

The cover features a photograph of a modern building with a curved facade and large windows. Overlaid on the image are large, semi-transparent geometric shapes: a large orange triangle in the upper left, a large teal triangle in the upper right, and a large green circle in the lower half. A series of white lines with circular and square endpoints connect various points on the building and landscape to the text on the left. The text 'HKUST' is in a large, dark blue, sans-serif font. Below it, '18' and '19' are stacked vertically, separated by a horizontal line, with 'ANNUAL REPORT' to their right. The background image shows a paved plaza with some greenery in the foreground.

HKUST

18
—
19 ANNUAL
REPORT

The background of the entire page is a light blue color. Overlaid on this is a complex, abstract pattern of gold-colored geometric shapes and lines. The shapes include circles, squares, triangles, and hexagons, many of which are smaller and arranged in a grid-like fashion in the center-right area. Lines of varying lengths and orientations (horizontal, vertical, diagonal, and curved) are scattered throughout the composition, some intersecting the shapes. The overall effect is a modern, minimalist, and artistic design.

HKUST

18
19 ANNUAL
REPORT

HKUST's 5 Core Values

- Excellence, Integrity, and Academic Freedom
- Global Vision and Local Commitment
- Can-do Spirit
- Inclusiveness, Diversity, and Respect
- 1-HKUST

The Mission of the University

- (a) To advance learning and knowledge through teaching and research, particularly
 - i. in science, technology, engineering, management and business studies; and
 - ii. at the postgraduate level; and
- (b) To assist in the economic and social development of Hong Kong.

(The Laws of Hong Kong: Chapter 1141)

Statement of Vision

To be a leading University with significant international impact and strong local commitment.

- | | |
|----------|---|
| Global | To be a world-class university at the cutting edge internationally in all targeted fields of pursuit. |
| National | To contribute to the economic and social development of the nation as a leading university in China. |
| Local | To play a key role, in partnership with government, business, and industry, in the development of Hong Kong as a knowledge-based society. |



Schools, Programs Office, Institutes

HKUST Jockey Club Institute
for Advanced Study

IAS

School of Engineering

SENG

School of Business
and Management

SBM

School of Humanities and
Social Science

SHSS

HKUST Institute for
Public Policy

IPP

School of Science

SSCI

HKUST Fok Ying Tung
Graduate School

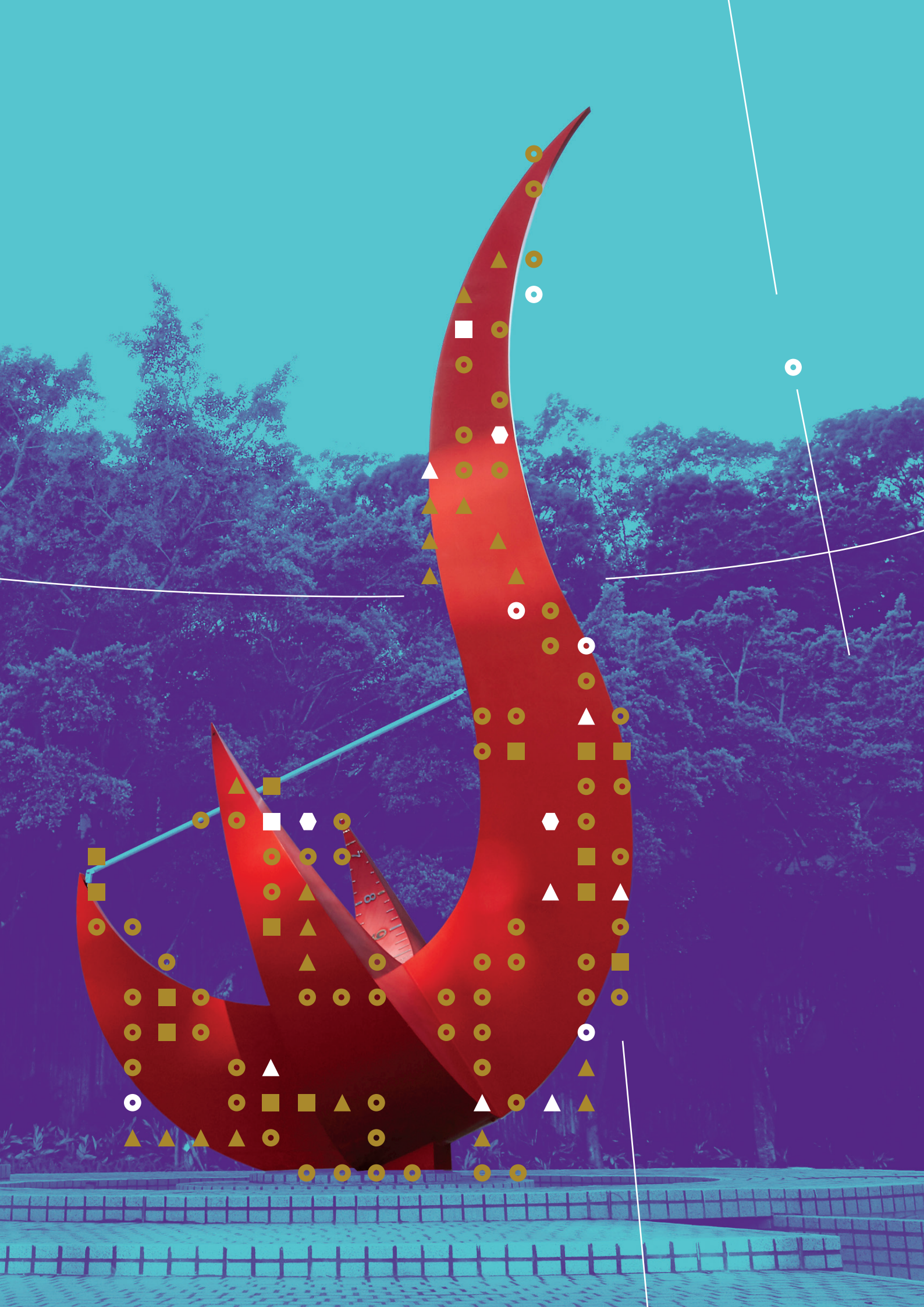
FYTGGS

Interdisciplinary
Programs Office

IPO

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CHAIRMAN'S FOREWORD



It has certainly been a year of change, achievements, and growth at HKUST. We have seen the installation of the University's fourth President as well as the sad departure of one of HKUST's pivotal founding members. In a further major development, there has been the announcement of the Hong Kong University of Science and Technology (Guangzhou) (HKUST (GZ)) agreement, which will open up many invigorating opportunities for HKUST to improve its global competitiveness as a research-oriented, elite, science, technology, business and social science institution.

In November 2018, President Wei SHYY was officially installed as President to take the helm of the University after his dedicated service as Provost for eight years. Since then, Prof. Shyy has been leading HKUST to navigate through complex and fast-changing tech-driven development amidst a world filled with global challenges and propel our institution to greater heights. The Council Members and I have every confidence in his leadership to keep the University advancing from strength to strength.

Last year also saw the great loss of our University's founding Council Chairman Dr. CHUNG Sze-Yuen. Dr. Chung, a key public figure in Hong Kong for more than 50 years and one of HKUST's earliest champions, who helped to steer the "third university" project from conception and planning to establishment in 1991 as Hong Kong's only research-focused institution at that time.

Dr. Chung had a clear vision of the need for a leading science and technology university to provide the innovative talents and original knowledge to take Hong Kong forward into the future. He then worked for more than two decades in numerous leadership roles to set HKUST on its way to becoming the remarkable university today – ranked No. 1 in the World's Top 350 Young Universities (Times Higher Education) in 2019 and its graduates placed No. 16 in the Global University Employability Ranking (Emergence/Trendence) in 2018 and No. 1 in Greater China for the sixth consecutive year. Dr. Chung's contribution was irreplaceable and HKUST remains forever grateful for his vision, wisdom, and guidance.

In a continuation of that spirit of boldness and far-sightedness, a major initiative was publicly launched in December 2018 that will assist the University in sustaining and forging ahead as an engine of innovation and creativity in the decades to come, with the signing of a tripartite agreement with the Guangdong Municipal Government and Guangzhou University to establish HKUST (GZ). The initiative, which marks a significant milestone for HKUST's venture in offering education in Guangzhou, will nurture internationalized talent and facilitate closer collaboration among Hong Kong, the Greater Bay Area and beyond on education, research, and commercialization. To support important decision-

making and in line with its supervisory role, the Council has established a Task Force on the Proposed HKUST (GZ), with members meeting seven times to discuss related governance matters over the year.

The new campus represents an increase in scale and scope for HKUST, and keeps the University at the forefront of trends and emerging fields. It will aid the University in building a rich talent pool and accessing to funding and resources to carry out the complex research necessary to address the challenging social and economic issues in the region that await solutions. Such expansion will bring far-reaching impact on technology innovation and industrial upgrading in the Mainland and Asia while strengthening knowledge transfer to bridge Hong Kong's gap in high-tech manufacturing. HKUST (GZ) will follow the spirits of HKUST in academic excellence, innovation and entrepreneurship, while adhering to its educational vision, resources and teaching quality in quest of becoming a world-class bay area university.

Another positive move resulted in the signing of the University Accountability Agreement in June 2019 following three years of dialogue with the University Grants Committee (UGC). The Agreement exhibits the joint efforts between HKUST and the UGC to advance the University's mission and vision, strengthen its governance, and drive continuous improvement in terms of student experience, research endeavors, knowledge transfer, internationalization, and financial health and institutional sustainability, contributing to delivering the highest quality education in Hong Kong.

I would like to take this opportunity to thank my fellow Council Members, Administration of the University and faculty, donors, alumni, and students for their great efforts to propel HKUST to new heights over the current year. Looking ahead is never easy but as our late founding Council Chairman showed, with the right direction, planning, and positive energy, the results can be spectacular. I look forward to this continuing at HKUST and to the University's on-going elevation.

Chairman, University Council
MR. ANDREW LIAO CHEUNG-SING
 GBS, JP

PRESIDENT'S REPORT



As I look back over the past 12 months, the main word that comes to mind is “extraordinary” for HKUST as we significantly accelerated the development of the University in multiple aspects.

On the institutional development front, I am pleased to report that HKUST has taken a major step forward for our future sustainability and vitality, with the December 2018 announcement of the Hong Kong University of Science and Technology (Guangzhou) (HKUST (GZ)) to be built under a tripartite agreement between HKUST, the Guangzhou Municipal Government, and Guangzhou University. The academic programs and structures in the Clear Water Bay (CWB) and Guangzhou campuses will be fully synergistic and complementary without duplication. HKUST (GZ) will focus on transdisciplinary thematic programs that encourage our faculty and students to integrate different disciplines to find solutions for complex and ever-evolving regional and global challenges.

Conveniently located in Nansha, HKUST (GZ) will assist the University to maximize knowledge transfer and commercialization activities in the Greater Bay Area leveraging its close proximity to our well-established mainland research institutes in Nansha and Shenzhen and R&D Center in Foshan. With just a short 30-minute train journey between the two campuses, faculty members and students can enjoy access to laboratories, classes, and facilities in both sites, enabling frequent academic and scientific exchange and collaboration.

Over the year, HKUST has also advanced education and research through the launch of new programs and plans, moved forward on innovation and entrepreneurship, and added brand new campus facilities.

To keep attracting the best young minds, we have created exciting opportunities that extend the boundaries of traditional degrees. For undergraduates, these range from our experiential-learning based bachelor program in Integrative Systems and Design, to the interactive, discussion-based HKUST-Minerva Scholar Program that deepens critical thinking and creativity. At the postgraduate level, we concluded an agreement to offer Hong Kong's first joint academic and industry-run dual-degree MPhil + MSc program in future energy and power system operation and management.

In research, our endeavors and their potential impact on academia and the community were recognized by external funding of almost \$835 million for 1,125 research projects over 2018-19. They included an Areas of Excellence Scheme award of over \$91 million for an advanced AI extreme weather prediction and landslide early warning system and close to \$38 million for a Theme-based Research Scheme proposal to use stem cell and genome editing technologies to identify novel drug targets for Alzheimer's disease. Meanwhile, a multidisciplinary study to deliver a fintech hub roadmap and policy recommendations for Hong Kong illustrated our growing input into public policy. Our many breakthroughs encompassed the discovery of over 7,000 new ocean microbial species, and findings using genomic data and a novel computational model that provided new insights into the progression of a rare and deadly form of brain cancer.

With the aim of helping to advise society's transition to a future that is greener, more livable and human-centric, and instilling a culture of learning from failure and self-initiated changes, a pioneering Sustainable Smart Campus as a Living Lab (SSC) initiative was launched to transform the University's campus into a testing and innovation zone where students and faculty members can try out different ideas and approaches.

Transferring our knowledge to improve the living quality of the community is always at the top of our minds. The release of our PRAISE-HK project's mobile app in June 2019, for example, provided a valuable new way for the Hong Kong public to reduce their exposure to air pollution using cutting-edge air quality and traffic modeling, big data, and real-time sensor technologies, among others. Over the year, the Technology Transfer Center continued to promote promising new technology start-ups and enhance their competitiveness by leveraging the outstanding research development infrastructure and resources at HKUST and its international links. 17 start-ups were recommended by HKUST over 2018-19 to receive funding support from the Technology Start-up Support Scheme for Universities (TSSSU) under the Hong Kong government's Innovation and Technology Commission, bringing the total number of HKUST-affiliated TSSSU start-ups to 53 since its inception in 2014.

High-quality campus infrastructure is a key element of students' learning experience and is conducive to enhancing the quality of teaching and research outputs. During the year, we saw the official ground-breaking ceremony for the Shaw Auditorium under our Campus Master Plan. The multi-purpose landmark building will mark the arrival of a much-needed venue for teaching and cultural activities, and large-scale University events such as Congregation, concerts, and exhibitions. Proposals for government funding to build two new research facilities to enhance university research innovation and entrepreneurship have also been submitted.

During 2018-19, we continued to receive support for all these efforts from our donors, with multiple mega-gifts helping us advance the frontiers of education and research, provide cutting-edge research facilities, and secure much-needed resources to recruit, nurture, and retain top talent – students, faculty members and staff – to take HKUST forward. In addition to thanking our donors for their on-going generosity to HKUST, I would like to take this opportunity to pay tribute to all our stakeholders – Council Members, senior management, faculty, students, alumni, staff, funding bodies and partners near and far – for their untiring contribution to the University's advancement.

President
PROF. WEI SHYY
 JP

UNIVERSITY MANAGEMENT



Prof. Lionel M. NI
Provost



Mr. Mark HODGSON
Vice-President for
Administration and
Business



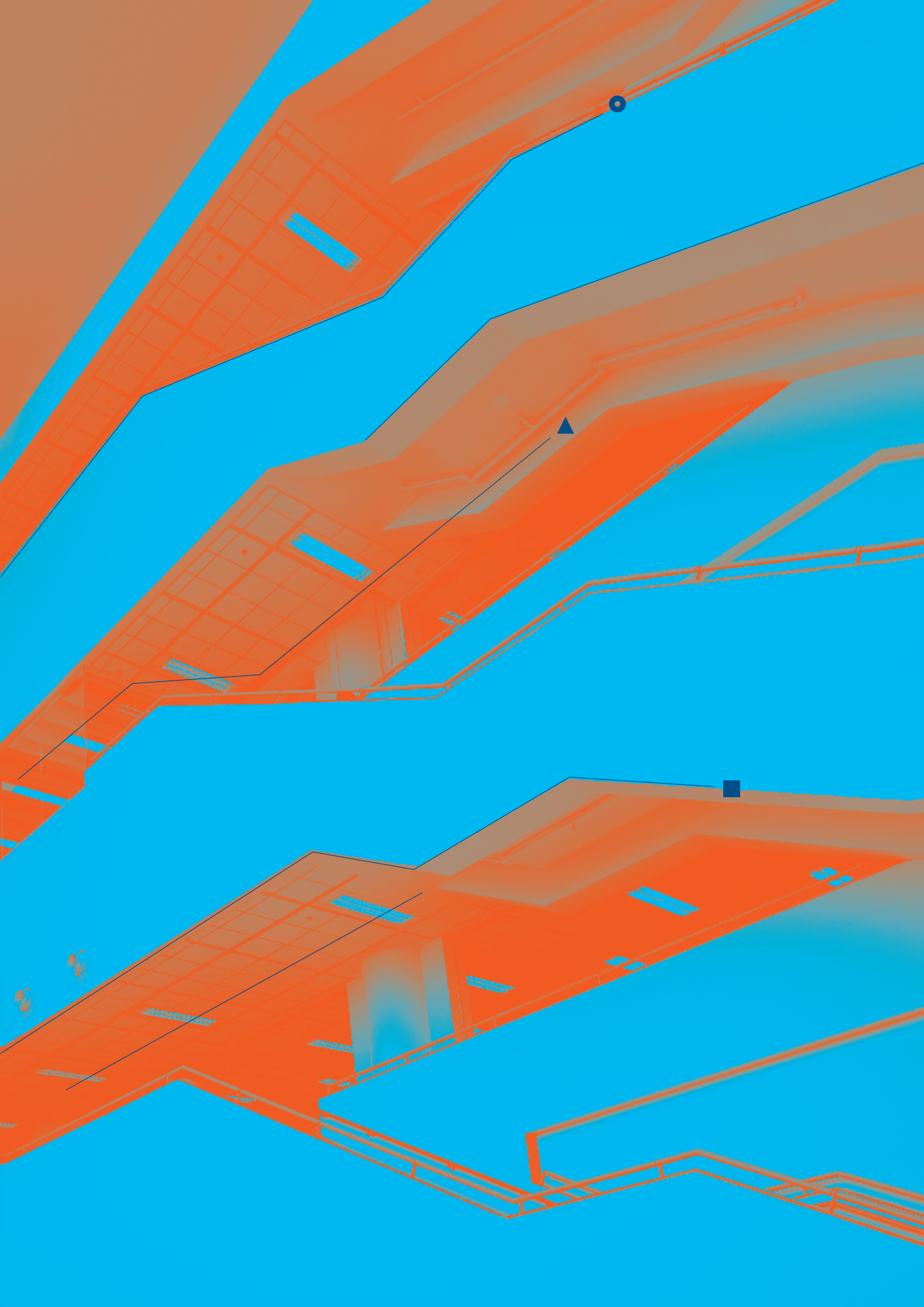
Prof. Wei SHYY
President



Prof. Nancy Y. IP
Vice-President for
Research and
Development



Prof. Sabrina LIN
Vice-President for
Institutional
Advancement



LEARNING FOR LIFE

Number of Non-local Students



Mainland China
41% (746)

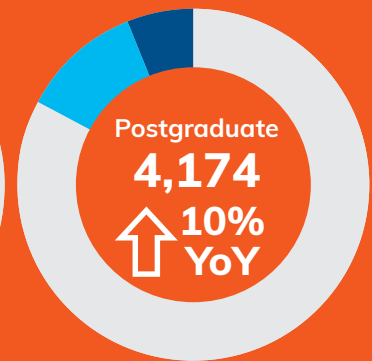
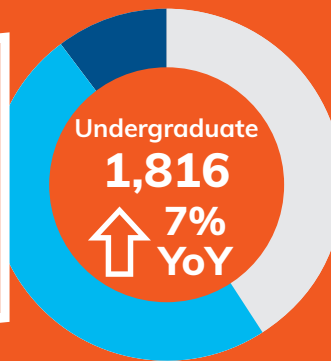
Other Places in Asia
49% (887)

Rest of the World
10% (183)

Mainland China
83% (3,466)

Other Places in Asia
11% (463)

Rest of the World
6% (245)



\$86M
for both
undergraduate
and
postgraduate

Scholarships

Undergraduate
\$73 million
2,351 scholarships
awarded to 1,808
undergraduate
students

Postgraduate
\$13 million
376 scholarships
awarded to 329
postgraduate
students

Postgraduate Enrollment (as of Dec 31, 2018)



5,544
↑ 9% YoY

2,098
research
postgraduate
students
(53 Programs)

3,446
taught
postgraduate
students
(38 Programs)

It has been a dynamic year for program development within and across Schools and for widening student horizons on campus and outside Hong Kong

INNOVATIVE CURRICULUM

Undergraduate Studies

In 2018-19, the University introduced or prepared a series of new and revamped programs to ensure students are equipped with the knowledge and skills to fulfill emerging talent needs, flourish in evolving fields, and succeed in today's rapidly changing world.

