charity Foundation, Mr Ho donated to his alma mater PolyU for the construction of the Ho Iu Kwong Building and Ho Iu Kwong and Kwok Pui Chun Square.



"My father always taught us to embrace our identity as Chinese and I have passed on this nationalist mindset to my children and grandchildren accordingly."



"I believe the universal language known as music can bring people together, imparting beauty and harmony to our lives."

### Mr Leung Kin-fung

A world-class musician enjoying international acclaim, Mr Leung was the first Hong Kong musician to win First Prize at the Young Artist Competition in New York. He is the Music Director of the Hong Kong Orchestra, First Associate Concertmaster of the Hong Kong Philharmonic Orchestra, and Artistic Director of Hong Kong Pure Strings. Sparing no effort in passing on his musical techniques and artistic vision to the next generation, he has been the Artistic Director and Conductor of the PolyU Orchestra since 2016. Apart from leading the orchestra to give fabulous performances, he has provided professional trainings to members, and contributed significantly to the cultivation of music appreciation among the PolyU community.

### **Dr Raymond Leung Siu-hong**

Founder, Chairman and Chief Executive Officer of Altai Technologies Limited, Dr Leung is a visionary pioneer in game-changing technologies. In the 1980s, he co-founded SAE Magnetics (Hong Kong) Limited, the world's largest independent supplier of magnetic recording heads for hard disk drives, which was subsequently acquired by TDK Corporation, Japan. He has co-founded the charitable agency One Laptop per Child Asia Pacific to bridge the digital divide, and is currently Chairman of Give2Asia Hong Kong to improve the quality of life and health among the underprivileged in the Asia Pacific. An engineering graduate of PolyU, he was bestowed the Outstanding PolyU Alumni Award 2009. A former member of the PolyU Council, he is currently a member of the PolyU Council.



"I will do my best to cultivate, mentor and nurture talents from PolyU, preparing them for successful entrepreneurship so that one day, they will give back to PolyU and our society."

Spotlights \_\_\_\_\_ Excel x Impact



"I commend PolyU for its vision in shaping the future of Hong Kong's healthcare by addressing the growing demand."

### Mrs May Tam Mak Mei-yin

Mrs Tam shares the vision of her late husband Mr Edmund Tam Wing-fan, a renowned architect and philanthropist in Hong Kong. The couple made tremendous contributions to the community especially in education, medicine and social service. Together they supported the founding of the SAHK Tam Wing Fan Child Development Centre, and generously backed the advancement of the Tam Wing Fan Rehabilitation Service Centre (Occupational Therapy) at PolyU. The latter is the first-ever university-based occupational therapy clinic in Hong Kong. It addresses the issue of ageing population and the rising demand for elderly care. Serving the community since November 2020, the centre upholds the value of compassion held deeply by Mr and Mrs Tam.

### Dr Joseph Ting Sun-pao, BBS

A well-known historian of Chinese and Hong Kong history and formerly Chief Curator of the Hong Kong Museum of History, Dr Ting is devoted to preserving the city's heritage and revitalising history education. He played an instrumental role in the planning and construction of the new Hong Kong Museum of History premises and its highly acclaimed Hong Kong Story permanent exhibition. He is a passionate and eloquent storyteller whose talks and guided tours are always eye-opening, insightful and welcomed with great enthusiasm. Dr Ting was Historian-in-Residence at PolyU in 2018/2019, and is currently a member of PolyU's Culture Promotion Committee.



"I hope PolyU will continue its efforts in promoting culture, achieve greater success, and nurture more talent for Hong Kong and our motherland."



"It is desirable to have more faculty members with both qualifications in research and licensure as health professionals to fill the role of scientist-clinicians or clinicianscientists."

### **Professor George Woo**

Professor Woo, Emeritus Professor and Senior Advisor of PolyU's School of Optometry, is the Father of Optometry in Hong Kong and a pivotal figure in eye health and vision science globally. In the 1980s, he set up the Department of Diagnostic Sciences at the then Hong Kong Polytechnic and developed Hong Kong's first-ever optometry degree programme. In 1997, he was appointed Chair Professor of Optometry and Dean of the Faculty of Health and Social Sciences. Professor Woo became a hotline volunteer for The Samaritans in 2002, and was later appointed its Board Chairman. His remarkable contributions to eye care, philanthropy and volunteer work earned him the Hong Kong Humanity Award in 2020. He and his brother Dr Victor Woo are the proud donors behind PolyU's K. B. Woo Family Endowed Professorship in Optometry.

### Dr Yeung Kin-man, SBS, JP

Dr Yeung is President of Biel Crystal (HK) Manufactory Limited, the world's largest manufacturer of touchscreen glass panels for mobile devices. His business acumen and achievements have earned him countless accolades, such as the 2016 Industrialist of the Year Award and 2015 Leader of the Year – Commerce and Industry/Finance Award. Apart from his business endeavours, Dr Yeung has assumed many public duties and has made remarkable philanthropic contributions to both Hong Kong and the Mainland. At PolyU, he has established the Yeung Kin Man Endowed Professorship in Business Administration to support research in management.



"I have strong faith and absolute confidence in the research specialists and graduates groomed by PolyU."

PolyU has conferred University Fellowship on a total of 128 distinguished persons since the introduction of the honorary scheme in 2000.



■ PolyU's Council Chairman Dr Tam Tai-fai (first from right) and President Professor Jin-Guang Teng (first from left) pictured with the six new Fellows (from left, third) Dr Yeung Kin-man, Mr Ho Sai-chu, Dr Raymond Leung Siu-hong, Mr Leung Kin-fung, Professor George Woo, and Mr Lawrence Chan Man-yiu, as well as Mr Shun Chi-ming (second from left) and Ms Ada Yu (second from right) who were representing Dr Joseph Ting Sun-pao and Mrs May Tam Mak Mei-yin respectively.