To nurture talents at the forefront of disruptive innovation, the Division of Integrative Systems and Design in the School of Engineering launched a BSc in Integrative Systems and Design in Fall 2018-19, with an initial intake of 14 students. The program focuses on innovative integrative design, engineering and systems, using experiential learning as the key pedagogy and a major annual project from Year 2 onward.

Preparations to reposition the BSc program in Risk Management and Business Intelligence (RMBI), previously under the Interdisciplinary Programs Office, took place over the year to enhance the program's scope and reach, and realign it with new developments and market demand in the RMBI field. The program will be jointly offered by the Schools of Business and Management, Engineering, and Science from Fall 2019-20, with a new option in Financial Technology and more elective courses due to be offered under the new curriculum.

Both the BEng in Chemical Engineering and BEng in Chemical and Environmental Engineering in the School of Engineering were adapted to put stronger emphasis on chemical product design, add more project-based and enquiry-driven learning, and provide more electives. The School of Science has also reviewed all majors after feedback from stakeholders, with Marine Ecology and Oceanography options and the International Research Enrichment track now set to be introduced to the BSc in Ocean Science and Technology in 2019-20.

The flagship Global China Studies program in the School of Humanities and Social Science implemented a new curriculum that gives students the choice of taking a broader or deeper approach to their studies, with two tracks to consider after finishing their foundation year: the Integrated Humanities and Social Science track or Social Science Track. Other student-centered moves saw the Division of Environment and Sustainability launch the "Introduction to Sustainability" Common Core Course, using blended and experiential learning to promote sustainability education to all undergraduates (see also P47).

With demand for dual degree programs increasing, a BEng in Bioengineering and BBA in General Business Management, and a BEng in Decision Analytics and BBA in General Business Management have been added to the combinations of degrees offered under the Interdisciplinary Programs Office's popular five-year Dual Degree in Technology and Management. This brings the combinations offered under this program to 11.

The HKUST-Minerva Scholar Program got underway with 18 students in the first cohort and six faculty members involved in teaching highly interactive discussion-based Minerva courses that stimulate critical thinking and a creative mind-set. The program was well received by students and faculty, and two courses using HKUST-Minerva pedagogy approved by the Committee on Undergraduate Studies as regular courses.

Postgraduate Studies

The year saw launches or recruitment open for a number of new postgraduate programs focused around the University's areas of focus. An interdisciplinary Master of Public Policy was launched, with a dual degree option available with the University of Washington. Meanwhile, a Master of Science in Financial Technology jointly offered by the Schools of Business and Management, Science, and Engineering started enrollment for its initial intake in Fall 2019. It is the first MSc program of its kind in Hong Kong and Mainland China.

SCHOLARSHIPS AND AWARDS

A total of 1,808 undergraduates had their academic and non-academic talents recognized through 2,351 scholarships, collectively worth \$73 million. Around 19% of students received more than one scholarship. The University Recruitment and Admissions Office prepared to expand regional scholarships to Turkey, Central Asia, Vietnam, Myanmar and five more Mainland China provinces for the 2019 intake. In addition, the Student Athletes Admission Scheme was launched to attract local sports talents to HKUST.

In prestigious tertiary-wide competitive scholarships in 2018-19, three out of eight awards for new students from ASEAN countries, Korea and India joined HKUST while three out of 10 Belt and Road Scholarship (Indonesia) awardees and three out of 10 Belt and Road Scholarship (Thailand) awardees took up places at the University. All the awards came under the Targeted Scholarships Scheme offered by the HKSAR Government Scholarship Fund.

Some 376 awards were offered to 329 postgraduates amounting to \$13 million in 2018-19. The total amount of scholarships for both undergraduates and postgraduates reached around \$86 million, a 2% increase on the previous year. The number of non-academic scholarship awards grew by 32% from 300 to 395, with overall value reaching \$6 million. The non-academic scholarships helped recognize students' achievements in sports, music, innovation, community service and out-of-classroom projects as well as support their future development.

HKUST continued its success in the Hong Kong PhD Fellowship Scheme, attracting 53 out of 250 (21% of the total) awardees for 2019-20 admission. Fellowship students come from 15 countries and regions, adding to the internationalization of the University's research student community. Bai Xian Asia Institute granted 10 awards to outstanding students from Japan, Korea, Mainland China and other Asian countries to pursue full-time research or taught postgraduate programs at HKUST.

For those already studying at HKUST, the Overseas Research Award enabled selected PhD students to broaden their research experience at top overseas universities, including Purdue, MIT, Yale, Princeton and Stanford.

The Interdisciplinary Programs Office developed an MPhil/PhD in Individualized Interdisciplinary Program over the year, following the successful introduction of the individualized BSc major. The postgraduate program, to be launched in 2019-20, offers broad academic freedom for students to create a unique interdisciplinary program focused on a specialized area of research and will be one of the first in Asia to explore this pioneering research postgraduate education mode.

Dual degree agreements signed in 2018-19 created more openings for postgraduate students to engage in international collaboration and widen training and research options. Such arrangements were concluded with the University of Strathclyde and CLP Power Hong Kong Ltd., which joined with HKUST to offer Hong Kong's first joint academic-industry run dual master's degree program in future energy and power system operation and management (School of Engineering). Enrollment for the founding cohort of the part-time MPhil+MSc program got underway in the first quarter of 2019. With the new dual-degree partnership with Yale School of Management introduced in 2017, the students of the MSc in International Management and the MSc in Global Operations (School of Business and Management) commenced their second year of study at Yale and benefited from the first-class learning and cultural exposure east and west.

The School of Business and Management also offered the joint HKUST-SKOLKOVO Executive MBA Program for Eurasia with Moscow School of Management SKOLKOVO in Russia, focused on innovation, leadership, and the Belt and Road Initiative.

NEW PROVOST TO ADVANCE ACADEMIC MISSION

Prof. Lionel NI Ming-Shuan was appointed Provost in January 2019 after a rigorous global search. The appointment marked Prof. Ni's return to the HKUST family, which he first joined in 2002. Prof. Ni is a seasoned academic administrator, with substantial years of management experience, and an accomplished, internationally recognized scholar in computer science and engineering. In his leadership role, the University's overall academic strategy and priorities will be critically reviewed, helping HKUST scale new heights in teaching and learning.

DEVELOPING A GLOBAL MIND-SET

Around 950 students benefited from the University's exchange program during the year, studying at partner institutions around the world. Credit-bearing study abroad summer programs, offered together with partner universities, brought additional opportunities to experience other cultural and social environments. Around 450 students participated in programs held at leading universities overseas, including Oxford University, Cambridge University, Princeton University, and Stanford University. Locations for other summer programs encompassed Austria, Brunei, Estonia, and Mainland China, among others.

A group of HKUST students undertook a 10-day study tour to the Middle East in summer 2018, where they visited Israel, the world's start-up nation champion. A credit-bearing study trip to Brazil in January 2019 also gave 32 Global Business students the chance to study the business challenges facing Brazilian companies.

TWENTY-FIRST CENTURY EDUCATION

Experiential and Blended Learning

During 2018-19, 28 blended learning undergraduate courses were approved and another 12 courses verified for delivery using experiential learning.

Leaders of experiential learning projects funded by the University's teaching development grants saw conference papers published on their respective subjects in 2019, including "Teaching Science Using Innovative Teaching Tools" in the *European Journal of Social and Behavioural Sciences* and "Entrepreneurship 1001: Building Your Own Future", ECSB Entrepreneurship Education Conference, Gothenburg, Sweden.

The School of Engineering also announced that it planned to turn "experiential learning" into compulsory courses for its 800 Year 1 undergraduate students.

Massive Open Online Courses

The University continues to set the pace in Massive Open Online Courses (MOOCs). By 2018-19, 55 MOOCs had been offered on either the Coursera or edX platforms, attracting over 1.7 million enrollments. Nine more courses were under development. Specializations launched over the year included a series of four on "Full-Stack Web Development with React" in July 2018 (10,000 enrollments) and four MOOCs on "FinTech: Finance Industry Transformation and Regulation" in November 2018 (1,400 enrollments).

In September 2018, HKUST signed an agreement with Coursera to pilot the "Coursera for Partners" portal at the University for a year. HKUST was the one of two non-US partners to join this pilot program. It offers four specializations and 40 individual courses and has attracted over 1,100 HKUST members and more than 2,000 course enrollments.

Service Learning

Civic awareness and self-motivation to serve are integral parts of student education at HKUST, with HKUST Connect, under the Dean of Students' Office, spearheading such efforts. Among the platform's wide-ranging initiatives, an HKUST student completed a one-year traineeship program with the International Committee of the Red Cross at its headquarters in Geneva, Switzerland. This opportunity, exclusive to HKUST, enabled the student to gain valuable fieldwork experience in humanitarian aid. In further service learning activities, HKUST Connect collaborated with 65 community partners, engaging 2,230 students in 135 projects over the year. These included one local workcamp and eight service-learning trips to Mainland China, Cambodia, Indonesia, Nepal, and the US. HKUST Service Learning Day was renamed HKUST Global Days of Changemaking to mobilize all HKUST members, including those living or studying overseas, to take action to solve social problems in their communities in support of the United Nations' Sustainable Development Goals (SDGs). In April 2019, over 850 students, faculty members, staff and alumni took part in 47 service projects in connection with the changemaking days and pledged to support the SDGs.

The University Student Sponsorship Program in Wildlife Conservation continued in 2018-19, with School of Science students fully sponsored to travel overseas to gain first-hand research experience while contributing to wildlife conservation at the same time. The program is run in collaboration with the Ocean Park Conservation Foundation Hong Kong.

HOLISTIC UNDERSTANDING

Societies and Sports

There are over 100 student societies affiliated to the Students' Union at HKUST, catering to diverse interests including arts and culture, music, martial arts, community service, and academic affairs. The University continued to support student-initiated activities via a range of schemes, including the President's 1-HKUST Student Life Award (17 projects) and Student Enrichment Activities Fund (61 projects).

On the sporting front, more than 570 student athletes took part in 61 sports teams covering 34 sports in 2018-19. HKUST student athletes won six trophies in five events organized by the University Sports Federation of Hong Kong, China. A total of 27 elite student athletes studied at HKUST on AEF Sports Scholarships in 2018-19.

Residential Life

To ensure more students benefit from the experience of living on campus, the Dean of Students' Office's Student Housing and Residential Life Office managed to increase the occupancy rate from 94% to 98% from January 2019.

Residential programs to assist students in adjusting to and making the most of campus and hall life now include four major initiatives. The First-Year Experience (FYE) @ Residence Program helps freshers adapt to university living. Living Learning Communities focus on different themes, such as the arts, fitness, and sustainability. The popular activities held by these communities were opened up to all hall residents in 2018-19, and all activities will be accessible to all undergraduate and postgraduate residents from 2019-20. Green Trekkers promotes eco-awareness and clean-ups in the community while integration on campus is encouraged through teaming local and non-local students as roommates and a hall cultural buddy program.

Mental Health and Wellness

Over the year, the Counseling and Wellness centers organized different outreach programs such as a psychological assessment booth, a fun day, psychoeducation training, sharing sessions, workshops, a day camp and field trips to help students understand the importance of mental health. The Center also engaged 29 students to be peer counselors, who could reach out to fellow students in need of support, encouragement, companionship or information about resources on campus.

In a new endeavor, a team of students and staff from the School of Science set out to inspire students to fail fearlessly, and overcome their current obstacles and mistakes by inviting other students, faculty members, and the University's President to recount personal setbacks on camera, which were then shared with the HKUST community in International Day for Failure in October 2018. Following the failure day, the team continued to collect alumni stories on how they overcame their limitations and continued toward their dreams.

PREPARING STUDENTS FOR THE WORKFORCE

Leadership Training

The Redbird Leadership Community helps students realize their potential as leaders through training and an award scheme. In 2018-19, 79 community members received coaching on leading themselves and others, teamwork, and facilitation. The participants served within the University and local community as volunteers, leaders, mentors, and catalysts for change. A total of five gold awards, six silver awards, 35 bronze awards, and 23 certificates of completion were earned, recognizing students' achievements and dedication.

The Learners' Circle initiative was successfully piloted to enhance undergraduates' first-year experience through peer exchange and knowledge co-creation. The open conversation sessions were facilitated by trainers around themes such as "Preparing for 21st Century Challenges". Fifty students participated in the two pilots.

Employability and Internships

HKUST has been highly ranked for graduates' career preparation, being placed No. 10 in the Global University Employability Ranking 2019 (No. 1 in Greater China, seven years in a row) by Emerging/Trendence, and No. 1 in both the Best Career Services Satisfaction Award 2019 (seven years in a row) and Best Employability Rating Award 2019 (two years in a row) as self-rated by HKUST students in the Hong Kong Talent Survey by Universum. In the University's Career Mosaic, a biannual job fair, a record-breaking 450 employers visited campus to recruit for internship and graduate positions.

Students' enthusiasm for internships remained strong, with placements offered by individual companies and organizations, and the University Career Center's Internship Network (iNet) continuing to connect potential participants with other internship programs in Hong Kong and worldwide. Close to 1,000 undergraduate students landed their internships via iNet. The year also saw about 15% growth in those participating in winter internship programs. Students took up outbound internships in five major cities in Mainland China (Shanghai, Guangxi, Guangzhou, Wuhan, Chengdu) and further afield to Brunei, Singapore, Japan, the UK, Ireland and Spain.

School of Science career building programs extended their reach, with the start of a Social Entrepreneurship Training Program offering a series of entrepreneurial training and winter internships in social enterprises and philanthropic ventures; HKUST Science X Teach Unlimited Foundation Job Shadowing Scheme, in cooperation with Teach Unlimited Foundation, an active recruiter at HKUST; and the Career Mentor Training Scheme, organized with HKUST Career Center, to enable students to become career peer mentors, who can provide basic support to their peers.

STUDENT ENTREPRENEURSHIP

Entrepreneurial Moves and Mind-set

Over 100 students took part in the Entrepreneurship Center's Leapfrog program, which provides opportunities to exchange ideas with overseas peers and entrepreneurs and build potential business networks. Participants visited Seoul, explored emerging prospects and careers in the Greater Bay Area, and joined entrepreneurship programs at Fudan University and Tongji University.

The University's U*STAR Program (previously the Innovation Acceleration Fund) encourages entrepreneurial technology transfer based on HKUST technologies and research outputs. The program received 12 applications in 2018-19. Seven projects each received a cash award of \$40,000, bringing the number of award-winning teams since launch in 2016-17 to 23. Three companies formed by 2017-18 U*STAR Program awardees secured funding from the Technology Start-up Support Scheme for Universities, run by the Hong Kong government's Innovation and Technology Commission (see also P23).

Some 38 seminars, workshops, and talks related to entrepreneurship were held, drawing more than 3,150 students (+12%). One popular seminar featured Prof. CHEN Qifeng, co-founder of LINO Network, a decentralized live streaming platform with 500,000 monthly active users. More than 300 students attended the event.

HKUST students setting up a technology-based start-up company can also apply to join the HKUST Entrepreneurship Program, first established in 1999. As at 2018-19, the program has assisted 64 technology start-ups.

Competitive Opportunities

The Entrepreneurship Center collaborated with the School of Business and Management and China Everbright Bank Hong Kong to organize the bank's first academic-industry cyber security competition for HKUST students. The top three winning teams were rewarded with internship opportunities at the bank. A team of four MSc Big Data Technology students also won the championship at the PwC's Data-lympics 2019, a two-day contest that challenged students to demonstrate how data and analytics could be used to address business challenges.

The flagship annual HKUST One Million Dollar Entrepreneurship Competition continued to provide a platform for start-ups and teams from different regions of China to showcase their innovative ideas. In 2018, 934 teams from seven regions took part, with 35 teams (five from each region) entering the Grand Final at Nansha, Guangzhou, in October 2018. HKUST senior management and Council Members attended, along with 40 venture capitalists from different organizations. The 2019 HKUST-Sino One Million Dollar regional contest in Hong Kong, attracted 117 teams to the HKUST campus, a rise of more than 15% over 2018. At the final in June 2019, Horizon Biochip won the top President Award, GF Innovation Award and Healthcare Prize for its cryochip that automates the process of preserving embryos/oocytes in IVF medical procedures.

The BSc program in Risk Management and Business Intelligence will offer a new option in Financial Technology and more elective courses under the new curriculum.



More than 1,800 non-local students enrolled in undergraduate programs during the year.



School of Science students were fully sponsored to travel overseas to gain first-hand research experience while contributing to wildlife conservation.

A study trip to Brazil in January 2019 gave 32 Global Business students the chance to study the business challenges facing local companies.

HKUST Waterpolo men's team won third place at USFHK Men's Waterpolo Championship.



The Redbird Leadership Community helps students realize their potential as leaders through training and an award scheme.

LAB TO MARKET

Knowledge Transfer

147

inventions
developed

275

new patent
applications filed

+ Research Funding

\$834.9 million

of external research
funding was awarded to
1,125 projects

Joint Institutes/ Laboratories with Mainland Industry and Research Institutions

- HKUST-Bright Dream Robotics Joint Research Institute
- HKUST-Xiaoqi Robot Joint Lab on Machine Learning and Cognitive Reasoning
- HKUST-WeBank Joint Laboratory
- HKUST-Xunlei Joint Laboratory on Blockchain Technology
- HKUST-DiDi Joint Research Lab
- South China University of Technology (SCUT)-HKUST Joint Research Institute
- Shenzhen-Hong Kong Innovation Research Institute for Brain Science
- HKUST-SIAT Joint Lab for Brain Science

The University actively extended funding, infrastructure support, and knowledge transfer to industry and the wider community for its world-class research

FROM FUNDING TO NEW KNOWLEDGE

HKUST's external research funding took a major step forward, reaching a cumulative \$834.9 million for 1,125 projects in 2018-19, as new funding schemes under the University Grants Committee and Hong Kong government came on stream. Major support of \$169.7 million was provided by Hong Kong's Research Grants Council (RGC) for 227 new projects. The University's success rates for proposals to RGC's General Research Fund and Early Career Scheme stood at 47% and 59% respectively in 2018-19. HKUST remained the top performer for its General Research Fund success rate among local institutions.

The University received several prestigious RGC funding awards for multidisciplinary projects tackling key community and global issues. A project to create an extreme weather prediction and landslide early warning system using artificial intelligence received \$91.85 million under the Areas of Excellence Scheme. The endeavor is led by Prof. Charles NG (Civil and Environmental Engineering). Prof. Nancy IP (Life Science) was granted \$37.97 million under the Theme-based Research Scheme to conduct Alzheimer's disease-related studies that seek to identify novel drug targets using stem cell and genome-editing technologies. Prof. TAM Kar-Yan (Information Systems, Business Statistic and Operations Management) and his fintech development strategy project became the first to receive funding under the Theme-Based Research Scheme's theme of "Enhancing Hong Kong's Strategic Position as a Regional and International Business Center" in the three most recent rounds. The project, involving a high-flying team of business and computer systems academics, was granted \$20.66 million. Further support came from the Collaborative Research Fund, with Prof. Jensen LI (Physics) granted \$7.28 million to look into manipulation of wave propagation in optical and acoustic systems while Prof. CHEN Lei (Computer Science and Engineering) was awarded \$3.72 million to develop a human-powered machine learning system to assist medical diagnoses, and other applications.

Four HKUST-led proposals received a total of \$30.28 million under the RGC's Research Impact Fund, introduced in 2018-19. With such funding support, Prof. CHEN Jing (Electronic and Computer Engineering) will establish a center for research on wide-bandgap semiconductor power electronics; Prof. YU Jianzhen (Chemistry) is seeking to identify the sources of airborne particulate matter pollution in real time; Prof. SHENG Ping (Physics) is

developing broadband absorbers for microwaves and ultralow frequency mechanical waves; and Prof. Henry YAN He (Chemistry) is looking at how to improve organic photovoltaic systems and make them commercially viable. Separately, the Environment and Conservation Fund awarded \$1.68 million to Prof. NING Zhi (Environment and Sustainability) to investigate diesel vehicle fleet emissions on the road and evaluate emission control policy effectiveness over a two-year period.

In 2018-19, the University submitted 126 research proposals to the Hong Kong government's Innovation and Technology Fund, with 36 being funded for a total of \$158 million. Among these projects, Prof. Jack CHENG (Civil and Environmental Engineering) secured \$10 million to develop a system that can automatically generate building information models based on unmanned aerial vehicle and indoor 3D laser scanning technologies; Prof. QU Huamin (Computer Science and Engineering, Electronic and Computer Engineering) received a similar amount to explore e-learning data analytics, and an open-learning design and visualization framework; and Prof. YEUNG Dit-Yan (Computer Science and Engineering) was granted \$8.75 million to generate a personalized e-learning platform suitable for all ages.

Beyond Hong Kong, Prof. Patrick YUE (Electronic and Computer Engineering) became the first HKUST faculty member to successfully compete for state funding without applying through a mainland body. This followed the directive from the Ministry of Science and Technology and Ministry of Finance in May 2018, allowing Hong Kong universities and research institutes to apply for earmarked research funds from Mainland China for research in Hong Kong. Prof. Yue's project on optoelectronic interconnect technology received RMB4.5 million from Guangdong Province's Department of Science and Technology.

Prof. ZHANG Mingjie (Life Science) was awarded a three-year grant of US\$350,000 per year under the International Human Frontier Science Program for leading-edge research into molecular mechanisms of receptor trafficking and retention at neuronal synapses. The program is based in France and supported by 13 countries and the European Union. Out of more than 650 preliminary applications, just 25 were eventually funded (less than 4%). Prof. Zhang will work with scientists from Kyoto University in Japan and Max Planck Institute of Biochemistry in Germany in carrying out the project.

EXCELLENCE RECOGNIZED

Engineering faculty received three Natural Science (second class) honors in the 2018 Higher Education Outstanding Scientific Research Output Awards (Science and Technology) from the Ministry of Education. The accolades went to Prof. GAO Furong (Chemical and Biological Engineering) for robust batch control; Prof. Vincent LAU (Electronic and Computer Engineering) for 5G+ wireless networks; and Prof. Lionel NI (Computer Science and Engineering) for device-free wireless sensing. Locally, Prof. CHEN Guanghao (Civil and Environmental Engineering) and his team won a Gold Award at the 2018 Hong Kong Green Innovations Awards and, internationally, the Chen research team became the first in Asia to collect the bronze award at the 2018 International Water Association (IWA) Project Innovation Awards in the category of breakthroughs in research and development. Both awards recognized the novel SANI sewage management process.

Prof. WEN Zilong (Life Science) received a prestigious Croucher Senior Fellowship Award to study the origins of microglia – immune response-related cells associated with neurodegenerative disorders such as multiple sclerosis and Parkinson's disease. Among younger researchers, Prof. CHEN Qifeng (Computer Science and Engineering, Electronic and Computer Engineering) was named one of "35 Innovators under 35" in China in 2018 by *MIT Technology Review* for his breakthroughs on image decomposition and synthesis, and optical flow algorithms, which could lead to films using computer vision technology alone.

PARTNERSHIPS TO ADVANCE BREAKTHROUGHS

It was a rewarding year for the formation of research institutes, centers and laboratories in fields related to HKUST's areas of focus. These encompassed three research institutes and centers focused on smart cities, intelligent autonomous driving, and big data for bio intelligence, and eight joint laboratories with mainland industry and institutions (see also P37). Centers related to artificial intelligence (AI) included Hong Kong's first university cross-disciplinary AI unit to look broadly across fields at the implications of the associated technologies and a unit focused on the integration of robotic and automation technologies into the building and construction life cycle. A further center, launched in partnership with scientists from Harvard, Stanford, and University College London, is seeking to propel forward understanding and identify new drug candidates to tackle neurodegenerative diseases. In line with HKUST's focus on sustainability, a joint laboratory was also set up by the HKUST Institute for the Environment and Institute of Nanoscience of Aragon at the University of Zaragoza in Spain for material characterization and safety assessment of advanced functional nanomaterials and environmental samples.

To assist economic and industry endeavors to benefit from new knowledge, a collaboration was initiated between the world-leading semi-conductor device leader Nexperia and the Department of Mathematics. The cooperative arrangement is set to fund a joint lab. In addition, Prof. Fuguee TSUNG (Industrial Engineering and Decision Analytics) launched the first customer relationship index consortium, involving the Departments of Industrial Engineering & Decision Analytics and Computer Science & Engineering and the Asia Pacific Customer Service Consortium. The initiative seeks to leverage big data analytics to develop the first service quality big data platform integrating customer satisfaction index and online text mining.

Separately, the University reached the sixth year of its wide-reaching collaboration with MIT to develop industrial and socially beneficial technologies under the HKUST-MIT Research Alliance Consortium. Two new projects were added, bringing the total number of Consortium projects to 11, all supported by the Innovation and Technology Fund.

Helping to widen global understanding of management and corporate issues in Asia, HKUST's regionally-focused business cases became available for public access on Harvard Business Publishing website in August 2018, with some 60 titles being distributed through the Harvard platform during the period under review. Requests for cases totalled almost 2,000 from individuals and institutions from over 25 regions, besides Hong Kong, by end of March 2019. The HKUST Case Collection, including joint cases developed with other institutions, is also publicly available via the University website.

A collaboration between HKUST scientists, led by Prof. ZHANG Mingjie (Life Science), and Pangu BioPharma, a Hong Kong subsidiary of US biotherapeutics company aTyr Pharma, Inc., has helped to initiate an investigational therapeutic for pulmonary sarcoidosis, a rare form of fibrotic lung disease which currently has no cure. aTyr Pharma, Inc. was co-founded by Prof. Paul SCHIMMEL, an IAS Senior Visiting Fellow from The Scripps Research Institute.

To improve quality of life and contribute to easing the aging challenge, the University signed a Memorandum of Understanding with Hong Kong social welfare organization Haven of Hope Christian Service to develop technologies ranging from a virtual assistant to tap water disinfection and therapeutic garden spaces to assist seniors and their caregivers.

MAINLAND PLATFORMS

The University has several long-established research platforms in Nansha, Shenzhen, and Foshan in neighboring Guangdong Province. Working through these platforms, the University generated a range of new research initiatives with local governments in Guangdong Province (see also P37). In the past two years, the endeavors have been extended to Zhongshan. The HKUST-Zhongshan Joint Innovation Center was established under HKUST Fok Ying Tung Graduate School at the Clear Water Bay campus, with total funding of

RMB39 million to support the operations of the Center, sponsor the HKUST One Million Dollar Entrepreneurship Zhongshan District Competition, and fund research projects supported by Zhongshan Municipal Bureau of Science and Technology over three years. Three HKUST pilot projects were awarded RMB500,000 each. In addition, Guangzhou HKUST Fok Ying Tung Research Institute formally established the International Smart Manufacturing Platform, with start-up funding support of RMB12.5 million from Nansha district government and Guangzhou municipal government.

HKUST Nanhai Innovation Center (NIC) was set up with the Nanhai district government of Foshan City, aiming to facilitate collaborations between HKUST faculty members and Nanhai enterprises, and to identify start-up companies from Hong Kong interested in developing research and teams in Nanhai. This extends the collaboration with the HKUST LED-FPD Technology R&D Center at Foshan, launched with the Nanhai government in 2012, to deliver training, technology development activities, and exhibitions. In 2018-19, nine projects from 24 applications received funding through NIC.

The 6,300-sq-m HKUST Futian Base in the Loop, Shenzhen, was jointly agreed with the HKUST Shenzhen Research Institute and Futian district government to facilitate application of HKUST faculty research outcomes. The Base will assist R&D needs, commercialization, entrepreneurship, and executive training activities. In research endeavors of its own, the HKUST Shenzhen Research Institute secured 34 government research projects, with total funding of RMB33.6 million from the Shenzhen Science Technology and Innovation Committee in 2018.

Funding of RMB22 million was awarded for Alzheimer's disease studies led by Prof. Nancy IP's team at the Institute. A total of RMB40 million was secured from Guangdong Provincial Department of Science and Technology. This project also involves leading Mainland universities and hospitals.

EQUIPMENT ADVANCE

In a first for Greater China, the University announced the building of a quantum optics camera using a novel approach to locate previously undetectable signals from billions of light years away and answer question in astrophysics and cosmology related to black holes and other deep space phenomena. The project is being led by the Quantum Optics for Astrophysics and Cosmology Lab under the guidance of Nobel laureate IAS TT & WF Chao Foundation Professor George SMOOT from the HKUST Jockey Club Institute for Advanced Study (IAS).

HKUST researchers are also set to benefit tremendously from the purchase of a cryo-electron microscope (cryo-EM). This technological advance has recently transformed the field of structural biology by offering clearer detailing of biological samples and their structures, sometimes at near atomic resolution. The machine is being purchased with the support of a generous donation from the Lo Kwee Seong Foundation.

The Supercomputing Service Platform at Guangzhou HKUST Fok Ying Tung Research Institute in Nansha enables HKUST faculty members and researchers to access the National Supercomputer Center in Guangzhou and Tianhe-2, one of the world's fastest computers. The Institute has also been designated as the contact point for Tianhe-2 users from universities, government, NGOs, and commercial sectors in Hong Kong. As of June 2019, more than 75 million core-hours of supercomputing services had been supplied to local and overseas researchers.

Support of \$2.59 million was obtained to set up a mesocosm facility at the University's Coastal Marine Laboratory under the RGC's Joint Laboratory Funding Scheme. The lab forms part of a collaboration with the South China Sea Institute of Oceanography and Institute of Deep-Sea Science and Engineering at the Chinese Academy of Sciences.

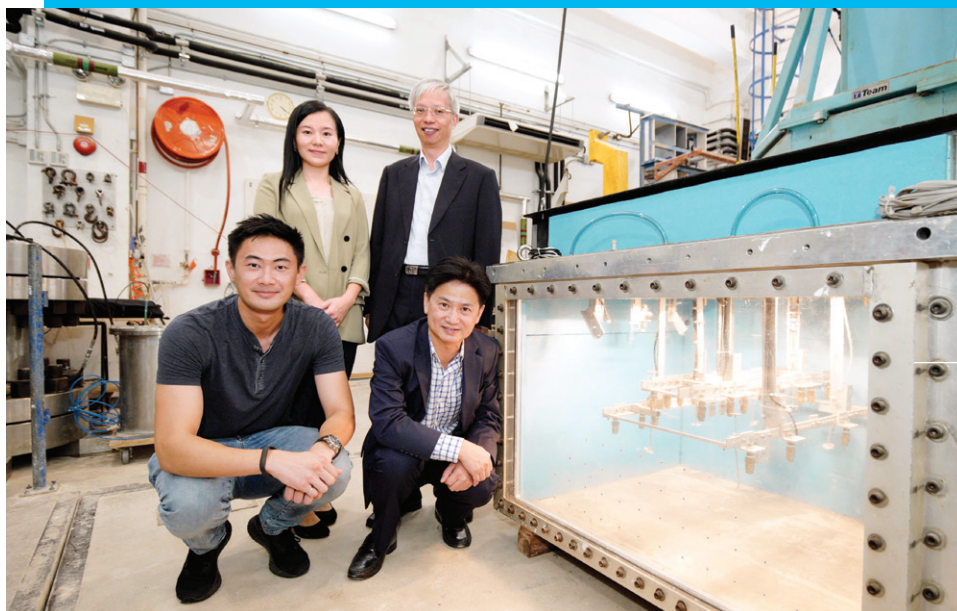
REALIZING INNOVATION

Knowledge Transfer and Downstream Support

The University has established a robust infrastructure to encourage the development of intellectual property (IP) and support the transfer of new knowledge from campus to community. Over the past year, this led to 147 inventions and the filing of 275 new patent applications for research at HKUST's Clear Water Bay campus and Mainland platforms. With 112 newly granted patents, HKUST's current IP portfolio now contains 1,488 active patents and patent applications.

HKUST R and D Corporation Limited (RDCHK) is a platform linking and converting the University's research capabilities and cutting-edge technology to business and industry applications. In 2018-19, RDCHK managed 213 research contracts, 11 consultancy projects and 341 testing services projects, generating cash basis income of \$84.6 million. With cash basis income of \$10.6 million from Mainland platforms, total cash basis income generated from projects amounted to \$95.2 million over the year. In the reporting period, RDCHK managed 105 active patent and software licensing agreements with another three active licenses managed by Mainland platforms. These, together with income generated by Massive Open Online Courses (MOOCs), brought licensing cash basis income for 2018-19 to \$7.2 million.

In 2018-19, HKUST received 13 Proof-of-Concept Fund applications for pre-commercialization development of potential cutting-edge technologies, with nine receiving gap funding of \$1.6 million in total. The HKUST Entrepreneurship Fund (E-Fund) advanced toward

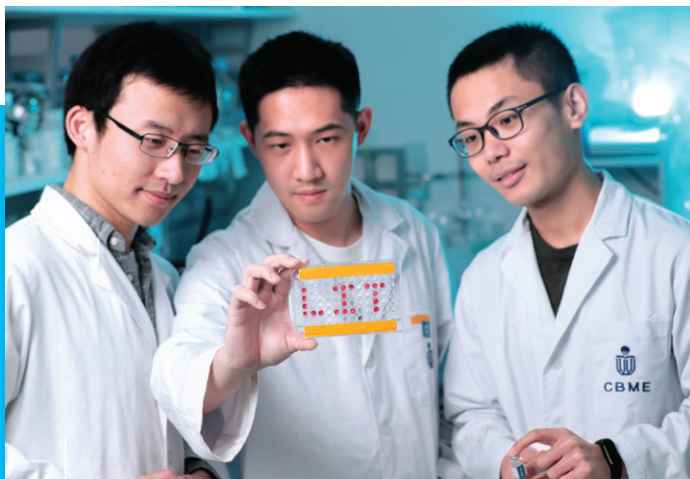


HKUST received several prestigious RGC funding awards for multidisciplinary projects, including a project to create an extreme weather prediction and landslide early warning system using artificial intelligence.



The Center for Neurodegenerative Diseases was launched in partnership with scientists from Harvard, Stanford, and University College London.

HKUST and WeBank launched the first HK-Guangdong Joint Laboratory in Banking.



Since 1999, the University's Entrepreneurship Program has assisted 64 technology start-ups on the Clear Water Bay campus.



The University announced the building of a quantum optics camera to locate previously undetectable signals from billions of light years away.



implementation to assist promising University technology start-ups. The fund comprises capital investment schemes which can either co-invest with qualified partners or can bridge the funding gap faced by such start-ups before reaching the stage where they can secure sufficient external funding. In preparation, the Fund reached out to experienced venture capital funds, incubators, accelerators, and other types of private funds with a track record of investing in early stage start-ups.

Nurturing Start-ups

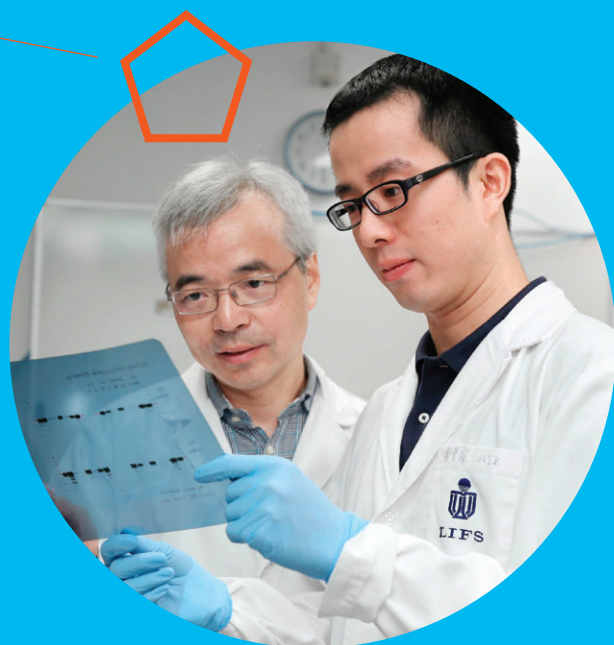
The Technology Start-up Support Scheme for Universities (TSSSU), launched by the Hong Kong government's Innovation and Technology Commission, attracted 51 applications from HKUST community over the year, bringing the University's total number of applications since the scheme began in 2014 to 227. With funding doubled since April 2019, the number of start-ups receiving support increased by 55%, with 17 start-ups recommended by the HKUST vetting committee, comprising experienced investors and industry experts. This brings the total number of HKUST-affiliated TSSSU start-ups to 53. Of these, about 68% use HKUST technology. Around 50% have entered incubation programs organized by Hong Kong Science and Technology Parks Corporation and Cyberport, and around 66% have received external funding.

Since 1999, the University's own Entrepreneurship Program has assisted 64 technology start-ups on the Clear Water Bay campus, of which 36 have graduated from the program. Over 2018-19, the space for incubating companies was renovated to accommodate more start-ups. HKUST's incubation programs at RDC Shenzhen and Guangzhou HKUST Fok Ying Tung Research Institute hosted 52 and 28 start-ups respectively.

Networking is also vital in getting innovative new businesses off the ground. In line with this, the Technology Transfer Center and Entrepreneurship Center jointly hosted HKUST Startups x Investors 2018, a flagship activity to connect the University's technopreneurs and start-ups with the investment community and professional networks. Thirty-seven early-stage companies from five technology areas showcased their breakthrough business ideas, products and services at the event. The gathering attracted investors from over 100 organizations. Further networking opportunities were provided through the Blue Bay Incubator program, organized by the Blue Bay Incubator, HKUST R and D Corporation (Shenzhen) Ltd, and Blue Bay Incubator Phase II in the E-hub of Qianhai Free Trade Zone in Shenzhen. In 2018-19, the program arranged a visit to Tencent for start-ups, and a joint exchange event in Hong Kong for MBA/MSc students and alumni from the School of Business and Management, which engaged 14 start-up companies from Shenzhen, Macau and Hong Kong in its roadshow.

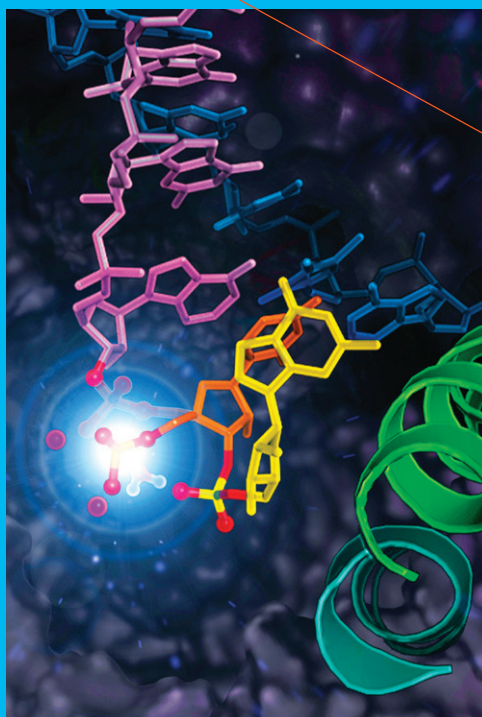
Research Highlights

From basic science discoveries to public policy projects and a novel air quality tracking app, HKUST researchers are making a difference



PSD BREAKTHROUGH

In a breakthrough study, biochemist Prof. ZHANG Mingjie (Life Science) and his research team uncovered how reconstituted postsynaptic density (PSD) could serve as a molecular platform for understanding synapse formation and plasticity. The study employed a biochemical reconstitution approach to show that multivalent interaction networks formed by major excitatory PSD scaffold proteins led to the formation of PSD-like assemblies via phase separation both in solution and on supported membrane bilayers. The reconstituted assemblies were able to cluster receptors, selectively concentrate enzymes, promote actin bundle formation, and expel inhibitory postsynaptic proteins. The research was published in *Cell*, and later selected as a "Best of *Cell* 2018" article.