Spotlights \_\_\_\_\_ Excel x Impact

# NEW ENDOWED POSITIONS fuelling innovation

olyU owes its research excellence achieved thus far to its eminent academics and generous supporters who share the common goal of advancing the frontiers of knowledge. Its Endowed Professorship Scheme and Endowed Young Scholars Scheme are significant investments donors can make for the further development of PolyU. They ensure that the University's remarkable research strengths are maintained by attracting top-notch scholars from the region and other places in the world.

PolyU is grateful to our staunch supporters for their establishment of new endowed positions from time

to time. The following Endowed Professorships or Endowed Young Scholar positions have been established recently in various research fields, covering spatial science, artificial intelligence, rehabilitation science, social service, and accounting and finance. The endowed scholars can take advantage of extra resources to continue their excellent work in research and teaching.

PolyU highly values the new partnerships forged with the donors, trusting that they can help extend the frontiers of research and benefit both society and the world at large.

### The Endowed Professorship Scheme

### Hong Kong Sustaintech Foundation Endowed Professorship in Accounting and Finance

**Appointee:** Professor Lu Haitian, School of Accounting and Finance

**Donor:** Hong Kong Sustaintech Foundation





 Mr Adrian Wang (left), Chairman of Hong Kong Sustaintech Foundation Limited, and Professor Lu Haitian, Hong Kong Sustaintech Foundation Professor in Accounting and Finance

Hong Kong Sustaintech Foundation is committed to promoting public awareness of sustainable technologies, and nurturing young talents in the environment, social and governance (ESG) field. It catalyses collaborations between tertiary institutes and the industries, and facilitates knowledge transfer of cutting-edge sustainable technologies.



especially in the ESG field.

Professor Lu Haitian



Professor Lu Haitian is internationally recognised for his scholarly achievements at the intersection of law, finance, accounting, and technology, with three books published and penning over 40 papers in leading law, finance, economics, and management journals. In 2015, Professor Lu founded PolyU's Center for Economic Sustainability and Entrepreneurial Finance, a knowledge hub for cutting-edge research in climate risk, ESG, green finance, and Fintech.

#### The Endowed Professorship Scheme

### Peter Hung Endowed Professorship in Pain Management

Appointee: Professor Amy Fu, Associate Head, Department of Rehabilitation Sciences and Director, PolyU

Rehabilitation Clinic

**Donor:** H H Hung Charitable Foundation



The Endowed Professorship is an encouragement that truly fuels my academic passion. I believe more people will benefit from further research on pain management.

Mr Peter Hung Hak-hip, Founder of H H Hung

Charitable Foundation and Honorary Chairman of Hop

Hing Group, spares no effort in supporting research on

pain management. The Foundation wishes to support

Professor Amy Fu



Fi P

Mr Peter Hung Hak-hip (left), Founder of H H Hung Charitable Foundation, and Professor Amy Fu, Peter Hung Endowed Professor in Pain Management

Professor Amy Fu's endeavours in pain study range from serving elite athletes to frail seniors, from pain mechanisms to management, and from academic research to clinical practice. Apart from conducting research, she also provides hands-on treatments to patients, and has been consistently invited to oversee rehabilitation therapy plans for national athletes of Mainland China.

# researchers who contribute to the advancements in pain medicine, while looking forward to the emergence of effective and affordable treatments that alleviate pain among patients.

### Fiona Cheung Endowed Professorship in Spatial Science

**Appointee:** Professor Wu Bo, Associate Head, Department of Land Surveying and Geo-Informatics **Donor:** Ms Fiona Cheung, Chairman of Forest Zone Limited





 Ms Fiona Cheung (left), Chairman of Forest Zone Limited, and Professor Wu Bo, Fiona Cheung Professor in Spatial Science

Ms Fiona Cheung is a long-time supporter of PolyU. Currently, she is Honorary Life Vice President and member of the Governing Committee of the PolyU Foundation, and also a University Fellow of PolyU. She is passionate about community service and philanthropic ventures, having served on the boards of several community service organisations, including Po Leung Kuk and Yan Oi Tong. She helped establish the Endowed Professorship to support PolyU's continuous contributions to China's space exploration projects.

Scientific research takes us on a journey towards unknown territories and makes the world better. The Endowed Professorship inspires me to think out of the box and explore new ideas.

Professor Wu Bo



Professor Wu Bo has a keen research interest in photogrammetry and remote sensing, and has received numerous awards. He has developed innovative 3D topographic mapping and intelligent geomorphological analysis techniques which contributed to landing site mapping and selection for China's Chang'e-3, Chang'e-4, and Chang'e-5 lunar missions, as well as the Tianwen-1 mission to Mars.

### **Spotlights**

### **The Endowed Young Scholars Scheme**

### Wong Tit Shing Endowed Young Scholar in Smart Robotics

Appointee: Ir Dr Zheng Pai, Assistant Professor, Department of Industrial and Systems Engineering

**Donor:** Ir Dr Wong Tit-shing, Chair and Founder of Jetta Company Limited





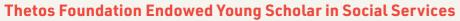
 Dr Wong Tit-shing (left), Chair and Founder of Jetta Company Limited, and Dr Zheng Pai, Wong Tit Shing Young Scholar in Smart Robotics

Dr Wong Tit-shing is Honorary President of the Toys Manufacturers' Association of Hong Kong and the Honorary President of the Hong Kong Toys Council. He has also founded the Jetta Charitable Foundation which has funded the construction of 60 schools in Mainland China. His contributions earned him countless accolades, including the Outstanding PolyU Alumni Award in 2009.

This is a valuable recognition and support to me and my team. Our research contributes to achieving a symbiotic and proactive human-robot collaboration towards futuristic smart manufacturing.

Ir Dr Zheng Pai

Dr Zheng Pai focuses his research on human-robot collaboration, smart-product-service systems, engineering design informatics and smart manufacturing systems. With prolific research outputs, he is listed in the 2020 Stanford List of World's Top 2% Scientists in the Industrial Engineering and Automation category.



**Appointee:** Dr Ada Fung, Assistant Professor, Department of Applied Social Sciences

**Donor:** Thetos Foundation

enough funding otherwise.

I am very grateful for this prestigious recognition, and will keep looking for new breakthroughs in early dementia identification and prevention to benefit society.