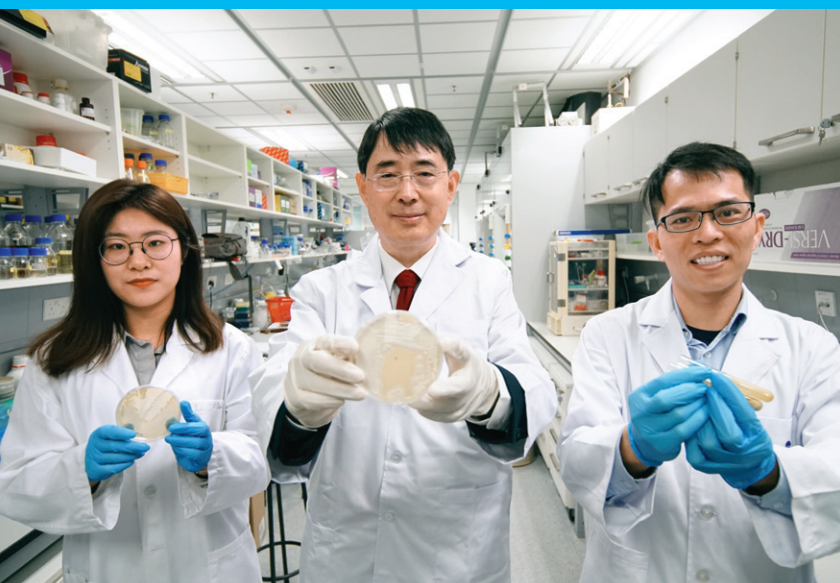


RNA POLYMERASE DISCOVERY

Prof. HUANG Xuhui (Chemistry) discovered how RNA polymerase II maintains highly accurate gene transcription, locating the mechanisms that enable RNA polymerase II to carry out an intrinsic cleavage reaction to proofread RNA transcriptions and correct errors in RNA synthesis. When a nucleotide is added by mistake, RNA polymerase II can rewind by moving backward ("backtracking") to cleave the mis-incorporated nucleotide. The finding, published in *Nature Catalysis*, was made possible by quantum mechanics and molecular dynamics calculations, performed through large-scale high-performance computing. The work can provide new insights into how mis-regulation of transcription can lead to diseases such as cancer and Alzheimer's disease.

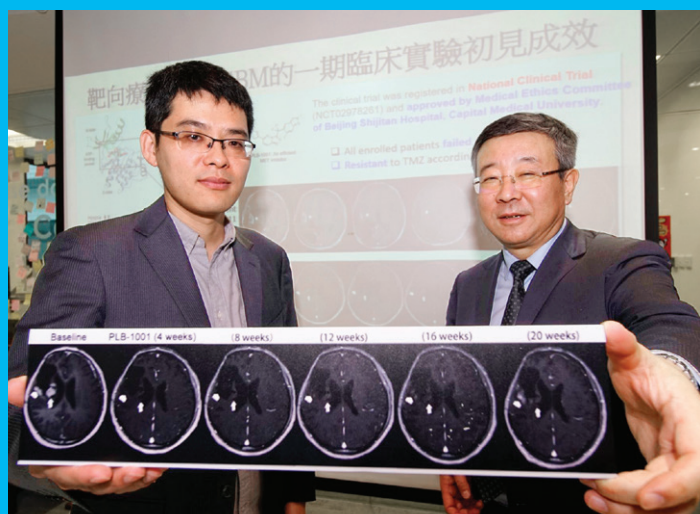
CONTINUUM THEORY ADVANCE

Continuum theories for grain boundary motion in crystalline materials incorporating the underlying structures of topological line defects (dislocations and disconnections) have been developed by Prof. XIANG Yang (Mathematics). These theories successfully explain experimental observations and atomistic simulations related to the development of novel materials in microstructural engineering. Rigorous convergence proof from atomistic models of the continuum theories was also obtained. The research has been published in *Proceedings of the National Academy of Sciences*, *Physical Review Letters*, *Journal of the Mechanics and Physics of Solids*, and *Archive for Rational Mechanics and Analysis*.



THOUSANDS MORE OCEAN MICROBIAL SPECIES FOUND

Prof. QIAN Peiyuan (Ocean Science) and his fellow researchers have found more than 7,000 new microbial species, enhancing understanding of ocean biodiversity. Acidobacteria, a natural medicinal phylum, was among the microbes identified, the first time this species had been found outside terrestrial soils. The phylum has previously been used for developing novel antibiotics and anti-tumor drugs due to a high level of biosynthetic gene clusters. Acidobacteria is also the first ocean species found to contain the CRISPR gene-editing system. The research appeared in *Nature Communications*.



BRAIN CANCER THERAPY BOOST

A research team led by Prof. WANG Jiguang (Chemical and Biological Engineering, and Life Science) has identified how secondary glioblastoma, a rare and deadly brain cancer, can progress from its less lethal form. The finding has provided a novel pathway to precision diagnosis and a therapeutic lead, which could result in a new treatment for chemo-resistant patients. Using a combination of genomic data from patients and a specially designed computational model, the scientists found METex14 mutations at the MET oncogene to be behind the disease's aggressive progression. Collaborators in Beijing collected most of the initial samples and identified drug molecule PLB-1001 to selectively target the tumors in clinical trials.

Research Highlights

RENEWABLE ENERGY DEVICES FOR MOBILE EDGE COMPUTING

Mobile-edge computing is a crucial technology for 5G networks, offering low-latency computation services at the edge of wireless networks and being a major enabler for the internet of things and smart city technologies, among other applications. Published research on mobile-edge computing with renewable energy-powered devices, by Prof. Khaled B. LETAIEF, Prof. ZHANG Jun, and alumnus MAO Yuyi (all Electronic and Computer Engineering), was ranked one of the top 10 most popular articles in the premier *IEEE Journal on Selected Areas in Communications* over 28 consecutive months. The 2016 paper was titled "Dynamic Computation Offloading for Mobile-Edge Computing with Energy Harvesting Devices". It was also recognized as an Essential Science Indicators highly cited paper and received the prestigious 2019 IEEE Communications Society & Information Theory Society Joint Paper Award.



BARCODES WITH IMAGES

Prof. MOW Wai-Ho (Electronic and Computer Engineering) and his research team have developed a generation of barcodes employing images instead of conventional black-and-white lines and blocks. The innovation involves the development of picture-embedded proprietary codes (PiCodes) and video-embedded codes (ViCodes), which can attract more attention through their aesthetic appearance. The codes are also more secure as they are harder to change, making it difficult to plant malware or links to unsafe webpages. The barcodes will allow people to obtain complex information, such as product brochures, without internet connections and could transform retail shopping for consumers.



PREDICTING RESPONSE TO SUBSTITUTE PRODUCTS

Given greater product variety and shorter product life cycle, it is becoming more difficult to predict what consumers will buy when faced with substitute products. Prof. Guillermo GALLEGO (Industrial Engineering and Decision Analytics) is leading a Research Grants Council-funded project into "Multi-product inventory and dynamic pricing decisions with dynamic substitution effects" to examine how e-retailers should decide on the depth and breadth of their assortments and pricing strategy.

FINTECH HUB ROADMAP

A multidisciplinary fintech research project is seeking to deliver policy recommendations, scholarly contributions, and industrial impact through the creation of a roadmap to transform Hong Kong into a global fintech hub. The study, the first of its kind in Hong Kong, is led by Prof. TAM Kar-Yan. It involves a team of researchers from HKUST and other local universities. The eight major research tasks cover blockchain, cybersecurity, risk preference, robo-advising, artificial intelligence/machine learning, systemic risk, financial innovation policy, and manpower development. The research team's expertise encompasses finance, information systems, computer science, accounting, and economics.



SOCIAL RELATIONSHIPS IN VC FUNDRAISING

Prof. Pavel ZHELYAZKOV (Management) studied the role of social connections in the decision-making of institutional investors who invest in venture capital firms. In an article published in *Administrative Science Quarterly*, he explored competitive concerns and relationship quality in shaping whether venture capital firms connect their syndication partners with institutional investors (also known as limited partners, or LPs). He is now extending his research to service providers, such as lawyers, auditors, and placement agents, and their matching of LPs and venture capital firms.

MANDATORY CSR AND FIRM PROFITABILITY

Corporate social responsibility (CSR) is now a key business practice, with a growing number of countries mandating sustainability disclosure in recent years. Leveraging China's 2008 mandate, Prof. HUNG Mingyi (Accounting) and her co-authors were among the first to document the impact of mandatory CSR reporting on firms, finding that companies experienced a decrease in profitability after the mandate. However, cities most impacted by the disclosure mandate also saw a decrease in industrial wastewater and SO₂ emission levels. The findings suggested that mandatory CSR disclosure alters firm behavior and generates positive externalities at the expense of shareholders. The study was published in the *Journal of Accounting and Economics*.

NEWS SHOCKS AND EQUITY RETURNS

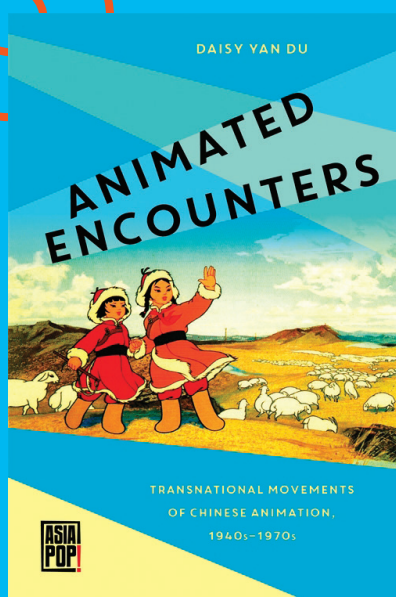
Researchers have studied the connection between the timing of equity cash flows and expected stock returns in recent years, finding a downward slope in the term structure of equity returns. More importantly, the slope varied substantially over time and was significantly negative in the Great Recession of 2007-2009. Prof. LI Kai (Finance) and his co-authors have now proposed a novel production-based asset pricing model that offers a unified explanation of the slope's features, based on the interplay of learning about exposure to aggregate shocks and the time-varying volatility of news regarding future productivity shocks. The paper appeared in *The Review of Financial Studies*.



Research Highlights

QING CIVIL SERVICE WHO'S WHO

Prof. Cameron CAMPBELL (Social Science) and his collaborators at HKUST and Renmin University released an extract of 638,152 personnel records of 50,049 Qing dynasty (1644-1912) civil service officials who served between 1900 and 1912. This public release, downloaded nearly 1,000 times in its first five months online, forms part of the China Government Employee Database-Qing (CGED-Q), being constructed and analyzed by the research team. Prof. Campbell and his collaborators are using the CGED-Q to examine the structure and composition of the Qing civil service as well as family background and other influences on the careers of officials. The complete CGED-Q now contains a total of 3.5 million records. The publicly released data will serve as a major resource to explore an important period in Chinese history.



ANIMATED ENCOUNTERS

Prof. Daisy DU Yan (Humanities) published *Animated Encounters: Transnational Movements of Chinese Animation, 1940s-1970s* (University of Hawaii Press, 2019). In this book, she investigates China's often-overlooked role in the history of world animation and engagement with international forces during its formative period. Prof. Du introduces readers to transnational movements in early Chinese animation, tracing the involvement of Japanese, Soviet, American, Taiwanese, and China's ethnic minorities in animated filmmaking in China. She also questions the long-held belief that this era was a time of cultural isolationism for China due to wars and revolutions.

FOSTERING INNOVATION, ENHANCING SUSTAINABILITY

Prof. Kira MATUS (Public Policy, Social Science, Environment and Sustainability) is investigating the types of policies used by OECD countries to support innovation activities that advance sustainability goals. The project is cataloguing policies in 28 countries to capture different approaches to innovation that support sustainable development. This one-of-a-kind dataset will be supplemented with fieldwork in four different countries to better understand how governments can use innovation to support a wide variety of social goods. The project is being run in cooperation with academics from Harvard University and Utrecht University.

PHILOSOPHICAL QUEST

In *Interpreting Dilthey: Critical Essays* (Cambridge University Press, 2018), edited by Prof. Eric S. NELSON (Humanities), leading scholars engage with the philosophy and writings of Wilhelm Dilthey, a crucial thinker for the development of modern Continental European philosophy. Dilthey also had an influence on 20th-century Chinese, East Asian, and global philosophy. Chapters cover his innovative philosophical strategies and explore how they can be understood in relation to their historical situation. The collection of essays is the only contemporary anthology in English on Dilthey.



MEASURING REAL-TIME SHIP EMISSIONS

A research team led by Prof. NING Zhi (Environment and Sustainability), and co-supervised by Profs. Jimmy FUNG and Alexis LAU, has been working with the Hong Kong government's Environmental Protection Department to develop a proof-of-concept protocol to measure real-time fuel sulphur content from ship emissions. The project employs an unmanned aerial vehicle (UAV)-based system with a highly compact sensor package. The system is capable of measuring carbon dioxide (CO₂), nitric oxide (NO), nitrogen dioxide (NO₂), sulphur dioxide (SO₂), carbon monoxide (CO) and particulate matter (PM) concentrations simultaneously and deriving the fuel sulphur content from the relationship between sulphur and carbon pollutants.

PUBLIC POLICY IN GREATER BAY AREA

Two public policy projects, supported by the Hong Kong government's Strategic Public Policy Research Funding Scheme, are seeking to inform development of the Greater Bay Area. Prof. WU Xun (Public Policy, Social Science, Environment and Sustainability) is serving as principal investigator of both studies. One inter-university project is looking at the role of Hong Kong's public research universities in driving forward a global innovation and technology hub in the Greater Bay Area by identifying global and regional good practices relevant to Hong Kong. The other HKUST study is charting the interplay between science and public policy on air pollution control in the Greater Bay Area. This is the first exploration of its kind in Hong Kong and Greater China.

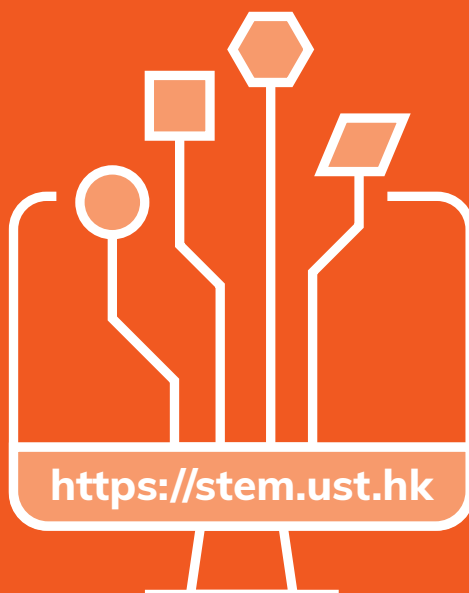


TRACKING PERSONAL EXPOSURE TO AIR POLLUTION

A mobile app to help users reduce their exposure to air pollution was launched in June 2019 as the first stage of the five-year PRAISE-HK project, led by Prof. Alexis LAU (Environment and Sustainability). PRAISE-HK stands for "Personalized Real-time Air-quality Informatics System for Exposure – Hong Kong". The novel app combines state-of-the-art air quality and traffic modeling, real-time sensor and mobile technologies and big data analytics to provide highly accurate real-time and forecast air quality, and personal exposure health risk information down to street level. With resolution between two to 20 meters, users can better understand where and when they are exposed to the largest amount of air pollutants in their daily activities, and plan healthier routes to avoid pollution hotspots. The project is funded by the HSBC 150th Anniversary Charity Program.

BEYOND THE CAMPUS

Launch of
STEM@HKUST



Largest
Alumni Reunion

3,000+
alumni and their
families attended



HKUST Connect
celebrated 10 years of
community engagement

The University connected more closely with the community over the year, sharing its knowledge in numerous different initiatives

DEVELOPING 21ST-CENTURY SKILLS IN STUDENTS

STEM Platform Introduced

Promotion of science, technology, engineering, and mathematics (STEM) education in secondary schools received a major boost with the launch of the interactive STEM@HKUST platform (<https://stem.ust.hk>) in 2018 to spur curiosity among junior high school students and provide teaching support for these subjects in Hong Kong. The platform provides information on STEM events and competitions, and original videos from HKUST faculty and students that encourage young learners to take on everyday problems with a scientific mind-set. It was co-founded by Prof. King CHOW, Director of the Center for the Gifted and Talented, and Prof. Tim WOO, Founding Director of the Center for Global and Community Engagement in the School of Engineering.

Talks, workshops, exhibitions, and booths were also organized for various large-scale STEM-related community events, including InnoTech Expo 2018, InnoCarnival, Learning and Teaching Expo, and HK SciFest 2019 to enhance understanding and activities among secondary teachers and students.

Scientific and Environmental Input

The School of Science supported school students' participation in several large-scale competitions over the year. Among these were the Pan Pearl River Delta Physics Olympiad, and the Hong Kong, Asian, and International Physics Olympiads.

On the environmental front, the School's Department of Ocean Science co-organized the "Coastal Habitats Protection Campaign for South Lantau" with the Hong Kong government's Sustainable Lantau Office (under the Civil Engineering and Development Department) in July and August 2018. This sought to promote conservation initiatives through community education activities, such as roving exhibitions about coastal habitats on Lantau, and workshops.

Environmental action was also on the list of Interdisciplinary Programs Office outreach programs. The Community EXPLORE project, organized by Prof. Arthur LAU (Environment and Sustainability) and funded by HSBC Hongkong Bank Foundation, continued to develop high school students' technical skills in monitoring air quality in their communities. The project has involved over 60 secondary schools in Hong Kong.

Technology in the Community

The School of Engineering gained renewed support from Bright Future Charitable Foundation for its Academy for Bright Future Young Engineers, which introduces engineering concepts and hands-on experience to secondary school students. Over summer 2018, more than 40 participants from five schools attended a four-day electric vehicle summer program, where they worked in teams to build a drivable car. In 2019, the Academy also held a series of training workshops for secondary school teachers for the first time, with over 200 schools attending. The first two sessions focused on smart living and environment, with lectures and prototype-building to highlight engineering design processes and how to integrate problem-solving and other engineering approaches into teaching materials and modules.

The first public event held by the France-HKUST Innovation Hub brought together teams from Greater China and India to take part in a corporate social responsibility solutions competition inspired by the United Nations' Sustainable Development Goals. Innovation Contest 4CSRtech was co-organized with the Consulate General of France in Hong Kong & Macau and Orange Group. Winning solutions at the November 2018 final centered on: an employee mental health monitoring system for companies, designed by an HKUST team; and an integrated health and safety smart device for construction workers' helmets, proposed by BeelInventor Ltd., a start-up incubated at the Hong Kong Science Park.

Prof. Richard SO (Industrial Engineering and Decision Analytics) and his research students shared their research on human hearing with members of the Hong Kong Parents Association for the Hearing-impaired at an event at Pamela Youde Child Assessment Centre at Shatin. Along with a talk by Prof. So on hearing impairment, parents could experience what their hearing-impaired children would hear when listening to a normal conversation or a song by using a program developed by Prof. So's research postgraduate students for the event. The meeting, the second of its kind, was coordinated with the voluntary help of doctors from the Hong Kong government's Department of Health.

FINTECH MOVES AND MANAGING CHANGE

Widening Business Perspectives

The School of Business and Management and Fintech Association of Hong Kong jointly hosted a seminar on "Fintech in the Greater Bay Area" as part of Hong Kong Fintech Education Week 2018, organized by the Hong Kong government's InvestHK. Over 120 alumni and industry representatives attended.

Further seminars were presented under the School's BizInsight@HKUST Presentation Series and by the Tanoto Center for Asian Family Business and Entrepreneurship Studies. The former featured external and faculty speakers and panel discussions on topics ranging from AI and deep learning to consumers and online information. The latter focused on topics such as "Working across Cultures", sponsored by EY, and "Cross-Generational Wealth Planning", supported by Bank Julius Baer.

Media Moves

In a new venture, the School launched a joint training program with the Journalism Education Foundation in January 2019 for middle to senior management working in the local media. The 40 participants covered essential topics such as digitalization of the media and social media applications, leadership and negotiation, financial and accounting practices, and how to apply innovation. The program was supported by the Hong Kong News Executives Association and the Newspaper Society of Hong Kong.

CREATING CARING AND ENGAGED CITIZENS

Cultural Heritage and Musical Creativity

The South China Research Center, under the School of Humanities and Social Science, delivered a series of events related to Hong Kong's intangible cultural heritage that inspired hundreds of university and secondary school students, members of different local communities, and the general public to take part. Among the activities were field trips and workshops related to the traditional dragon boat water parade of Tai O on Lantau Island, the Hang Hau unicorn dance, Long Ping fishermen's lament songs, and heritage conservation of Yim Tin Tsai Village, Sai Kung. The Center has played a significant role in research, collection, conservation and awareness-raising of local and South China intangible heritage since it was set up under the Division of Humanities in 1997.

The Humanities faculty continued their popular public lectures at the Hong Kong History Museum over the year, with 16 lectures on subjects ranging from Pokfulam Village's Fire Dragon to reading classical Chinese poetry today and Russian literature in modern China. In notable presentations of a different kind, the School's music faculty participated in the MusicAlive! concert series, which saw the launch of an initiative involving young local instrumentalists, aged from eight to 13 years, in 2019.

The Intimacy of Creativity workshops and performances returned for another successful season, working for the first time in partnership with Curtis Institute of Music. The renowned event brings together young composers and established musicians, providing a rare inside view of the creative working process between composer and musician. Guest artists for 2019 included Grammy award-winning violist Roberto DIAZ, President and CEO of Curtis Institute, and Pulitzer Prize-winning composer Jennifer HIGDON, also at Curtis.

Socially Aware and Involved

HKUST Connect is a University community engagement platform dedicated to developing a global service-oriented mind-set and strengthening civic awareness among students. In 2018-19, the platform celebrated its 10th anniversary with a series of special programs. The kick-off event in November 2018 brought together President Wei SHYY and Mr. Peter MAURER, President of the International Committee of the Red Cross (ICRC), in an open dialogue on the challenges and opportunities that technology could bring to humanitarian work. A public exhibition on campus, together with virtual reality equipment used in ICRC staff training, enabled viewers to experience crisis situations on the battlefield in a direct way.

School activities to deepen understanding of community issues also saw the School of Science's student-led SCI/NUCLEUS social service team mobilize their peers, alumni and staff to work on projects with the Street Sleepers Action Committee, Hong Kong Blind Union, and other welfare groups.

Commencing September 2018, a dedicated column in the English-language *Standard* newspaper has offered faculty across the University the opportunity to share their views and expertise on topical issues with general readers. Aging, AI ethics, electronic road pricing, and drone-mounted sensors for detecting shipping emission pollutants were among the subjects tackled over the year. The School of Business and Management also contributed some 50 Chinese-language articles to a column in the *Hong Kong Economic Journal* newspaper, offering insights into areas including fintech, global investment market, macroeconomic issues, and innovation and technology development.

Town-and-gown lecture series, Science for Lunch, continued to share HKUST faculty discoveries and innovative technologies with members of the community. In 2018-19, 12 young professors delivered talks on different aspects of Smart City advances, covering four main themes: diagnosis, living, aging, and investment. The program was initiated by the University Council's Institutional Advancement and Outreach Committee.

DONATIONS THAT FUEL THE FUTURE

The year brought mega-donations from several foundations to advance different aspects of the University's work. Lo Kwee Seong Foundation's generous support is set to take forward research related to structural biology, while research and education in areas including the environment, technology, and innovation will benefit from Otto Poon Charitable Foundation's major contribution. A gift from Guangdong Bright Dream Robotics, a subsidiary of Country Garden Holdings Company Ltd, seeks to boost talent development and innovation in robotics and other smart technologies. The University also received two donations from the Yuexiu Group, a state-owned enterprise in Guangzhou. These contributions provide invaluable support to academic research and talent development, as well as entrepreneurial projects such as the Grand Final of the annual One Million Dollar Entrepreneurship Competition. In June 2019, Kaisa Group Holding Ltd pledged a large gift to support the University's innovative research and education.

In other related activities, the University celebrated the groundbreaking of the Shaw Auditorium, a multi-purpose venue for ceremonies and activities in April 2019. The building of the Auditorium is supported by a large donation from the Shaw Foundation (see also P43). The open area will be named the Mona Shaw Plaza after the late Dr. Run Run SHAW's late wife. In May 2019, a donor appreciation day provided further insights into the University's achievements, vision, and goals to our supporters. The evening program involved a campus tour, taking in novel products developed by alumni start-ups, a meeting with the HKUST Robotics Team, and a visit to the Coastal Marine Laboratory to learn more about marine ecology research.

ALUMNI ACTIVITIES

A host of gatherings took place over the year to bring together alumni. There are alumni groups in locations ranging from Hong Kong and Mainland China to the US and Singapore, and an overall total of 72,000 alumni.

Locally, the University's largest Alumni Reunion yet took place in November 2018, with a day-long get-together attended by over 3,000 alumni and their families. A collaboration of the schools and offices across the University, the Reunion showcased the concerted efforts

of the HKUST alumni community including the alumni groups and entrepreneurs. The HKUST MBA Program also celebrated its inaugural Homecoming, a memorable event attended by more than 700 alumni, students, faculty, staff, friends, and families.

In March 2019, President Wei SHYY and Council Chairman Mr. Andrew LIAO joined an Alumni Reception in Beijing to update participants on major developments at their alma mater. The same month, the HKUST Shenzhen Research Institute held a networking event that attracted 200 participants. Among the activities, alumni entrepreneurs held a roadshow for those attending to learn more about entrepreneurship. Senior management and guests were invited to join the occasion.

Alumni entrepreneurs gained a fresh platform to showcase products, technology or services on campus with the Full Circle@HKUST program. In addition, alumni entrepreneurs gathered at Hong Kong Science Park in October 2018 to share their knowledge of running a start-up.

The Alum eCard was launched via the HKUST alumni app to provide benefits and discounts, as well as keep users abreast of the latest alumni and University developments. More services are due to be added in the future.

Convocation and Alumni Association

Mr. Stanley CHOI was elected Chairman of HKUST Convocation for two years from April 2019. The Convocation serves as a bridge between the University, alumni, and the public, with a special focus on social innovation to support students' well-being. Meanwhile, the HKUST Alumni Association, led by President Dicky YUEN, fostered a communal spirit, with the continuation of its "Alumni Inspire Alumni" plan to deepen bonds and introduce further membership benefits.

High Achievers

Many of our alumni made their mark on the wider community through prominent achievements over the year. Among them were: Mr. Ben CHAN (Bronze Bauhinia Star), Mr. Frank WANG (IEEE Robotics and Automation Award), Mr. Jeff CHEN (Best Inventions of 2018, *Time*), Mr. SHEK Ngai-Chun (2018/19 Hong Kong Outstanding Youth Volunteer, Social Welfare Department), Dr. Lydia LEUNG (Asia Pacific Information and Communications Technology Alliance Award; Red Dot Design Award), Mr. Ken LAW (Global Champion, United Nations World Summit Awards), Ms. Yosha GUPTA (Most Influential Payments Professional, World BFSI Congress and Awards 2018), Dr. LI Dong (China Top 10 Scientific Discovery 2018, Ministry of Science and Technology) and Ms. Samantha KONG (2018 Environmental Education 30 Under 30, North American Association for Environmental Education, Global Environmental Education Partnership, and US Forest Service).

The year brought mega-donations from several foundations to advance the development of the University including a gift from Guangdong Bright Dream Robotics.



Over summer 2018, more than 40 participants attended a four-day electric vehicle summer program, where they worked in teams to build a drivable car.



The South China Research Center delivered a series of events related to Hong Kong's intangible cultural heritage.



HKUST hosted the first President-to-President Dialogue in collaboration with the ICRC to discuss the challenges and opportunities that technology could bring to humanitarian work.



HKUST's largest Alumni Reunion yet took place in November 2018, with a day-long get-together attended by over 3,000 alumni and their families.



HKUST hosted inaugural Asia-Pacific Rising Stars Women in Engineering Workshop to nurture female academic leaders.

LOCAL TO GLOBAL

Establishment of HKUST (Guangzhou)

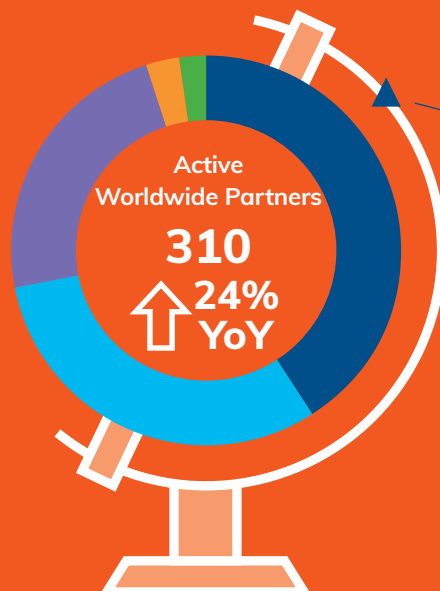
A tripartite agreement was signed in December 2018 between HKUST, the Guangzhou Municipal Government, and Guangzhou University

Research Facilities Established with District Governments

- HKUST-Zhongshan Joint Innovation Center – Zhongshan Municipal Bureau of Science and Technology
- An MoU with the Foshan Municipal Government and Nanhai district government

- HKUST Futian Base – Futian district government
- International Smart Manufacturing Platform – Nansha district government and the Guangzhou Municipal Government

Geographical Distribution of Global Partnership



Asia
41% (127)

Europe
31% (97)

North America
23% (71)

Oceania
3% (8)

Latin America
2% (6)

Looking outward from Hong Kong, 2018-19 proved productive for expanding Mainland and international ties with academic institutions, industry, and decision-makers

MAINLAND PRESENCE

HKUST (Guangzhou) Announced

HKUST is set to extend its capabilities to contribute to the development of China's innovation-driven Greater Bay Area (GBA), following the signing of a tripartite agreement in December 2018 between the University, the Guangzhou Municipal Government and Guangzhou University to establish the Hong Kong University of Science and Technology (Guangzhou) (also known as HKUST (GZ)) which will nurture talent and facilitate collaboration amongst Hong Kong, the GBA and beyond on education, research and commercialization, while strengthening knowledge transfer to bridge Hong Kong's gap in high-tech manufacturing.

The campuses in Hong Kong and Guangzhou will be fully synergistic and complementary. HKUST (GZ) will focus initially on postgraduate programs to nurture research talents to tackle the transdisciplinary challenges of sustainability and the environment, energy, urbanization, aging, and more. HKUST's expertise in science, technology, business management, social science, and interdisciplinary education puts it in a position to play a significant role in the GBA development. Preparatory academic planning and work on the institutional structure and campus design have already commenced. The first phase of construction is expected to be completed in the fall of 2022.

Located in Qingsheng, Nansha in Guangzhou, HKUST (GZ) covers 1.13 sq km and is close to the Qingsheng Station. It will take just 30 minutes to reach by high speed rail from Hong Kong's West Kowloon Station, facilitating academic and scientific exchanges and expanding the links between Hong Kong's hi-tech innovation and GBA's R&D and manufacturing capabilities. Leveraging its close proximity to the University's well-established mainland research institutes in Nansha and Shenzhen and R&D Center in Foshan, HKUST (GZ) will strengthen knowledge transfer of research findings and applications, and facilitate commercialization.

District Government Research Cooperation

To foster further partnerships and innovation, the University's mainland platforms in Foshan, Nansha, and Shenzhen continued to expand their collaborative networks with district governments and related

organizations in Guangdong province, leading to a series of research facilities and agreements over the year. These included: The HKUST-Zhongshan Joint Innovation Center with the Zhongshan Municipal Bureau of Science and Technology; International Smart Manufacturing Platform, supported by the Nansha district government and Guangzhou municipal government; a Memorandum of Understanding between the University, Foshan municipal government and Nanhai district government to extend cooperation between industry, academia, and the research sector; and an agreement between the University's Shenzhen Research Institute and Futian district government to set up the HKUST Futian Base for research, development, and entrepreneurship.

Industry Partnerships and Talent Development

It was also a fruitful year for deepening connections with Mainland businesses and institutions as HKUST stepped up its emphasis on applied research and knowledge transfer, resulting in the establishment of eight joint labs/institutes: five with industry and three with institutions.

In other industry-related developments, the University formed a strategic partnership with information and communications technology leader Huawei Technologies, which will provide funding support to foster high-impact research and nurture research talent. The move marks the first time that Huawei has entered into an accord with such a focus. The School of Science's Department of Mathematics established a long-term collaboration with Shenzhen-based DNA testing and analysis company WeGene, and the School of Business and Management increased its fintech and insurtech ties following the signing of a Memorandum of Cooperation with ZhongAn Technologies International Group Ltd, a subsidiary of ZhongAn Online, which is China's largest online-only insurance firm. The School also entered into a strategic collaboration with China Construction Bank to provide training for the bank's employees and actively support the formation of China Construction Bank University, in addition to a Memorandum of Cooperation with the China Banking Association, Shenzhen University, and China Construction Bank University to co-develop a professional qualification for fintech practitioners in China. This represents a pioneering effort between Mainland China and Hong Kong to establish a nationwide qualification framework and enhance professionalism in the fast-moving fintech industry.

University Ties

On the inter-university front, HKUST entered into more in-depth agreements with the University of Chinese Academy Sciences and Tsinghua University respectively to enhance academic and research collaborations and facilitate student exchange.

President Wei SHYY attended the first Presidents' Forum organized by the Beijing-Hong Kong Universities Alliance in October 2018. More than 15 Presidents and Vice-Presidents from Beijing and Hong Kong participated in the gathering in the Chinese capital, with Prof. Shyy delivering a speech on academic openness and greater cross-border collaboration and exchange. As part of this institutional cooperation, the School of Humanities and Social Science initiated an alliance on global history with the Institute for Global History at Beijing Foreign Studies University. The alliance was established to foster education, research, knowledge transfer, and student interaction between universities in Beijing and Hong Kong.

National Science Conference

For the first time, HKUST hosted the two-day Xiangshan Science Conference, a national symposium established by the Ministry of Science and Technology and Chinese Academy of Sciences in 1993. The focus of the conference was neuromorphic computing and artificial intelligence. Close to 40 scholars from Hong Kong, Macau, and the Mainland attended. In addition, the event marked the official launch of the Hong Kong Society of Artificial Intelligence and Robotics. Prof. YANG Qiang (Computer Science and Engineering) is the group's founding president.

Summer Davos

Five faculty members attended Summer Davos 2018 in Tianjin. Profs. ZHANG Qian (Computer Science and Engineering), Matthew MCKAY (Electronic and Computer Engineering, and Chemical and Biological Engineering) and CHAU Ying (Chemical and Biological Engineering) participated in an HKUST IdeasLab workshop on "Engineering Solutions for Public Health". The academics presented on taking healthcare beyond hospitals through information technology, computational immunology and vaccines, and eye and vision health for aging populations respectively. In addition, Prof. McKay was named a World Economic Forum Young Scientist together with Profs. Angela WU (Chemical and Biological Engineering, and Life Science) and HE Guojun (Social Science, Environment and Sustainability, and Economics), who also went to Summer Davos 2018.

GLOBAL NETWORK

University Partners

The University markedly extended its network with top institutions in different parts of the world over 2018-19, with agreements increasing to over 300 active partners globally. This represents an increase of 24% compared with the previous year. The agreements set out to foster academic and research exchanges as well as collaborations. Such arrangements included new School of Science partnerships with Harvard Medical School Teaching Hospital, the Paul F. Glenn Center for the Biology of Aging at Stanford University and University College London to advance translational neuroscience research, and a collaboration with the University of Haifa, Israel, to develop academic ties related to marine sciences.

A Memorandum of Understanding was signed with the National Humanities Center in North Carolina, an independent institute for the advanced study of the humanities. The arrangement, effective from October 2018, will allow the School of Humanities and Social Science to nominate up to three humanities faculty annually for fellowships at the Center. The School continued its successful nomination of faculty under the Harvard Yenching Visiting Scholar fellowship program, with Prof. Carine YIU conducting research under the program in 2018-19. The Interdisciplinary Programs Office (IPO) also agreed a Memorandum of Understanding with independent leadership organization Salzburg Global Seminars to sponsor IPO students to join Salzburg programs.

International Business Links

Ties with overseas businesses extended over the year to strengthen insights on both sides. New partnerships included the School of Business and Management's collaboration with multinational accountancy firm KPMG to boost accountancy training, as well as the School of Science's Department of Mathematics' agreement with leading global semi-conductor device firm Nexperia on data analytic research.

World Economic Forum and Winter Davos 2019

A Memorandum of Understanding was signed in October 2018 with the World Economic Forum, following an invitation to HKUST to join the organization's 28-member Global University Leaders Forum (GULF). The group fosters peer-to-peer dialogue between presidents of the world's leading universities and collaboration with the main forum's initiatives and activities. HKUST is the only member from Hong Kong. In January 2019, President Shyy joined the GULF session at Davos, Switzerland, and also met Prof. Klaus SCHWAB, Founder and Executive Chairman of WEF. HKUST now has more than 10 faculty members who are part of the on-going WEF Expert Network: Prof. Wei SHYY, Prof. Nancy IP, Prof. Pascale FUNG, Prof. HE Guojun, Prof. Kim CHOW Hei-Man, Prof. Matthew MCKAY, Prof. Yoshio NOZAWA, Prof. Albert PARK, Prof. Fuguee TSUNG, Prof. WANG Yi and Prof. ZHANG Qian. The network forms a multidisciplinary community of leading minds that aims to improve the world by shaping the global agenda.

Regional University Reach

HKUST successfully hosted the 2019 Asian University Alliance Summit in April 2019. Over 15 Presidents and Vice-Presidents from member universities around Asia attended, engaging in constructive dialogue on the role of universities in advancing sustainability, innovation, and entrepreneurship ecosystems. HKUST is one of the founders of the 15-member alliance.

HKUST also hosted several gatherings related to the Association of Pacific Rim Universities (APRU), an alliance of leading institutions from 17 Pacific Rim economies. The APRU international secretariat is now based at the University.

At the three-day 16th Senior International Leaders' Meeting in October 2018, more than 70 delegates discussed the Association's latest strategic plan and issues ranging from closing the digital skills gap to ways to create impact through research. President Shyy gave the keynote address, focused on "HKUST in the Age of Innovation: Contributions, Opportunities, and Expectations". At the two-day APRU Population Aging Conference in December 2018, 90 participants took part in discussions focused on the theme of "Dementia, Cognition, and Healthy and Productive Aging".

Separately, the Vice-President for Institutional Advancement was appointed Co-Chair for the APRU's Asia Pacific Women in Leadership program. The program sets out to create initiatives to impact on higher education institutions across Asia Pacific. Also on the diversity front, the Asia Pacific Rising Stars Women in Engineering Workshop in October 2018 was hosted by the University's School of Engineering in association with top Asian and Oceania universities. The event brought together young female engineers and postgraduate students from leading institutions worldwide to explore a career in teaching and research in Asia Pacific.

As part of the University's effort to share best practices and exchange ideas on university advancement with professionals from around the world, the Director of Public Affairs co-chaired the planning committee (marketing and communications track) of the annual four-day Asia Pacific Advancement Conference. The conference was organized by the Council for Advancement and Support of Education, a global association for professionals in advancement. The Director also shared her insights on crisis management citing a case study of HKUST at the event, held in Brisbane, Australia, in April 2019.

School of Business and Management collaborated with multinational accountancy firm KPMG to boost accountancy training.



At the Association of Pacific Rim Universities' three-day 16th Senior International Leaders' Meeting held in October 2018, more than 70 delegates discussed issues ranging from closing the digital skills gap to ways to create impact through research.

A tripartite agreement was signed in December 2018 between HKUST, the Guangzhou Municipal Government and Guangzhou University to establish HKUST (GZ).



The first phase of construction of the HKUST (GZ) campus is expected to be completed in the fall of 2022.