Thetos Foundation is a Christian faith-based private family foundation deeply rooted in Hong Kong. The grant-making organisation aims to give back to society by endorsing and empowering non-governmental organisations. This endowed position aims to support talented PolyU young scholars who are devoted to serving the community, particularly in the context of social services, an area that may not be attracting





Mr Charles To (left), Chairman of Thetos Foundation, and Dr Ada Fung, Thetos Foundation Young Scholar in Social Services

Dr Ada Fung is a renowned scholar dedicated to the early detection and prevention of dementia. She has successfully developed novel interventions to alleviate symptoms and slow down or even prevent dementia progression. Over the years, Dr Fung has worked closely with key organisations, giving advice and support for geriatric and dementia services.



During her visit, Ms Rebecca Pun (front row, first from right), Commissioner for Innovation and Technology, was briefed by Dr Miranda Lou (front row, second from right), Executive Vice President, and PolyU researchers about how the University translates scientific research outcomes into impactful applications to benefit society.

### Commissioner for Innovation and Technology visits PolyU InnoHub to understand anti-epidemic inventions by academic-led startups

PolyU-supported startups are continuously translating scientific research outcomes into impactful solutions for societal benefit. This can be exemplified by the various commercialised PolyU research projects for combating COVID-19 and other common viruses.

Ms Rebecca Pun, Commissioner for Innovation and Technology, visited the PolyU InnoHub in April, a coworking space for startups, and met three PolyU research teams to understand how their anti-epidemic innovations are applied to combat viruses. These inventions have been commercialised and put into use by different organisations and enterprises.

The first invention, CareCoatex™, is a non-toxic and eco-friendly antibacterial and antiviral coating that can kill 99% of common bacteria and viruses. It is effective for up to six months and can be applied to various equipment for disinfection, contamination control and anti-epidemic protection. Professor Li Pei (right), Professor of the Department of Applied Biology and Chemical Technology, led a research team to develop the disinfectant coating, which won a Gold Medal in the 2021 International Exhibition of Inventions of Geneva. She is leading the startup Grand Rise Technology Limited to commercialise the invention. 1

Another featured innovation is the anti-virus 3D printing material developed by Dr Chris Lo Kwan-yu (left), Associate Professor of the School of Fashion and Textiles, and his research team. This novel material, which can terminate COVID-19 and other common viruses, can be used to produce equipment that is touched frequently, such as door handles and elevator buttons, to reduce the chance of virus transmission. The technology has been commercialised by Immune Materials Limited, a PolyU academic-led startup. 2



Meanwhile, Professor Yip Shea-ping (first from right), Chair Professor and Head of the Department of Health Technology and Informatics, Dr Thomas Lee (second from right), Associate Professor and Associate Head of the Department of Biomedical Engineering, and their research team

have founded the startup Pocnat Limited to commercialise the portable nucleic acid testing device for COVID-19 they developed. The device can test both human and environmental samples with 100% sensitivity and specificity, in full agreement with the reverse transcription-polymerase chain reaction (RT-PCR) standard, to facilitate personal and environmental hygiene management. 3

Spotlights \_\_\_\_\_ Excel x Impact

### **POLYU SHENZHEN BASE**

## Fostering talent, innovation and technology development in GBA

olyU keeps on expanding its Mainland reach to seize different opportunities and contribute to the development of the Nation.

In 2000 and 2006, the PolyU Shenzhen Research Institute and PolyU Industry-Education-Research Base (Shenzhen) Company Limited were established respectively. Collectively known as PolyU Shenzhen Base, they are the extensions of PolyU and important footholds in the Greater Bay Area and have made outstanding achievements in scientific research, education, knowledge transfer and innovative entrepreneurship over the years.

#### Multi-dimensional scientific research

Currently, the PolyU Shenzhen Base has a number of laboratories and research platforms as listed below, occupying more than 6,500 square metres of floor space.

### PolyU Shenzhen Base: Laboratories and Research Platforms

State Key Laboratory of Chemical Biology and Drug Discovery (Shenzhen Base)

Shenzhen Key Laboratory of Food Biological Safety Control

State Key Laboratory of Chinese Medicine and Molecular Pharmacology (Incubation), Shenzhen

Centralised Animal Facility (Shenzhen)

Life Science Research Laboratory

Land Surveying and Geo-informatics Research Centre

Advanced Textile Design (Kansei Engineering) Laboratory

CAS AMSS-PolyU Joint Laboratory of Applied Mathematics

State Key Laboratory of Ultra-precision Machining Technology (Shenzhen Base)

Shenzhen Key Laboratory of TCM Formulation, Toxicology and Pharmacology

PolyU-CSRD Joint Innovation Centre for Rail Transit Safety Monitoring Technology

Photonics Research Centre (Shenzhen)

Biophotonics Laboratory

Research Centre for Sustainable Urban Development

Brain Science and Language Technology Laboratory

Biomedical Material and Bio-manufacturing Laboratory



### Involvement in national scientific research projects

Since 2011, the PolyU Shenzen Base has undertaken over 800 scientific research projects from different levels of government agencies and industries including the Ministry of Science and Technology, the National Natural Science Foundation of China, as well as the Guangdong Province and Shenzhen City governments with an overall value amounting to nearly RMB600M. These projects include the Chief Scientist projects of the National Key Research and Development Programme of China and major projects or issues related to the Nation's Sci-Tech Innovation 2030 Agenda.

More than 200 projects are now underway in these research platforms, involving about 200 researchers. Over the years, the PolyU Shenzhen Base has been granted 151 patents and 17 software copyrights and has nurtured 28 postdoctoral researchers. The PolyU Shenzhen Research Institute has been awarded 'Outstanding Research Institute' by the Science, Technology and Innovation Commission of Shenzhen Municipality for 16 years consecutively, starting from 2005.

#### Nurturing talents

The PolyU Shenzhen Base also nurtures talents for the Greater Bay Area by harnessing PolyU's strengths and featured disciplines. Since 2001, the Base has undertaken a number of courses that PolyU coorganises with colleges in the Mainland such as Master of Business Administration, Master of Social Work, Master of Science in Hotel and Tourism Management, and Master of Arts in Fashion and Textiles. The total number of students enrolled to date is nearly 1,000.

Meanwhile, the PolyU Shenzhen Base also customises courses for governmental institutions and different industries, covering areas such as sustainable development, innovation and entrepreneurship, and healthcare. More than 2,000 professionals, business leaders and elites have attended these courses so far.



■ Shenzhen Key Laboratory of Food Biological Safety Control



The Photonics Research Centre in PolyU Shenzhen Base



■ Joint Rail Transit Safety Monitoring Technology Innovation

#### PolyU Shenzhen Base



18 laboratories and research platforms



research projects underway



16 years consecutively as "Outstanding Research Institute"



patents and

software copyrights granted



800+

research projects undertaken with total value near

RMB**6UUP** 



2,000+
professionals trained

Spotlights \_\_\_\_\_ Excel x Impact

### Knowledge transfer enhances industrial competitiveness

Many companies have recognised that cutting-edge research and technology can help them innovate and develop sustainably, so their demand for the commercialisation of scientific research results is rising. The PolyU Shenzhen Base is also committed to transferring the latest scientific research results to various industries. It promotes industry-academia-research cooperation by holding lectures, salons, exchange meetings, international conferences, etc., thereby driving scientific research 'from bookshelves to product shelves'.

In recent years, the Base has held a number of events on topics such as big data, photonic technology, food safety, the Belt and Road Initiative, smart cities, biomaterials, and sensor networks, promoting extensive exchanges with industry.



PolyU Shenzhen Base, China New Industry Alliance, China Merchants Shekou and Surbana Jurong Group jointly organised a knowledge transfer seminar with the theme of 'Integration, Upgrade, Development' to explore cooperation opportunities in urban planning and development.

After years of development, the Shenzhen Base not only undertakes scientific research projects of the Nation and government agencies but also cooperates with industries to accept commissions and joint R&D projects. The Base has undertaken a number of scientific research projects, and has obtained more than 150 patents, which can be divided into the following categories:

- Computer and communication, including image recognition, virtualised environment technology, etc.
- Biological and medical, including pharmaceutical preparations and applications, food testing, etc.
- 3. **Construction machinery**, including mechanical devices and platforms, damping devices, etc.
- Construction engineering, including land surveying and geo-informatics, remote sensing technology, etc.
- 5. **Electronic and optical communications**, including optical fibre technology, 3D ultrasound imaging, etc.
- 6. **Clothing and textiles**, including macromolecule materials, polymer materials, etc.

These patented technologies can help industry partners improve their competitiveness, thereby promoting technological innovation as a new engine of economic development.

### Entrepreneurial cradle

In 2015, PolyU InnoHub@Shenzhen was set up at PolyU Shenzhen Base. Functioning the same as its Hong Kong counterpart, InnoHub@Shenzhen serves to empower innovative entrepreneurship by providing research teams or startups with shared spaces and facilities, as well as various sorts of financial support.

In the past few years, more than 180 startup teams or companies from diverse sectors such as artificial intelligence, healthcare, and education have enrolled in InnoHub@Shenzhen. Among them, 70% have been granted seed funding or other funds from PolyU. Currently, there are 95 teams or enterprises being incubated in the facility, including 66 teams that are being jointly incubated by InnoHub@Shenzhen and InnoHub@Hong Kong.

With a view to promoting entrepreneurial exchange, InnoHub@Shenzhen has been actively organising a number of entrepreneurship competitions and events and has recommended over 100 PolyU teams to participate in different innovation and technology (I&T) entrepreneurship competitions, bringing home more than 50 awards in total.

### Outstanding PolyU InnoHub@Shenzhen entrepreneurs

Dr Aotian Song, Founder and Chairman of Leadus Glass Technology (Shenzhen) Company Limited and Dr Li Siyang, Co-founder & CEO of Goal Technology (Shenzhen) Company Limited, are two PolyU alumni whose companies were recommended by InnoHub@Shenzhen to compete in the Shenzhen Innovation and Entrepreneurship Competition, and both advanced to the National Competition of China Innovation and Entrepreneurship Competition.

In 2021, Leadus Glass Technology emerged out of 6,432 entries in the Shenzhen Innovation and Entrepreneurship Competition through the Shenzhen-Hong Kong-Macao University Qualifier Area, subsequently advanced to the National Competition of the 10th China Innovation and Entrepreneurship Competition, and finally won the Excellence Award in the Enterprise Group of the National Competition.

Leadus Glass Technology invented vacuum insulated glazing technology which enormously increases the energy-saving performance of glass, thus increasing the energy efficiency of buildings.

### **Dr Aotian Song**

PhD in Building Environment and Energy Engineering, PolyU
Founder and Chairman, Leadus Glass Technology (Shenzhen) Company Limited







180+



InnoHub@Shenzhen

Incubating

95 startup

Recommended
100+
PolyU teams to I&T
competitions with

50+





Goal Technology specialises in producing high-precision manufacturing equipment and motors.



PhD in Electrical Engineering, PolyU
Co-founder & CEO, Goal Technology (Shenzhen) Company Limited



### **Exploring potential collaboration with athletic** apparel and footwear giant Li Ning

PolyU strives to transform research excellence into applications through collaborations with industry partners. Dr Li Ning, PolyU Honorary Doctor of Humanities and the founder of Li Ning Company Limited, recently visited the University and met some research teams, accompanied by PolyU President Professor Jin-Guang Teng.

Dr Li visited the School of Fashion and Textiles, the Research Institute for Intelligent Wearable Systems (RI-IWEAR) and the Human Locomotion Laboratory at the Department of Biomedical Engineering. He gained an understanding of the University's latest research on textile technology, intelligent wearable systems, fabric science, apparel engineering, as well as monitoring and rehabilitation technology for sportsmen, and sports biomechanics. After observing PolyU's strengths, Dr Li showed great interest in the technical requirements and the possible development directions. The whole process of discussion and demonstration was simultaneously streamed to the R&D team of Li Ning Company Limited for sharing. Dr Li and Professor Teng had a fruitful discussion and explored plans to deepen the collaboration between PolyU and Li Ning Company Limited.