HKUST entered into a strategic collaboration with China Construction Bank to provide training for the bank's employees.

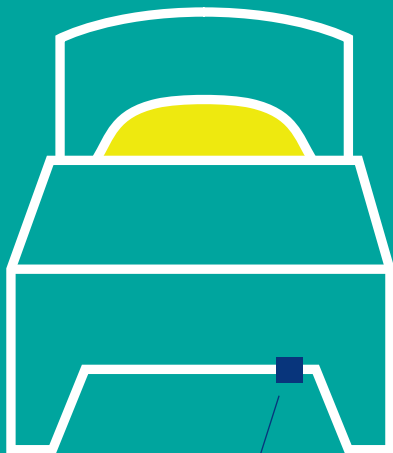


BEST-IN-CLASS OPERATIONS

28 staff members
**serving
30 years**



Ground was broken for
Shaw Auditorium
that can house up to
1,300 people



A new student
residence providing
**1,551 bed
spaces**
is due to be available
in 2023-24

Infrastructure and administrative systems advanced as the University further developed its high-performance culture

EMPLOYER OF CHOICE

In accordance with HKUST's goal to provide a high-caliber workplace, the University completed a non-academic staffing review, followed by the implementation of a new grading and salary structure, performance and development review, and merit salary adjustment framework in April 2019. These moves enhanced the University's competitiveness in talent acquisition and retention, and promoted a performance culture in line with global practice, by providing greater flexibility in salary setting and facilitating staff development and job rotation. To foster a caring campus community spirit, learning and development programs were organized to boost staff well-being and motivation. These included orientation programs, performance management workshops, and health seminars.

Meanwhile, the location and subsequent design of the 1,415-bed student residence enabled a further 136 beds to be provided, taking total provision to 1,551. The accommodation is due to be available in the 2023-24 academic year. Successful applications for the UGC's annual Alterations, Additions, Repairs and Improvements Program also facilitated the refurbishment and upgrading of a number of laboratories, offices, and teaching areas.

On the catering front, renovation of outlets to provide a greater variety of offerings on campus saw the primary concourse cafe outlet open in November 2018. Work on two adjacent outlets on the concourse progressed. They are expected to be ready by the start of 2019-20.

CAMPUS DEVELOPMENT

The Campus Master Plan moved forward over the year, leading to the completion and handover of the Indoor Sports Center at the seafront, the launch of the expanded and upgraded Data Center, and several major renovations in the Academic Building and the Lee Shau Kee Business Building. Construction continued at the Boathouse, with the project due to be completed in early 2020. The Jockey Club Global Graduate Tower is on track for September 2020 while extensions to both the LG7 canteen and laboratories in the Academic Building are on-going.

In other building developments, the design for the Shaw Auditorium was finalized, tendered, and a groundbreaking ceremony held in April 2019. The elliptical, multi-purpose building is expected to become a campus landmark, hosting concerts, theater performances, exhibitions, events and ceremonies. There will also be space for seminars, learning, indoor and outdoor gatherings, and a café. The three-story building can cater for up to 1,300 people. In addition, the University submitted proposals for Government funding for two new research facilities to greatly enhance university research innovation and entrepreneurship. The two new facilities will be complementary, one with wet labs focused on life and chemical sciences, one with dry labs focused on physical sciences and technologies.

LIBRARY PIONEER

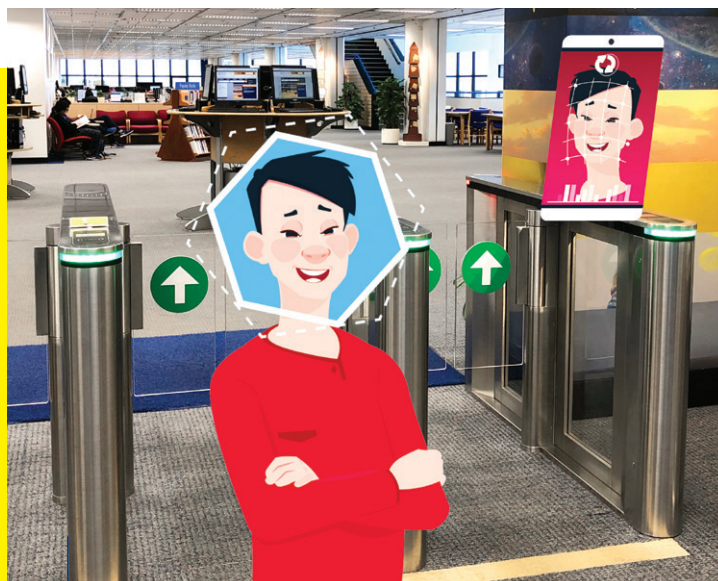
HKUST Lee Shau Kee Library headed into a new digital era with the virtualization of its Information Desk in 2019, handling WhatsApp, email, and phone enquiries. It was the first academic library in Hong Kong to initiate such an advance. Face-to-face help can still be provided if needed. In another innovative move, a facial recognition system alternative to using HKUST identity cards was tested at one of the Library entrance turnstiles. This was part of a novel student guided learning project under the Sustainable Smart Campus as a Living Lab platform (see also P47).

DATA UPGRADE FOR COMMUNITY ACTIVITIES

Further IT advances saw a University reporting system introduced in May 2019 to provide more efficient collection and higher quality data on knowledge transfer key performance indicators in relation to HKUST's social, community, and cultural engagement activities. The project was a joint undertaking between the Technology Transfer Center, Office of Institutional Research, and Information Systems Office.

LONG SERVICE RECOGNITION

In March 2019, the first Long Service Awards for 30 years' employment at HKUST were presented to 28 staff members who had worked at the University since 1989, when the institution was still at the planning stage. Awards for 20 years' service were also presented to 15 faculty and staff members in recognition of their loyalty and contributions.



A facial recognition system alternative to using HKUST identity cards was tested at one of the Library entrance turnstiles.



A groundbreaking ceremony of the Shaw Auditorium was held in April 2019.



In March 2019, the first Long Service Awards for 30 years' employment at HKUST were presented to 28 staff members.



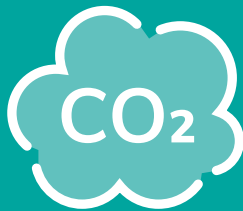
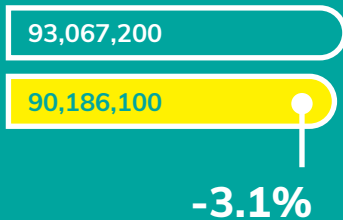
The Campus Master Plan moved forward over the year, leading to the completion of the Indoor Sports Center at the seafront.

SUSTAINABLE HORIZONS

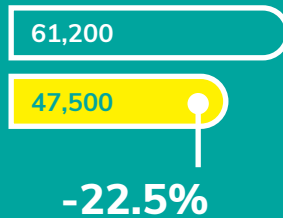
PERFORMANCE OF SUSTAINABLE OPERATIONS



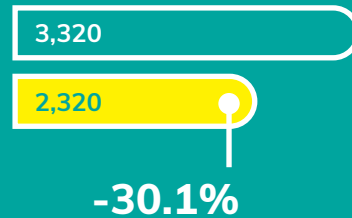
Electricity (kWh)



Greenhouse Gas (ton CO₂-e)



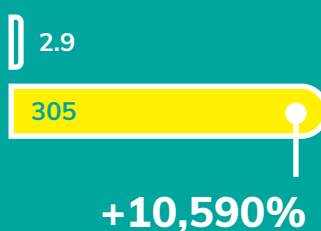
Trash (ton)



Recyclables (ton)



Food Waste Recycling (ton)



Baseline (2014-15)

Current (2018-19)

Gross floor area and campus population has increased by approx. 41,500 m² and 2,200 respectively since 2014-15.

Eco-friendly activities extended their reach with the launch of the Sustainable Smart Campus initiative

The HKUST 2020 Sustainability Challenge, a University-wide campaign to make HKUST a sustainability leader in operations, communities, research and demonstration, and education, made substantial progress in 2018-19. This brought further reductions in waste and energy, together with a host of green activities involving students and staff, the launch of a major platform to turn the campus into a “living lab” for novel sustainability projects, and the start of a sustainability-focused Common Core course.

OPERATIONS

Among Sustainability Challenge goals is a 50% reduction in landfill waste and 10% drop in electricity consumption compared with the 2014-15 baseline. To assist this objective in 2018-19, the Sustainable Operations Executive Committee, under the leadership of the Vice-President for Administration and Business, introduced the recycling of animal bedding from laboratories, and carried out an exhaust fan study that resulted in significant savings in energy spent on ventilation. Despite an expansion of around 41,500 sq m (8.8%) and 2,200 more campus users since 2014-15, overall energy reductions reached 3.1% by the end of 2018-19, with a total decrease of 22.5% in greenhouse gas emissions. Energy reduction focused on lights, labs, and energy systems in buildings, with particular emphasis on improving data accuracy and operational efficiency. Meanwhile, the Committee continued its aggressive drive to cut down sources of waste – such as single-use disposables – in addition to expanding traditional recycling and reuse programs. These efforts led to a decrease of 30% compared with the baseline year, eliminating 900 tons of landfill waste overall.

COMMUNITIES

To encourage more participation in eco-friendly endeavors, the Shanghai Commercial Bank-HKUST Sustainable Campus Leadership Program 2018-19 supported 20 student Eco-Reps in designing and implementing green campus projects. Student groups found creative ways to generate electricity via plants and explore piezoelectricity, beautify an outdoor staircase, and assist in building a green culture in labs.

In addition, Green Team members, comprising staff volunteers who work in their own time to improve campus conditions, coordinated with the National Geographic Society to hold a popular “Planet or Plastic” exhibition in the Atrium. A 100% recyclable cardboard display unit showcased photographs and videos on single-use plastic and how it is damaging wildlife and the environment globally. The exhibition followed a “Meal Boxes Go Green” campaign in Fall semester, which encouraged campus

members to bring reusable meal boxes for takeaways. A sub-group of the team promoted food sharing through social media. Working with student societies via Green O’Camp for freshers and Green Promotion activities also contributed to campus waste reduction.

Sustainability Network representatives continued to encourage their respective departments and offices to dispense with plastic water bottles and participated in the pilot Green Office Audit Program. Meanwhile, the Hong Kong Sustainable Campus Consortium worked across Hong Kong universities to jointly organize a “UNlfy – Bring Your Own” campaign to motivate students and staff to reduce waste by bringing their own lunch boxes, water bottles, bags, and straws.

DEMONSTRATION

The “Sustainable Smart Campus as a Living Lab” initiative, jointly administered by the GREAT Smart Cities Institute and HKUST Sustainability Unit, got underway to inspire students and academics to use the HKUST campus as a “living laboratory” to demonstrate “smart” projects that could contribute to solving sustainability issues. Using the campus in this way is expected to bring high visibility to such ideas as well as create learning opportunities. More than 50 project proposals were submitted over two rounds of Sustainable Smart Campus funding, with 18 underway by the end of 2018-19. The scheme’s launch during the annual Spring media gathering in February 2019 gave project teams the opportunity to explain their projects to the journalists present. An estimated 500 people took part in the event, which was well reported in local media outlets.

EDUCATION

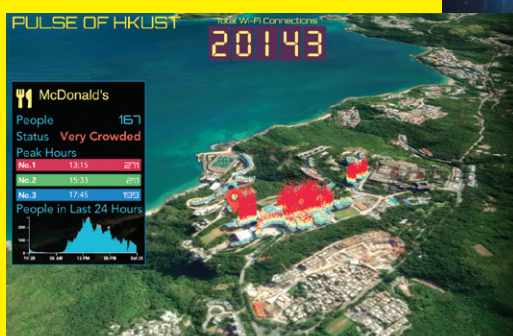
In January 2019, HKUST’s Sustainability Education Community organized Hong Kong’s first workshop to help educators teach sustainability across disciplines. The one-day interactive workshop, entitled “Sustainability Across the Curriculum: The Hong Kong Context”, challenged participants to explore sustainability-related skills and competencies for learning in a Hong Kong context. Participants came from eight universities and three NGOs, and spanned diverse fields.

In line with this drive to expand teaching and learning of environmental issues, the Division of Environment and Sustainability introduced a Common Core course entitled Introduction to Sustainability in Spring 2019, with a total of 176 students attending the sessions. Flipped classrooms, blended learning and activity-based teaching methods were used to boost students’ interest and awareness of issues locally and globally and enhance their ability to address them. Two members of the Elderly Academy Scheme also attended the course, giving highly positive feedback.



Volunteer painters winning the Make Your Mark! Staircase Design Competition painted an outdoor staircase at HKUST.

The "Sustainable Smart Campus as a Living Lab" initiative inspires students and academics to use the HKUST campus to demonstrate "smart" projects.





"UNify-Bring Your Own" campaign motivates students and staff to reduce waste by bringing their own lunch boxes and water bottles.

Green Team collaborated with the National Geographic Society to hold a popular "Planet or Plastic" exhibition using 100% recyclable cardboard display unit.



Eco-Reps members designed and implemented green campus projects such as generating electricity via plants.

GOVERNANCE

The Council, Court, and Senate are the University's supreme governing, advisory and academic bodies

THE COUNCIL

As the University's highest governance body, the Council seeks top standards of corporate governance in steering HKUST's overall direction. During 2018-19, the Council and its various committees continued to monitor the University's institutional priorities in line with strategic needs and to oversee the work of the administration. Council members provided advice to facilitate senior management's setting of objectives and formulation of the University's institutional-specific key performance indicators. This aligns with the recommendation under the University Grants Committee (UGC)'s "Governance in UGC-funded Higher Education Institutions in Hong Kong Report" ("the Newby Report") on the Council's monitoring role. On behalf of HKUST and as part of a strategic dialogue with the UGC and stakeholders, the Council Chair and the President signed the University Accountability Agreement in June 2019.

In accordance with the University's initiative to actively look for opportunities that complement its academic and research endeavors, the Council gave its support to senior management's plan to collaborate with the Guangzhou government and Guangzhou University to establish the Hong Kong University of Science and Technology (Guangzhou), also referred to as HKUST (GZ). To assist with such decision-making, the Council formed a Task Force on the Proposed HKUST (GZ) in November 2018 to provide timely advice to management. During the review period, the Council convened four special meetings and the Guangzhou campus task force met seven times to discuss related governance issues.

THE COURT

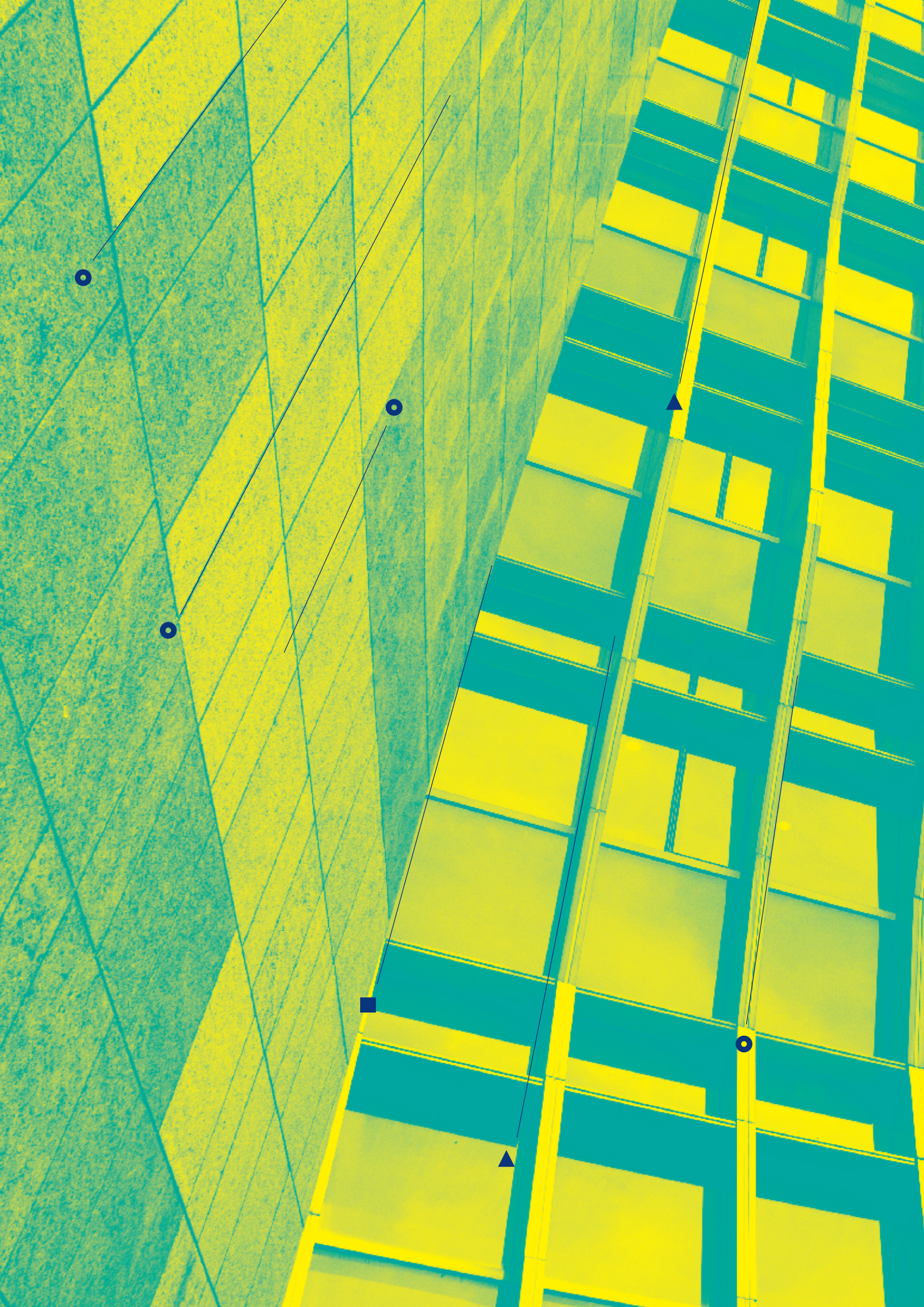
The Court met twice in 2018-19 to receive reports from the Council and University management. In November 2018, Court Members were apprised of major changes to policies as reviewed or approved by Council and forthcoming plans. Over the year, Court Members also gave specific advice on the University's strategic direction in areas including internationalization, innovation, entrepreneurship and industry collaboration to enhance HKUST's competitiveness in the tertiary education sector.

At the May 2019 meeting, Dr. Vincent LO, Honorary Chairman of the Court, gave a presentation on his experiences of doing business in Mainland China over the past 40 years. The talk and panel discussion that followed assisted the University community in considering the mainland higher education landscape and prospects in light of the University's new Guangzhou campus.

THE SENATE

The Senate continued to review proposals to boost the teaching and learning experience of existing academic programs. Modifications to the JUPAS admission route and School of Science admission requirements were among the items considered, along with academic policies, regulations, and guidelines related to academic integrity and student conduct.

On the pedagogical innovation front, the Senate approved total online delivery for three courses of the Master of Arts in International Language Education. Building on the existing Graduate Teaching Assistant Training program, the Senate also reviewed and approved courses to enhance core professional competencies of research postgraduate students.



AWARDS AND RECOGNITIONS

Faculty members and students have received numerous honors and accolades over the year. The following list is not exhaustive.