A celebrated former Chinese gymnast who won more than 100 gold medals, including three at the 1984 Olympics, Dr Li founded the internationally renowned Chinese sportswear and sports equipment enterprise Li Ning Company Limited in 1990.



■ President Professor Jin-Guang Teng greeted Dr Li Ning (left).



■ Ir Professor Zhang Ming (left), Director of Research Institute for Sports Science and Technology, Head of the Department of Biomedical Engineering and Chair Professor of Biomechanics, briefed Dr Li about PolyU's current research and development for sports biomechanics.



■ Professor Tao Xiaoming (right), Director of ■ Professor Li Li (left) of RI-WEAR RI-IWEAR, introduced the bio-based antibacterial textiles to Dr Li.



showed Dr Li PolyU's intelligent heating technology.



■ Professor Fan Jintu (right), Chair Professor and Head of the Institute of Textiles and Clothing, demonstrated the moisture-transferring and quick-drying technology.

### **PolyU honours SIX YOUNG INNOVATORS**

mboldened by energy, passion and courage, young researchers have much to offer in identifying and addressing complex global problems. Recently, six PolyU young researchers were honoured with the PolyU Young Innovative Researcher Award (YIRA) 2022 in recognition of their outstanding research efforts in tackling global challenges in the opening ceremony of the PolyU InnoTech Open Day. Congratulations!

Committed to research excellence and creating positive social impact through innovation, PolyU launched YIRA to honour young PolyU researchers under the age of 35 who have demonstrated innovative thinking, contributed to technology advancement and turned innovative ideas into solutions for social problems, bringing forth positive changes.

The YIRA assessment panel, comprising Professor Jin-Guang Teng, President of PolyU; Professor Wing-tak Wong, Deputy President and Provost; Dr Miranda Lou, Executive Vice President; Professor Christopher Chao, Vice President (Research and Innovation); and Professor Larry Chow, former Director of Research and Innovation, had reviewed over 59 submissions across 22 departments before selecting the six YIRA awardees this year.

The research achievements of the six awardees covered a wide range of research areas, including engineering, education, sustainability, transportation, and social care. The selected awardees have shown advanced knowledge in their fields and developed unique, practical technology or innovation with global impact.

"The Young Innovative Researcher Award is for talented faculty members who epitomise PolyU's commitment to research excellence. I offer my heartiest congratulations and thanks to each of them for their contributions to a better and brighter future," Professor Teng said.

■ Six outstanding young researchers received the "Young Innovative Researcher Award 2022" from Professor Sun Dong, Secretary for Innovation, Technology and Industry (sixth from left), PolyU's Council Chairman Dr Lam Tai-fai (fifth from left), President Professor Jin-Guang Teng (seventh from left) and other members of the award assessment panel in the opening ceremony of the PolyU InnoTech Open Day.





PolyU Community \_\_\_\_\_ Excel x Impact



Innovation for me is to use finite building blocks to create infinite possibilities.

Our team aims to develop robot-assisted training programmes to improve the use of speech prosody by autistic children. Our research has potential clinical applications and the developed training programmes can be used in various settings.

Specifically, the research team is developing training programmes to improve the use of speech prosody and emotion recognition of autistic children.

Dr Chen Si

Assistant Professor, Department of Chinese and Bilingual Studies, Faculty of Humanities

Research Area: Robot-assisted training for children with autism spectrum disorder



I am a material scientist, providing solutions to increase the data storage capacity of computers and extend the lifetime usage of memory devices. My research will help build a green world with less electronic waste.



Dr Chen Zibin

Assistant Professor, Department of Industrial and Systems Engineering, Faculty of Engineering Research Area: Ferroelectric materials for new generation memory devices



Innovation means understanding how knowledge, problems, and their solutions are intersectional. In urban and post-colonial space, innovation means working with the right viewpoints, actors, and technologies to create long-term change.

My collaborators and I want to address challenges posed by changing urban environments and the contests between individual choice, collective needs, and collective resources. Our research is significant in its conservation of the stilt houses in Tai O, and in developing collaborative solutions for Tai O's changing future.

Mr Daniel Keith Elkin

Assistant Professor, School of Design

**Research Area:** Tai O village pedestrian traffic monitoring project, stilt house 3d scanning project, lantau conservation fund village revitalisation project



Nature, as the source of inspiration to scientists, encodes numerous supramolecular assembled systems to perform sophisticated biological functions.

My research project aims to develop a research platform for fabrication of novel biomimetic supramolecular soft robotic systems with the smallest machine in the world: 'artificial molecular machinery'. This research approach creates the photo responsive soft materials with excellent biocompatibility for future advanced biomedical materials and related technological developments.



### Dr Franco Leung King-chi

Assistant Professor, Department of Applied Biology and Chemical Technology, Faculty of Science Research Area: Photo-responsive amphiphiles for supramolecular robotic system



With a strong passion for chemistry and materials, my research vision is to tackle one of the biggest challenges in heterogeneous catalytic science – the design of catalytic landscapes with high precision and ease of green production.

The objective of my current research is to build a solid foundation for developing a research platform for new-generation solid atomic catalysts which will ultimately reach the molecular frontier. Our team is devoted to two major directions, namely

- (1) green and modern drug development by C-C and C-X cross-coupling reactions, and
- (2) decarbonization by electrocatalytic CO<sub>2</sub> conversion to valuable chemicals.



Assistant Professor, Department of Applied Biology and Chemical Technology and Department of Applied Physics, Faculty of Science

Research Area: Designing multinuclear solid atomic catalysts for energy and sustainability applications



My research focuses on fundamental colour science, which aims not only to reveal new mechanisms about how the human visual system responds to light and colour, but also to develop new algorithms and solutions for the various relevant industries.

Many of our research findings and solutions have been adopted by various world-leading high-tech companies, and are widely adopted by various products used in daily lives, such as lighting equipment, cameras, displays, smartphones, and VR/AR/MR enabled metaverse systems.