FACULTY

1. **Prof. TANG Ching-Wan** (*right*), IAS Bank of East Asia Professor, Department of Electronic and Computer Engineering, Department of Chemistry, and Department of Physics, was awarded the 2018 C&C Prize by the NEC C&C Foundation and 2019 Kyoto Prize in Advanced Technology by the Inamori Foundation.
2. **Prof. Nancy IP**, The Morningside Professor of Life Science and Chair Professor, Division of Life Science, was awarded the 2018 Outstanding Achievement Award by the Professional Validation Council of Hong Kong Industries.
3. **Prof. SHENG Ping**, Dr. William M W Mong Professor of Nanoscience, Department of Physics, received the 2018 Rolf Landauer Medal from the International Association for the Science of Electrical, Transport, and Optical Properties of Inhomogeneous Media.
4. **Prof. KWOK Hoi-Sing**, Dr. William MW Mong Professor of Nanotechnology, Department of Electronic and Computer Engineering, was awarded the 2019 Jan Rajchman Prize by the Society for Information Display.
5. **Prof. Ricky LEE Shi-Wei**, Department of Mechanical and Aerospace Engineering, received the 2019 Outstanding Sustained Technical Contribution Award from the IEEE Electronics Packaging Society.
6. **Prof. LIU Ming**, Department of Electronic and Computer Engineering and Department of Computer Science and Engineering, received the IROS Toshio Fukuda Young Professional Award at the 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems.
7. **Dr. Jason CHAN** (*left*), Department of Chemistry, received the 2018 University Grants Committee Teaching Award for Early Career Faculty Members.
8. **Prof. James Z. LEE**, Yan Ai Foundation Professor of Social Science, Divisions of Humanities and Social Science, received third prize in the 2018 Outstanding Achievement in Philosophy and Social Science awards from Jiangsu Academy of Social Science.

9. **Prof. Simon CHAN** (*left*), Department of Chemistry and Division of Environment and Sustainability, received the 2018 Chemical Research in Toxicology Young Investigator Award.

FELLOWS & BOARD MEMBERSHIPS

10. **Prof. DAI Xi**, Department of Physics, was elected a Fellow of the American Physical Society.
11. **Prof. DU Shengwang**, Department of Physics, was elected a Fellow of the Optical Society.
12. **Prof. LING Shiqing**, Department of Mathematics, was elected a Fellow of the Institute of Mathematics Statistics.
13. **Prof. FAN Zhiyong**, Department of Electronic and Computer Engineering, was elected a Fellow of the Royal Society of Chemistry.
14. **Prof. Kei May LAU** (*right*), Fang Professor of Engineering, Department of Electronic and Computer Engineering, was elected a Fellow of the Optical Society.
15. **Prof. TANG Chi-Keung**, Department of Computer Science and Engineering, was elected a Fellow of the Institute of Electrical and Electronics Engineers.
16. **Prof. Ravindra GOONETILLEKE**, Division of Integrative Systems and Design and Department of Industrial Engineering and Decision Analytics, was elected a Fellow of the International Ergonomics Association.
17. **Prof. Fuguee TSUNG** (*left*), Department of Industrial Engineering and Decision Analytics, was elected a Fellow of the Chinese Institute of Industrial Engineers.
18. **Prof. Julian GROVES**, Division of Social Science, was elected President of the Hong Kong Sociological Association.
19. **Prof. Billy SO Kee-Long** (*left*) and **Prof. Carine YIU Yuk-Man** (*right*), Division of Humanities, were selected as Harvard-Yenching Institute Visiting Scholars for 2018-19.

(from left to right)



STUDENTS AND RESEARCHERS

The HKUST Robotics Team, comprising 83 students from different departments, received many accolades over the year.

Remotely Operated Vehicle (ROV) Team

20. All-Around Champion and Engineering Presentation Champion, MATE International ROV Competition 2019.
21. Champion, Explorer Class, 14th Hong Kong Regional of the MATE International ROV Competition.

Smart Car Teams

22. First Class Award (Quad-Wheel Photoelectric Category), Second Class Award, (Dual-Wheel Vertical Category), and two Third Class Awards (Dual-Car Crossover Category and Beacon Dueling Category), 13th NXP Cup Intelligent Car Racing Competition (South China Region).

Robocon Teams

23. Second Runner-up, Best Team Spirit Award and Best Artistic Design Award, Robocon 2019 Hong Kong Contest.

Others

24. Eighteen HKUST science/engineering/dual degree students won the Gold Medal at the iGEM 2018 Competition in Boston, US.
25. Physics undergraduate **WANG Tong** won the Paul & May Chu UG Research Award.
26. PhD student **HU Wei** (*second left*), Department of Mathematics, received an Excellence Award, "Analysis and Differential Equations" Group, in the 2018 Alibaba Global Mathematics Competition.
27. MSc Big Data Technology students **Rohini BANERJEE**, **Bikram Aditya GANGWAR**, **Terence LEUNG** and **Abhishek PARYANI** won the Championship at the PwC Data-lympics 2019. The team was also First runners-up at the Deloitte x HKUST Hackathon.
28. **CHAN Chun-Tat**, **LUI Kin-Leung** and **Chloe TANG**, PhD student **Helen KWOK Hoi-Ling**, all from the Department of Civil and Environmental Engineering, together with **Alison LI Tan-Yui**, MPhil student in Environmental Science, Policy and Management, won the Outstanding Students Award at the Autodesk Hong Kong BIM Awards 2018.
29. PhD students **CHE Yulin**, **SUN Shixuan** and **WANG Lipeng**, Department of Computer Science and Engineering, won the Championship in the first POLARDB Database Performance Challenge held by Alibaba Cloud Services.

AWARDS AND RECOGNITIONS

30. MBA students **Alexander IP**, **Changmin CHOI**, **Theodric WONG** and **Ruby HE** won the IESE Roland Berger International Case Competition in Spain.
31. A School of Business and Management undergraduate team comprising **Chase CHO**, **Desmond YIU**, **Stephanie CHOU** and **Stephanie CHAN**, won the Championship and Best Presenter Award at the USC Marshall International Case Competition in the US.
32. Environmental Management and Technology undergraduate team, comprising **Natalie CHEUNG**, **Kandice LI**, **Karry NGAI**, **Patrick YEUNG**, **Joyce YEUNG** and **Kingson HO**, won the second prize of the Climathon 2018.
33. Risk Management and Business Intelligence undergraduates **Enoch WONG** and **Flavia Jofani Susanto KWAN**, together with students from HKUST Business School, won the Championship at the Information System Case Competition 2018 in Jakarta.

HKUST MEDALS

34. Undergraduates **Amrutavarsh Sanganabasappa KINAGI** (*right*) and **Padmanabhan KRISHNAMURTHY** (*left*), from the Department of Computer Science and Engineering, won the HKUST President's Cup 2019.
35. **Prof. SONG Shenghui** (*right*), Department of Electronic and Computer Engineering, received the Michael G. Gale Medal for Distinguished Teaching.
36. **Chloe CHAN Ho-Sum** (*right*), Chemical and Biological Engineering and President of the Students' Union Provisional Executive Committee 2017-18 was awarded the Stephen Cheong Kam-chuen Medal for Distinguished Service to the Student Body.
37. **Prof. Thomas HU** (*middle*), Department of Civil and Environmental Engineering, received the HKUST Common Core Teaching Excellence Award 2018 for his course, "Civil Engineering and Modern Society".

HONORARY DOCTORATES

38. **Dr. the Hon Henry CHENG** (*right*) Chairman and Executive Director, New World Development Company Limited
39. **Prof. Carol S. DWECK** (*middle*) Lewis and Virginia Eaton Professor of Psychology, Stanford University
40. **Mr. Martin TANG Yue-Nien** (*left*) Former Vice-Chairman and Acting Chairman, University Council, HKUST

(from left to right)

20-22



23-25



26-28



29-31



32-34



35-37



38-40



EVENT HIGHLIGHTS 2018-2019



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2018

JUL

1. The School of Business and Management hosted the Kellogg-HKUST Executive MBA Program's 20th anniversary conference, with 300 business leaders, faculty, and alumni attending a special "Leadership in an Age of Disruption" forum.

AUG

2. The HKUST Summer Musical 2018, *Singin' in the Rain*, took place at Sai Wan Ho Civic Centre, featuring students, alumni, faculty, and staff.

SEPT

3. HKUST Jockey Club Institute for Advanced Study organized the 62nd ICFA Advanced Beam Dynamics Workshop over four days. The theme was "High Luminosity Circular e⁺e⁻ Colliders".
4. HKUST broke the Guinness World Record for the "most contributions to a handprint painting in one hour", collecting handprints from 1,661 participants and raising funds for a scholarship for students in need of financial aid.

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OCT

5. The Climate Adaptation and Resilience Hong Kong Conference brought together industry and business experts and stakeholders from across the globe to explore how to make cities and regions more climate resilient.
6. The 2018 International Human Epigenome Consortium Annual Meeting and Science Days gathered funding agencies and research teams from around the world to discuss trends and issues in epigenomics research.

NOV

7. The University's 26th Congregation conferred 2,345 bachelor's degrees, 2,454 master's degrees, and 273 doctoral degrees, bringing HKUST's alumni network to 72,300.

DEC

8. HKUST signed a tripartite agreement with the Guangzhou Municipal Government and Guangzhou University to establish Hong Kong University of Science and Technology (Guangzhou), also known as HKUST (GZ), marking an important milestone in the University's advancement.

2019

JAN

9. With sponsorship from the Croucher Foundation, HKUST hosted The Croucher Advanced Study Institute on the Global Water Security: Integrated Modeling and Adaptive Management meeting to update engineers and scientists from Hong Kong and the region on developments in integrative approaches to global water security.

FEB

10. The School of Business and Management launched its first Insurance Day, titled "The Myths and Realities of the Insurance Industry" and introducing students across all disciplines to the diverse career prospects in the insurance sector.

MAR

11. The Division of Public Policy organized the Asia-Pacific Public Policy Network 2019 International Conference on the theme of "Governance and Policy Innovation in an Era of Disruptive Technologies".
12. The Symposium on Risk Management and Business Intelligence 2019 gathered more than 280 students, academics, and industry leaders to exchange views on fintech.



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APR

13. The fifth Symposium on Skeletal Muscle Biology was held to foster communication and collaborations among research groups working on skeletal muscle stem cell, regeneration, and muscle diseases across Mainland China and Hong Kong.

MAY

14. HKUST Donor Appreciation Day brought together donors and HKUST Council Members, senior administrators, faculty, and students to share insights on the University's development and achievements.
15. The renowned Intimacy of Creativity annual series of open dialogues between composers and performers took place, leading to two public concerts featuring world premieres.

JUN

16. The 26th Information Processing in Medical Imaging International Conference was held at HKUST to discuss the latest developments in the acquisition, formation, analysis and display of medical images.
17. Gordon Research Conferences on Topological and Correlated Matter and Particle Physics were held at the HKUST Jockey Club Institute for Advanced Study.

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FACTS AND FIGURES

STUDENTS

STUDENT ENROLMENT (as of 30 Sep 2019)

School/Area	Undergraduate	Postgraduate			Total
		MPhil	PhD	Taught	
Science	2,226	110	550	446	3,332
Engineering	3,362	303	1,046	918	5,629
Business and Management	3,442	40	68	1,600	5,150
Humanities and Social Science	232	32	37	242	543
Interdisciplinary Programs	271	38	57	221	587
Joint School	615	0	0	198	813
Total	10,148	523	1,758	3,625	16,054

NON-LOCAL STUDENT ENROLMENT (2018-19)

Home Country	Undergraduate	Postgraduate		Total
		Research	Taught	
Mainland China	746	1,404	2,062	4,212
Other Places in Asia	887	241	222	1,350
Rest of the World	183	111	134	428
Total	1,816	1,756	2,418	5,990

UNDERGRADUATE EXCHANGES (2018-19)

Host/Destination Region	Exchange-in	%	Exchange-out	%
Mainland China	31	2.8	23	2.4
Asia	150	13.7	174	18.3
North America	432	39.5	264	27.8
Central and South America	3	0.3	0	0
Europe	462	42.2	461	48.5
Australia and New Zealand	16	1.5	29	3
Africa	0	0	0	0
Total	1,094	100	951	100

GRADUATE NUMBERS (2019)

School/Area	Undergraduate	Postgraduate		Total
		Research	Taught	
Science	488	148	281	917
Engineering	873	301	864	2,038
Business and Management	822	33	983	1,838
Humanities and Social Science	54	18	198	270
Interdisciplinary Programs	64	16	51	131
Joint School	68	0	107	175
Total	2,369	516	2,484	5,369

EMPLOYMENT (2018)

	Undergraduate	Postgraduate			
		PhD	MPhil	Taught Master (Except MBA)	MBA
Employment Situation	%	%	%	%	%
Employed	83	66.8	38.7	31.5	98.9
Further Studies	12.6	2.3	40.1	5.6	0
Returned to Home Country or Emigrated	2.2	29.4	19.3	62.1	0
Others	2.2	1.6	1.9	0.9	1.1
Employment Situation by Industry	%	%	%	%	%
Commerce and Business	61.2	5.1	26.8	56.3	87.8
Engineering and Industry	27	17.9	41.8	26.5	12.2
Education	6.3	76.3	29.9	16.1	0
Government and Related Organizations	3.5	0	1.5	0.8	0
Community and Social Services	2	0.7	0	0.3	0

Note: Percentages may not add up to 100%, as they are rounded to the nearest percent.

FACULTY

FACULTY MEMBERS (as of 30 Jun 2019) (Full-time Equivalent)[^]

School/Office	Regular	Visiting	Total
Science	156	21	177
Engineering	201	4	205
Business and Management	137	11	148
Humanities and Social Science	140	4	144
Interdisciplinary Programs	19	0	19
HKUST Jockey Club Institute for Advanced Study	2	1	3
Institute for Public Policy	1	0	1
Total	656	41	697

[^] The above faculty numbers are reported in Full-time Equivalent (FTE) basis to reflect faculty's service distribution to each school.

RESEARCH

NO. OF NEW RESEARCH PROJECTS AND FUNDING (2018-19)

	Number	Funding (in HK\$M)
UGC	422	190.8
RGC	227	169.3
Others	486	476.0
Total	1,132*	836.1**

* No. of projects does not add up due to projects with multiple sponsors.

** Includes R&D projects administrated by R and D Corporation and Mainland platforms.

NO. OF PATENTS (2018-19)

Filed	267
Granted	106

INTERNATIONAL RANKINGS

HKUST

No. 1 in the world

World's Top 350 Young Universities, Times Higher Education Young University Rankings 2019

No. 2 in the world

World's Top 150 Universities Under 50, QS Top 50 Under 50 2020

No. 3 in Asia

Asia's Top 400+ Universities, Times Higher Education Asia Universities Rankings 2019

No. 8 in Asia

Asia's Top 550 Universities, QS Asia University Rankings 2020

No. 32 in the world

World's Top 1000 Universities, QS World University Rankings 2020

No. 47 in the world

World's Top 1300+ Universities, Times Higher Education World University Rankings 2020

No. 10 in the world

Global University Employability Ranking 2019, Emerging

School of Science

No. 22 in the world, No. 3 in Greater China

World's Top 600 Universities in Chemistry, QS World University Rankings by Subject 2019

No. 23 in the world, No. 3 in Greater China

World's Top 400 Universities in Materials Sciences, QS World University Rankings by Subject 2019

No. 36 in the world

World's Top 400 Universities in Mathematics, QS World University Rankings by Subject 2019

No. 42 in the world

World's Top 500 Universities in Natural Sciences, QS World University Rankings by Subject 2019

No. 54 in the world, No. 1 in Hong Kong

World's Top 300 Universities in Environmental Science, QS World University Rankings by Subject 2019

No. 49 in the world

World's top 1,000+ Universities in Physical Sciences, Times Higher Education World University Rankings by Subject 2020

No. 91 in the world

World's top 800+ Universities in Life Sciences, Times Higher Education World University Rankings by Subject 2020

School of Engineering

No. 18 in the world, No. 2 in Greater China

World's Top 500 Universities in Engineering and Technology, QS World University Rankings by Subject 2019

No. 24 in the world, No. 3 in Greater China

World's Top 1,000+ Universities in Engineering and Technology, Times Higher Education World University Rankings by Subject 2020

No. 26 in the world, No. 3 in Greater China

World's Top 600 Universities in Computer Science and Information Systems, QS World University Rankings by Subject 2019

No. 22 in the world, No. 2 in Greater China

World's Top 500 Universities in Electrical and Electronic Engineering, QS World University Rankings by Subject 2019

No. 29 in the world, No. 1 in Hong Kong

World's Top 500 Universities in Mechanical, Aeronautical and Manufacturing Engineering, QS World University Rankings by Subject 2019

No. 17 in the world

World's Top 200 Universities in Civil and Structural Engineering, QS World University Rankings by Subject 2019

No. 17 in the world, No. 2 in Greater China

World's Top 750 Universities in Computer Science, Times Higher Education World University Rankings by Subject 2020

	<p>No. 34 in the world, No. 2 in Greater China World's Top 300 Universities in Chemical Engineering, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 18 in the world, No. 1 in Hong Kong World's Top 200 Universities in Transportation Science & Technology, Global Ranking of Academic Subjects, Academic Ranking of World Universities 2019</p> <hr/> <p>No. 18 in the world World's Top 300 Universities in Telecommunication Engineering, Global Ranking of Academic Subjects, Academic Ranking of World Universities 2019</p>
School of Business and Management	<p>No. 2 in the world Global EMBA Rankings – Kellogg-HKUST EMBA Program, Financial Times 2019</p> <hr/> <p>No. 1 in the world QS Global Joint EMBA Rankings – Kellogg-HKUST EMBA Program, QS Global Joint EMBA Rankings 2019</p> <hr/> <p>No. 18 in the world Global MBA Rankings – Full-Time MBA Program, Financial Times 2019</p> <hr/> <p>No. 16 in the world, No. 2 in Asia World's Top 500 Universities in Business and Management Studies, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 29 in the world, No. 2 in Greater China World's Top 200 Universities in Statistics and Operational Research, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 18 in the world, No. 2 in Asia World's Top 300 Universities in Accounting and Finance, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 26 in the world, No. 3 in Asia World's Top 500 Universities in Economics and Econometrics, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 27 in the world, No. 1 in Asia Top 100 Business School Research Rankings, University of Texas at Dallas (UTD) Top Business School Research Rankings 2014-2018</p> <hr/> <p>No. 23 in the world, No. 3 in Greater China World's Top 600+ Universities in Business & Economics, Times Higher Education World University Rankings by Subject 2020</p> <hr/> <p>No. 26 in the world, No. 3 in Greater China World's Top 500 Universities in Social Sciences and Management, QS World University Rankings 2019</p> <hr/> <p>No. 29 in the world World's Top 500 Universities in Management, Global Ranking of Academic Subjects, Academic Ranking of World Universities 2019</p> <hr/> <p>No. 33 in the world, No. 2 in Greater China World's Top 200 Universities in Finance, Global Ranking of Academic Subjects, Academic Ranking of World Universities 2019</p> <hr/> <p>No. 35 in the world, No. 1 in Asia World's Top 400 Universities in Business Administration, Global Ranking of Academic Subjects, Academic Ranking of World Universities 2019</p>
School of Humanities and Social Science	<p>No. 26 in the world, No. 3 in Greater China World's Top 500 Universities in Social Sciences and Management, QS World University Rankings by Subject 2019</p> <hr/> <p>No. 51 in the world World's Top 700+ Universities in Social Sciences, Times Higher Education World University Rankings by Subject 2020</p>