### Dr Tommy Wei Minchen

Associate Professor, Department of Building Environment and Energy Engineering, Faculty of Construction and Environment

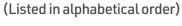
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Research Area: Human vision-based solutions for lighting and imaging systems

PolyU Community \_\_\_\_\_ Excel × Impact

### Major external appointments and awards of PolyU members

From April to June 2022, 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.





**Dr An Liang**Associate Professor, Department of Mechanical Engineering

#### Award

• Fellow, Royal Society of Chemistry



**Dr Anthony Kong Pui-keung** Assistant Professor, School of Design

#### Awards

 Silver Award, Judge's Choice Award and Excellence Award, HKDA Global Design Awards 2021



**Professor Chen Guohua** 

Otto Poon Charitable Foundation
Professor in Smart and Sustainable
Energy
Chair Professor of Energy Conversion

Chair Professor of Energy Conversion and Storage, Department of Mechanical Engineering

#### Award

 Fellow, Canadian Academy of Engineering



Dr Shara Lee Wee-yee

Associate Professor, Department of Health Technology and Informatics

#### Award

Fellow, Higher Education Academy



**Professor Fu Mingwang** 

Associate Director, Research Institute for Advanced Manufacturing Chair Professor of Advanced Manufacturing, Department of Mechanical Engineering

### Award

 Fellow, Society of Manufacturing Engineers College of Fellows



Dr Liu Xintao

Associate Professor, Department of Land Surveying and Geo-Informatics

#### Appointments

- General Secretary, International Society of Urban Informatics
- Managing Editor, Journal of Urban Informatics



Mr Peter Hasdell

Associate Dean (Academic Programmes), School of Design

### Awards

- Winner of Utilising Local Materials, 2022 International Union of Architects 2030 Award
- Winner & People's Choice of Social Good, 2022 Azure Magazine Award for Social Good
- Third Prize for Architectural Design, Design Educates Award 2022



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Mr Edward Wong Ting-hei

Senior Clinical Associate, Department of Health Technology and Informatics

#### Appointment

 Council Member, International Society of Radiographers and Radiological Technologists



Dr Yao Wei

Assistant Professor, Department of Land Surveying and Geo-Informatics

#### Appointment

 Co-Chair for International Society for Photogrammetry and Remote Sensing (ISPRS) Working Group for Remote Sensing Data Fusion



Professor Yip Shea-ping

Chair Professor of Diagnostic Science and Molecular Genetics

Head, Department of Health Technology and Informatics Associate Director, Research Centre for

SHARP Vision
Associate Director University Research

Associate Director, University Research Facility in Life Sciences

#### Award

 Fellow, Faculty of Science, Royal College of Pathologists of Australasia

### Senior staff appointments and promotions

(between 1 April and 30 Jun 2022)

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

#### **Promotion**



Professor Zhao Xiaolin

as Chair Professor of Civil Infrastructure, Department of Civil and Environmental Engineering on 21 Apr 2022

### **Appointments**



Professor Christopher Chao Yu-hang

as Director of Policy Research Centre for Innovation and Technology on 1 May 2022



**Professor Eric Friginal** 

as Head and Professor, Department of English and Communication on 3 May 2022



Professor Huang Jian

as Chair Professor of Data Science and Analytics, Department of Applied Mathematics on 10 Jun 2022



Mr Simon Wong Yuk-sun

as Vice President (Campus Development and Facilities) on 3 May 2022



Ir Dr Yip Tsz-leung

as Associate Dean of Students on 1 Apr 2022

PolyU Community \_\_\_\_\_ Excel x Impact



n the past decade under Chairman Ms Han
Fang's leadership, Nacity has ranked as one
of the top companies in China, and is the first
property services firm to become an A-shares
company when it was listed on the Shanghai
Stock Exchange in 2018. Though Ms Han is well
known as the capable leader of Nacity, what may be
less well known is that the driver of her success is
her vision to create better lives for people.

Today, Nacity has grown to manage nearly 80 million square metres of property. Ms Han has led the company with expertise, diligence, and innovative thinking, applying the knowledge on property management that she acquired from

the PolyU Master of Science in International Real Estate programme. For example, she has reformed the company's services to emphasise meeting the true needs of customers and create value for society.

### Contributing to society at every opportunity

Ms Han is a strong advocate of social responsibility and practises what she preaches. At the corporate level, she has introduced subsidies for disadvantaged employees, organised Nacity fundraising events, and partnered with government bodies to promote the welfare of people working in the local property services industry. She believes that real estate development and property services

Ms Han Fang (fourth from left) has initiated the Nacity Community Foundation to provide financial support to the needy. The Foundation has donated over RMB2million of anti-epidemic supplies to frontline medical staff and workers in their properties during COVID-19.



should be socially responsible in order to create a harmonious environment in which users can relax and communities can flourish.

Ms Han, who is a frequent guest speaker at provincial and city-level seminars, says: "I am grateful for what society has given me, shaping me into who I am today. I feel the urge to give back to society."

#### Raising funds for the disadvantaged

Alongside her focus on business, Ms Han also pays attention to the needs of people around her. After noticing the harsh working conditions of security guards, who often had no shelter from the sun, Ms Han launched a 'Spread Smile and Love Series' campaign. "I would have fainted in half an hour under that heat," she says, talking about inspecting a property during the summer. The campaign encouraged property owners to express their care for security guards and neighbours through smiles and greetings. Property owners that took part received a "welfare card". For each card they received, Nacity donated RMB1 to a Hangzhou charity. The event was launched simultaneously in dozens of Nacity properties in Hangzhou City, raising a total of RMB200,000 to support the disadvantaged and pay for their medical and educational expenses.

Ms Han launched "LeFund", a funding scheme to support Nacity's employees and their family members through providing assistance if they were sick, and educational subsidies for their children. She also donated RMB1million to the Hangzhou charity foundation – the West Lake Education Foundation, to promote the development of local education and support students and teachers who were in need. Ms Han has led employees on visits to impoverished villages, funded the construction of schools, organised book donations and more. "If each of us makes a humble effort to improve the wellbeing of the community, our home will become a better place and more harmonious relationships can be built," she says.

#### Connecting alumni, PolyU and the community

As a graduate of the first-cohort of students on the MSc in International Real Estate (IRE), Ms Han is enthusiastic about alumni affairs, and serves as President of Zhejiang University-The Hong Kong Polytechnic University Joint Centre Alumni Network. "Strengthening the connection between alumni and PolyU is one of the important tasks of the Alumni Network. It serves as a bridge — the University can share its latest developments with alumni, while alumni can share their thoughts with the University." She feels honoured to serve PolyU alumni and provide support to them, such as promoting cooperation between alumni and outstanding companies in the real estate and hospitality sectors. She hopes to hold exchange activities focusing on both industry and charity for alumni as soon as the pandemic ends.

When asked what her key learning was from the Master's programme, Ms Han says: "Keep your eyes on the stars, and your feet on the ground." For her, this saying means knowing perfection and embracing your vision, but finding a way to make it happen. She learnt how to make it happen at PolyU.



Ms Han Fang (fourth from right) has been awarded the Person of the Year of the 12th Zhejiang Merchant Victress Award. She and other awardees set up a scholarship fund for young school children in support of their studies through donating resources and funds.

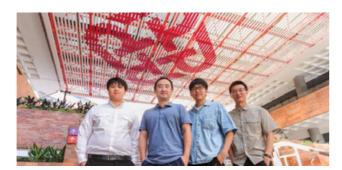
PolyU Community \_\_\_\_\_ Excel x Impact

### PolyU students triumph in global ICT competition

The PolyU student team "Polynomials" has brought home the First Prize award in the Practice-Cloud track in the global final stage of the Huawei ICT Competition 2021-2022 in Shenzhen. They succeeded in the international tournament by demonstrating their ICT knowledge, practical skills and innovative mindset. In all, around 150,000 students from over 2,000 universities and colleges across 85 countries and regions participated in the contest this year.

Under the guidance of their instructor Dr Xu Yang,
Assistant Professor of the Department of Land
Surveying and Geo-Informatics (LSGI), the PolyU
team formed by Feng Yunlin and Tang Man-kit from
the Department of Computing and Zhong Xiuming from
LSGI have shown their passion for big data, artificial

intelligence, the cloud and geospatial technologies, as well as the application of such technologies in e-Commerce, the Internet of Things and Smart Cities.



Polynomials demonstrated their multidisciplinary knowledge, outstanding performance, and seamless teamwork along their journey to glory. From left: Tang Man-kit, Dr Xu Yang, Feng Yunlin and Zhong Xiuming.

### Students awarded scholarships to pursue their IT dreams

Congratulations to three PolyU students for being awarded Innovation and Technology Scholarships. The scholarships are offered jointly by the Innovation and Technology Commission, HSBC and The Hong Kong Federation of Youth Groups. The students' achievements were recognised at an Award Presentation Ceremony held in June, officiated by the then Chief Executive of the HKSAR Mrs Carrie Lam.

Hannah Chau Chung-hang Year 4, Bachelor of Science (Hons) in Nursing



Kuni Li Kwok-chun Year 3, Bachelor of Engineering (Hons) in Aviation Engineering

Inspired by the successful launch of the Shenzhou XIV spaceship, Kuni envisages creating an automatic aircraft maintenance system featuring a robot that is equipped with sensors enabling it to perform different tasks and move freely along the surface of aircraft. He is excited to join a two-month Visiting Student Programme at Beihang University in Beijing early next year, where he will learn how to apply automation and control technologies to aerospace and civil aviation.



**Deanna Xu Yi-nam** Year 3, Bachelor of Science (Hons) in Land Surveying and Geo-Informatics

Deanna loves nature. She will use her scholarship to continue her research with the Department of Forest and Wildlife Ecology of the University of Wisconsin-Madison in the US for eight months, starting this September. She will focus on using remote sensing, satellite images and spatial data to study the loss of natural and agricultural areas to urban development, and create forest maps to assess woodland resources.

The Innovation and Technology Scholarships select 25 outstanding undergraduates from local universities to receive scholarships of up to HK\$150,000. The Scholarships provide access to a wide range of elite training programmes to increase students' international exposure through different opportunities, enhance their enthusiasm and encourage them to pursue careers in the field of InnoTech.

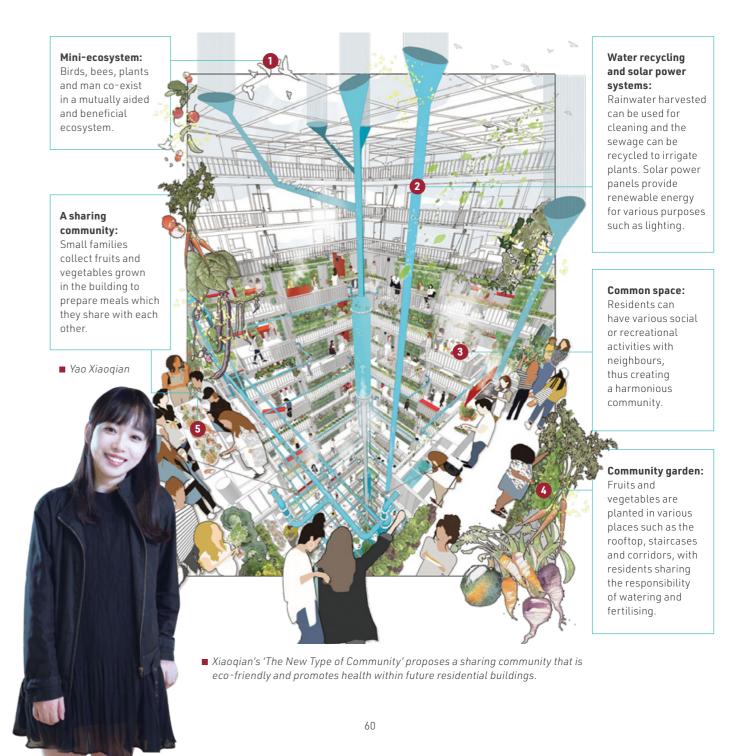
### Self-sustaining architectural design recognised in competition

Ms Yao Xiaoqian, a recent graduate of PolyU's School of Design, won an Honourable Mention for her work 'The New Type of Community' in the Design Educates Awards 2022, which recognises architectural and design projects that respond to complex social and environmental issues. Xiaoqian was one of the few student applicants out of nearly 400 entries from 30 countries.

Xiaoqian explains that Hong Kong's reliance on food imports increases its ecological footprint.
'The New Type of Community' attempts to solve the problem by establishing a sharing community that

is eco-friendly and promotes health within future residential buildings. Her architectural design overhauls the existing fabric of public housing and incorporates agricultural elements as well as alternative ways of generating energy, in order to increase the autonomy with regard to food and energy. In addition, the configuration of kitchen space is modified to facilitate collaboration among small families and to build a village-like community.

Xiaoqian's design uses narrative illustrations to outline a sustainable living environment for the future in her imagination.



### **Celebrating our**

## 85th ANNIVERSARY

e Are PolyU. Together We Excel' is the theme of the University's 85th Anniversary celebrations. It highlights that PolyU's impressive growth is the result of the University community and the broader Hong Kong community working together. To celebrate this anniversary, which marks a significant milestone in PolyU 85th Anniversary its development, PolyU has organised a series of art and culture events. The events, which range from music performances, to street dance, to a drama show, create a festive atmosphere on campus for staff, students and alumni to enjoy. nniversary

### **PolyU 85th Anniversary Art and Culture Series**

### **PolyU Alumni Band Concert**

In May, around 200 PolyU members gathered at the Logo Square to enjoy a pop concert performed by the PolyU Alumni Band. The performance comprised of Western and Cantonese pop music, as well as original compositions by band member Eagle Chan, and the University's 85th Anniversary Theme Song. Professor Ben Young, Vice President (Student and Global Affairs), delivered opening remarks to introduce the concert.

■ The PolyU Alumni Band Concert was performed by four talented alumni, (from right) Eagle Chan, Stephanie Lau, Chiu Ka-yu, and Daniel Wong.





### 'The Power of Passion' - A Concert by PolyU Orchestra, with PolyU Choir

Hundreds of music lovers packed the Jockey Club Auditorium in mid-June for a feast of classical music performed by the PolyU Orchestra and PolyU Choir, led by Mr Leung Kin-fung, Artistic Director and Conductor of the PolyU Orchestra, and Mr Alex Tam, Conductor of

Their repertoire included Schubert's Symphony No. 9 'The Great', Verdi's Overture for his opera 'La Forza del Destino', John Rutter's choral work 'The Lord Bless You and Keep You', and a unique medley interweaving the PolyU 85th Anniversary Theme Song and popular



PolyU Community \_\_\_\_\_ Excel Impact



### Street Dance Performance by Youth Outreach

On a regular day in late July, staff and students enjoyed a blend of different forms of street dance during a lunchtime performance by instructors and students from the School of Hip Hop, part of Youth Outreach.

Energetic young dancers showed off their hiphop skills at the PolyU Chiang Chen Studio Theatre. Their street dance performance got everyone grooving.







In early August, Chinese music lovers enjoyed an enchanting concert performed by the FHKPUAA Chinese Orchestra, made up of PolyU alumni and students. Conducted by a seasoned instructor of Chinese music, Mr Wong Chi-wah, the concert began with the PolyU 85th Anniversary Theme Song, followed by pipa solo 'Dance of the Yi Tribe', guzheng ensemble 'South of the Cloud', and piano concerto 'Love River'. The programme also included two captivating orchestral pieces.

The FHKPUAA Chinese Orchestra started out as a music group founded by Chinese orchestral music enthusiasts in 1973. It was officially established in 2019 with the support of the University and The Federation of The Hong Kong Polytechnic University Alumni Associations

### PolyU 85th Anniversary - more to come

Stay tuned for more celebratory events:

- Public lecture A New Vision for Carrying the Traditional Culture Forward (October)
   by Dr Louis Ng Chi-wa, Director of Hong Kong Palace Museum
- Dialogue with Edgar Cheung Ka-long (October)
  Dr Edgar Cheung Ka-long, PolyU Honorary
  Doctorate 2021 and 2021 Tokyo Olympic Gold
  Medalist
- Grand concert (November)
- Gala Dinner (November)

Even more:



**PolyU Community** Excel x Impact

### PolyU Power Up Exercise x 85th Anniversary Theme Song



To promote health and wellness, the University asked its Department of Rehabilitation Sciences (RS) to draw on its clinical expertise to design the PolyU Power Up Exercise. The Exercise is featured in a video which uses the 85th Anniversary Theme Song as background music.

In the video, PolyU's Council Chairman Dr Lam Tai-fai and President Professor Jin-Guang Tengjoin Associate Head of RS and Director of PolyU Rehabilitation Clinic Professor Amy Fu, who led the design of the Exercise. Six PolyU student-athletes demonstrate the eight different movements which help to train various muscle groups to improve cardiorespiratory fitness.



















Alongside the launch of the video, the University distributed a 'PolyU Power Up Exercise Band' to all full-time PolyU staff, to encourage them to practise the Exercise with their colleagues, friends and family members to stay healthy together.

> Scan the QR code to watch the video and exercise now:



### **Share your version of the Theme Song**

### **Together We Sing**

PolyU members are encouraged to sing the 85th Anniversary Theme Song in any way they like and share their audio or video files on the Anniversary website. All participants will receive a PolyU souvenir!





### Create Your Theme Song Music Video (MV)

PolyU fans may also create a Theme Song MV. They may perform the song by rapping, a cappella, as band music, singing in foreign languages, or any other way their creativity inspires them. They can submit their MV for the opportunity to win a staycation voucher for Hotel ICON, as well as to perform at one of the University's future events.

> Scan the QR code for more details about the contest:



### The Hong Kong Polytechnic University Magazine **Excel** x Impact

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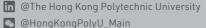
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