APPENDICES

APPENDIX I

COURT, COUNCIL AND SENATE AS OF 30 JUNE 2019

COURT MEMBERSHIP

	Dr. John C C CHAN GBS, JP Chairman & Honorary Chairman	Dr. the Hon Vincent H S LO GBM, GBS, JP Honorary Chairman
Ex-Officio Members	Mr. Andrew LIAO Cheung-Sing GBS, JP Chairman of the Council Mr. Patrick YEUNG Kai-Cheung Treasurer of the University Prof. Lionel M NI Provost Mr. Dicky YUEN President of the Alumni Association	Prof. John CHAI Yat-Chiu JP Vice-Chairman of the Council Prof. Wei SHYY President of the University (Vacant) President of the Students' Union Ms. Grace LING Chairman of the Staff Association
Honorary Members	The Hon Sir David AKERS-JONES GBM, JP Dr. Charles S C CHAN BBS, JP Dr. the Hon Robin Y H CHAN GBM, GBS, JP The Hon Ronnie C CHAN GBM Dr. Thomas T T CHEN Dr. Christopher CHENG GBS, OBE, JP Dr. the Hon Henry CHENG GBM, GBS Dr. CHENG Hon-Kwan GBS, OBE, JP Mr. Paul M F CHENG JP Mr. Linus W L CHEUNG JP Dr. Raymond K F CH'IENT GBS, JP Dr. Alice CHIU BBS, JP Dr. Paul M Y CHOW GBS, JP Prof. Stephen CHOW GBS, JP Dr. Kenneth H FANG GBS, JP Mr. Tim FRESHWATER Dr. William K FUNG SBS, JP Dr. Aron H HARILELA JP Mr. John B HARRISON The Hon HU Fa-Kuang GBM, GBS, CBE, JP Dr. Herman S M HU SBS, JP	Mr. Lester G HUANG SBS, JP Dr. Simon S O IP GBS, JP Prof. Roger KING Dr. LAU Wah-Sum GBS, JP Dr. the Hon Charles Y K LEE GBM, GBS, JP Dr. the Hon LEE Shau-Kee GBM Dr. the Hon Andrew K N LI GBM Ms. Kai-Yin LO SBS Mr. Winston Yau-Lai LO SBS Dr. the Hon LUI Che-Woo GBM, GBS, MBE, JP Mr. Tim LUI Tim-Leung SBS, JP Dr. Michael H H MAK SBS, JP Dr. Anthony NEOH SC, JP Mr. David Teng PONG Mr. SIN Chung-Kai SBS, JP Mr. Kenneth TING Woo-Shou SBS, JP Mrs. Christine WONG SBS Dr. Lawrence T WONG Dr. Wilfred Y W WONG GBS, JP Ms. Marjorie YANG GBS, JP Dr. Larry C K YUNG
Appointed Members	Mr. Bernard AUYANG Dr. Anissa CHAN BBS, MH, JP Dr. Ian CHAN Yau-Nam SBS, MH Dr. Ian C W FOK SBS, JP Ms. Anita FUNG Yuen-Mei BBS, JP Mrs. Yvette Yeh FUNG Dr. Hans Michael JEBSEN BBS Ms. Catherine KWAI Yuk-Nin Mr. Quinn Y K LAW SBS, JP Mr. David W H LEE Mr. Marcus C W LEE Ms. Margaret LEE Pui-Man Mr. Michael LEE Tze-Hau JP The Hon Starry LEE Wai-King SBS, JP	Ms. Catherine K C LEUNG Mr. Sing-Cheong LIU JP Mr. Raymond C LO Mr. Francis LUI Yiu-Tung Mr. Maximilian Yung-Kit MA Mr. Daryl NG Win-Kong JP The Hon Abraham SHEK Lai-Him GBS, JP Mr. Benedict SIN Nga-Yan Mr. Kyran SZE MH Dr. James E THOMPSON GBS Mr. Samuel Tat-Sum WONG Ms. Jennifer WOO Chun-En Mr. Michael WU Wei-Kuo Mr. Patrick YEUNG Wai-Tim
Appointed Senate Representatives	Prof. David K BANFIELD Prof. I-Ming HSING	Prof. Charles W W NG Prof. Min YAN

COUNCIL MEMBERSHIP

	Mr. Andrew LIAO Cheung-Sing GBS, JP Chairman	Prof. John CHAI Yat-Chiu JP Vice-Chairman
	Mr. Patrick YEUNG Kai-Cheung Treasurer of the University	Prof. Wei SHYY President of the University
	Prof. Lionel M NI Provost	Mr. Mark HODGSON , <i>Administration and Business</i> Vice-President
	Prof. Yang WANG Dean of Science	Prof. Enboa WU Dean of Fok Ying Tung Graduate School
Academic Members of the Senate	Prof. I-Ming HSING	Prof. Min YAN
Chairman of Convocation	Mr. Stanley CHOI Tak-Shing	
Elected Staff Member	Ms. Grace LING	
Elected Student Member	Mr. Timothy POON Chun-Wing	
Members Not Being Employees or Students of the University	Mr. Johnson CHA Mou-Daid The Hon Ben CHAN Han-Pan BBS, JP Ms. Cally CHAN Shan-Shan Mr. Nicholas CHAN Hiu-Fung MH Mr. Peter CHEUNG Kam-Fai SBS Mr. David FONG Man-Hung BBS, JP Mr. Wilson FUNG Ying-Wai	Prof. Albert Yuk Keung IP Mrs. Helen KAN Mr. Rembert LAI Siu-Kin Prof. Jack LAU Ms. Edith SHIH Mr. Stephen YIU Kin-Wah Dr. Samuel W K YUNG SBS, MH, JP

MEMBERSHIP OF STANDING COMMITTEE

Chairman	Mr. Andrew LIAO Cheung-Sing GBS, JP	
Vice-Chairman	Prof. John CHAI Yat-Chiu JP	
Members	Mr. Nicholas CHAN Hiu-Fung MH Mr. David FONG Man-Hung BBS, JP Mr. Wilson FUNG Ying-Wai Mr. Mark HODGSON Prof. Albert Yuk Keung IP Prof. Nancy Y IP BBS, MH, JP	Prof. Jack LAU Dr. Sabrina M Y LIN Prof. Lionel M NI Prof. Wei SHYY Mr. Patrick YEUNG Kai-Cheung Mr. Stephen YIU Kin-Wah

MEMBERSHIP OF AUDIT COMMITTEE

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Vice-Chairman	(Vacant)	
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Ex-officio	Mr. Mark HODGSON	

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Vice-Chairman	Mr. Stephen YIU Kin-Wah	
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Ex-officio	Dr. Sabrina M Y LIN Prof. Kar-Yan TAM	Prof. Kellee S TSAI

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Vice-Chairman	Mr. Nicholas CHAN Hiu-Fung MH	
Members	Mr. Johnson CHA Mou-Daid Ms. Cally CHAN Shan-Shan Mr. Peter CHEUNG Kam-Fai SBS Prof. Jack LAU	Ms. Catherine K C LEUNG Prof. Ping SHENG Prof. Chi-Ying TSUI
Ex-officio	Prof. Lionel M NI Prof. Nancy Y IP BBS, MH, JP	Prof. Enboa WU

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Members	Prof. John CHAI Yat-Chiu JP	Mr. Patrick YEUNG Kai-Cheung

For the attendance and biographies of Council Members, please visit: <https://ccss.ust.hk/council/about-the-council>

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Provost	Prof. Lionel NI	
Vice-Presidents	Mr. Mark HODGSON, <i>Administration and Business</i> Dr. Sabrina M Y LIN, <i>Institutional Advancement</i> Prof. Nancy Y IP, <i>Research and Development</i>	
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School of Engineering	Prof. Tim Kwang-Ting CHENG, <i>Dean</i> Prof. Man-Sun CHAN Prof. Guanghao CHEN Prof. Guillermo GALLEGO Prof. Ping GAO Prof. I-Ming HSING	Prof. Hong-Kam LO Prof. Huihe QIU Prof. Bertram SHI Prof. Chi-Ying TSUI Prof. Shuhuai YAO Prof. Dit-Yan YEUNG
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School of Humanities and Social Science	Prof. Kellee TSAI, <i>Dean</i> Prof. Siu-Woo CHEUNG	Prof. Christian DANIELS Prof. Wenfang TANG
HKUST Fok Ying Tung Graduate School	Prof. Enboa WU, <i>Dean</i>	
Dean of Students	Prof. King-Lau CHOW, <i>Acting</i>	
Interdisciplinary Programs Office	Prof. King-Lau CHOW, <i>Director</i> Prof. Jimmy FUNG	Prof. Xun WU
Elected Members of the Academic Staff	Prof. Utpal BHATTACHARYA Prof. Lancelot F JAMES	Prof. Jianwei SUN
Co-opted Members of the Academic Staff	Prof. Khaled BEN LETAIEF Prof. Che-Ting CHAN Prof. Roger Shu-Kwan CHENG Prof. Andrew COHEN Prof. Bradley A FOREMAN Prof. Andrew HORNER	Prof. Guochen JIA Prof. Emily NASON Prof. Charles W W NG Prof. Karl W K TSIM Prof. Yung-Hou WONG
Directors	Mr. James PRINCE, <i>Academic Registrar</i>	Ms. Diana L H CHAN, <i>Library</i>
Student Representatives	(Vacant), <i>President of Students' Union</i> Mr. Garrett Ting-Kwong CHUNG, <i>Undergraduate Representative</i> Mr. Aaron Yetao LYU, <i>Postgraduate Representative</i>	

APPENDIX II

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Yale University, USA

Prof. Roberto KOLTER

Professor Emeritus of Microbiology,
Department of Microbiology, Harvard
Medical School, USA

Prof. Jean-Marie LEHN

Director of the Supramolecular Chemistry
Laboratory, Institut de Science et
d'Ingénierie Supramoléculaires (ISIS),
Université de Strasbourg, France

Prof. Patrick LEE

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Massachusetts Institute of
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Robert Grimmett Professor of
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Mathematics, Stanford University,
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Prof. Randy SCHEKMAN

Howard Hughes Investigator and
Professor of Cell and Developmental
Biology, Department of Molecular
and Cell Biology, University of
California, Berkeley, USA

Prof. WANG Xiaodong

Director and Investigator, National
Institute of Biological Sciences, Beijing,
PR China

Prof. YANG Weitao

Philip Handler Professor of Chemistry,
Department of Chemistry, Duke
University, USA

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Professor of Neuroscience, The
Solomon H. Snyder Department of
Neuroscience, Johns Hopkins
University, School of Medicine, USA

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and of Electrical Engineering
Harvard University
USA

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Engineering
Michigan State University
USA

Prof. Kincho LAW

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Environmental Engineering
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Group
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Past President
The Hong Kong Institution of Engineers

Ir. Prof. Daniel M. C. CHENG

Managing Director, Dunwell Group
Chairman, Federation of Hong Kong
Industries

Mr. Oscar CHOW

Non-Executive Director
Chevalier Group

Mr. Alfred S CHUANG

Chairman & Founder, Magnet Systems
Former Chairman & CEO, BEA Systems

Prof. Albert IP Yuk-Keung

Independent Non-executive Director
New World Development Company
Limited

Dr. LEE Kaifu

Chairman & Chief Executive Officer
Sinovation Ventures

Ir. Dr. LO Wai-Kwok

Member of Legislative Council
(Engineering Functional
Constituency) of the Hong Kong
Special Administrative Region

Mr. Victor NG

Managing Director
Microm Tech Limited

Mr. Paul POON

Vice Chancellor – CLP Power
Academy
CLP Power Hong Kong Limited

Dr. Frank TONG Fuk-Kay

Global Head of Innovation and
Strategic Investment
The Hongkong and Shanghai Banking
Corporation Limited (HSBC)

Dr. Ben WANG

Chief Technology Officer
Cainiao

Dr. ZHANG Hongjiang

Former Chief Executive Officer
Kingsoft and Kingsoft Cloud

Dr. ZHANG Xinguo

Executive Vice President and CIO
Aviation Industry Corporation of
China (AVIC)

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Dr. Hans Michael JEBSEN BBS
Chairman
Jebsen Group

Members

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Chairman and Chief Executive Officer
Asia Capital Management Limited and
China Advisors Limited

Mr. Adriel CHAN Wenbwo
Executive Director
Hang Lung Properties Limited

Dato' Seri CHEAH Cheng Hye
Co-Chairman and Co-Chief
Investment Officer
Value Partners Group Ltd

Mr. Philip CHEN GBS, JP
Adviser to Chairman and
Non-Executive Director
Hang Lung Properties

Mr. Eric FOK Kai Shan
Vice President
Fok Ying Tung Group

Dr. William FUNG Kwok Lun
SBS, OBE, JP
Group Chairman
Li & Fung Ltd

Ms. Wendy GAN
Senior Advisor
Pacific Century Premium
Developments Limited

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Greater China & North Asia
Chief Executive Officer, Retail Banking
& Wealth Management
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Dr. Jack LAU
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Independent Non-Executive Director
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Director
Jardine Matheson Holdings Ltd

Mr. Wai Kwong SECK
Chief Executive Officer
Eastspring Investments

Mrs. Kathryn SHIH
Former President Asia Pacific and
Member of Group Executive Board
UBS AG

Mr. Sukanto TANOTO
Chairman
RGE Pte Ltd

Dr. James E. THOMPSON GBS
Chairman
Crown Worldwide Holdings Ltd

Mr. Andy TUNG
Co-Chief Executive Officer
Orient Overseas Container Line Ltd

Mr. Douglas WOO Chun Kuen
Chairman and Managing Director
Wheelock and Company Ltd

Mr. Thomas Jefferson WU JP
Deputy Chief Executive Officer
(Hotel Operations)
Hopewell Holdings Ltd

Mr. Arthur YUEN Kwok Hang JP
Deputy Chief Executive
Hong Kong Monetary Authority

Mrs. Betty YUEN SO Siu Mai
Vice Chairman
CLP Power Hong Kong Ltd

HKUST Accounting Advisory Board Members (in Alphabetical order)**Ms. Ivy CHEUNG (Chair)**

Partner, Head of Audit
KPMG China

Mr. Roy LEUNG

Partner
KPMG China

Ms. Cindy NGAN

Partner
PwC Hong Kong

Mr. Dickman CHIU

Financial Controller
BitMEX

Mr. Andrew LEUNG

Chief Financial Officer
Hang Seng Bank Limited

Mr. Fergus WONG

Director, National Tax Policy
PwC Hong Kong

Ms. Cindy CHOW

Executive Director
Alibaba Entrepreneurs Fund

Mr. Eugene LIU

Managing Partner
RSM Hong Kong

Mr. Gary WONG

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Ernst & Young

Ms. Karen HO

Chief Financial Officer
WeLab Holdings

Ms. Gloria LUK

Partner, Advisory
Deloitte China

Mr. Thomas WONG

Founding Partner
CW CPA

Ms. Jane HUI

Partner, Tax Services
Ernst & Young

Mr. MA Chan-Chi

Senior Consultant
China Construction Bank (Asia)
Corporation Limited

Ms. Shirley WOO

Partner, Audit & Assurance
Deloitte China

Mr. Horace LEE

Director & Group Financial Controller
Wheelock Group

Mr. Hong NG

Director of Assurance and Head of
Operations & Finance
BDO

SCHOOL OF HUMANITIES AND SOCIAL SCIENCE ADVISORY COMMITTEE**Professor Timothy BROOK**

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The University of British Columbia

Professor Helen SIU

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Institute for the Humanities and
Social Sciences
The University of Hong Kong
Professor of Anthropology
Yale University

Professor ZHOU Xueguang

Kwoh Ting Li Professor in Economic
Development
Professor of Sociology
Senior Fellow, Freeman Spogli Institute
for International Studies
Stanford University

INTERDISCIPLINARY PROGRAMS OFFICE ADVISORY BOARD**Prof. Roger R. STOUGH**

University Professor
Schar School of Policy and Government
George Mason University, USA (Chair)

Prof. Donald R. BLAKE

Professor of Chemistry
Professor of Earth System Science
School of Physical Sciences, University
of California, Irvine, USA
(Also Chair of the Advisory Board of
the HKUST Division of Environment)
(Member)

Prof. Gad ALLON

Jeffrey A. Keswin Professor and
Professor of Operations,
Information and Decisions
Director of the Jerome Fisher Program
in Management & Technology Program
The Wharton School, University of
Pennsylvania, USA (Member)

Prof. Steven KOU

Professor of Mathematics
Director of Risk Management Institute
National University of Singapore
Singapore (Member)

APPENDIX III

SENIOR FACULTY APPOINTMENTS & PROFESSOR EMERITUS

SENIOR FACULTY APPOINTMENTS

Prof. Donald LOW

Director of Leadership and Public
Policy Executive Education Program

Dr. MAK Ho-Yi

Director of Biosciences Central
Research Facility

Prof. QI Ye

Director of HKUST Institute for
Public Policy

Prof. QIU Huihe

Head of Department of Mechanical
and Aerospace Engineering

Prof. TANG Wenfang

Head of Division of Social Science

Prof. Penger TONG

Head of Department of Physics

Prof. TSUI Chi-Ying

Head of Division of Integrative Systems
and Design

Prof. Ian WILLIAMS

Head of Department of Chemistry

Prof. YEUNG Dit-Yan

Head of Department of Computer
Science and Engineering

Prof. ZHANG Chu

Head of Department of Finance

PROFESSOR EMERITUS

The following faculty members were granted the title of Professor Emeritus upon their retirement or departure from the University service:

Prof. Tony F. CHAN

Department of Mathematics and
Department of Computer Science and
Engineering

Prof. LEA Chin-Tau

Department of Electronic and
Computer Engineering

Prof. KWOK Hoi-Sing

Department of Electronic and
Computer Engineering

Prof. KUANG Jun-Shang

Department of Civil and Environmental
Engineering

Prof. Billy SO Kee-Long

Division of Humanities

Prof. Alvin SO Yiu-Cheong

Division of Social Science

Prof. TAM Wing-Yim

Department of Physics

Prof. WU Jingshen

Department of Mechanical and
Aerospace Engineering

Prof. David Stephen ZWEIG

Division of Social Science

APPENDIX IV

FINANCE

OVERVIEW

The financial year 2018/19 recorded a surplus of \$343 million (\$568 million for 2017/18). The lower surplus for 2018/19 reflected a lower interest and investment return against a fairly volatile investment environment, as partly compensated by increased contribution from Self-Financing Continuing Professional Education Programs ("CPEP") and auxiliary services and other income.

CONSOLIDATED INCOME AND EXPENDITURE

The consolidated income increased by \$71 million to \$5,132 million in 2018/19 (\$5,061 million in 2017/18), contributed by a growth in auxiliary services and other income for \$33 million, additional University Grants Committee ("UGC") supplementary grants for General Pay Adjustment ("GPA") on salaries and an increase in tuition fee income, against a reduction in interest and investment income of \$206 million compared to the previous year.

The consolidated expenditure increased by \$295 million to \$4,791 million (\$4,496 million in 2017/18) which was mainly attributable to higher salary costs arising from GPA, general increases in teaching and research activities, and growth in student expenses on studentship.

SEGMENT RESULTS

Commentary on the operating segments, analysed by UGC-Funded Activities and non-UGC Funded Activities, is as follows:

UGC-Funded Activities

UGC-Funded Activities showed a deficit of \$26 million (surplus of \$76 million for 2017/18). The 2018/19 deficit was affected by lower investment income and increase in operating expenses. As at 30 June 2019, the University had UGC reserves of \$2,591 million (\$2,617 million in 2017/18).

*Non-UGC Funded Activities***Self-Financing Continuing Professional Education Programs, Research and Other Activities**

Self-financing CPEP activities contributed a surplus of \$287 million (\$171 million for 2017/18), mainly driven by higher student enrollment and higher tuition fees. Non-UGC funded research activities contributed a surplus of \$16 million (\$12 million for 2017/18), mainly arising from completed commercial research projects and government subsidies. Other activities achieved a surplus of \$45 million (\$193 million for 2017/18). In aggregate, the overall surplus of these operating segments amounted to \$348 million (\$376 million for 2017/18).

Donations Activities

Donations totalling \$62 million were recorded as income for 2018/19 (\$60 million for 2017/18). Overall the segment showed a surplus of \$21 million (\$116 million for 2017/18). The University has successfully secured \$1,055 million new pledges in 2018/19 (\$275 million in 2017/18). After the year end, the University received donations of \$1,147 million and \$600 million from the Government's Eighth Matching Grant Scheme which will be recorded in 2019/20. In addition, the University received over \$500 million of new pledges subsequent to the year end.

Non-UGC Reserves

Non-UGC reserve balances stood at \$6,150 million at the end of 2018/19 (\$5,733 million for 2017/18). The growth in the reserve balance was mainly contributed by the aforesaid interest and investment income, self-financing activities and donations.

CAPITAL EXPENDITURE

A number of construction projects are underway to enhance the University's facilities and infrastructure to cater for accommodation and amenity needs of students, as well as for academic and research activities. They include a multi-purpose auditorium, new student residences, indoor sports centre, waterfront facilities, animal care facility and the renovation of catering outlets and refurbishment of staff quarters.

As at 30 June 2019, total commitments for approved construction projects and other capital items amounted to \$4,621 million: \$3,045 million of which will come from existing University's Funds, \$75 million by approved but yet to be received UGC grants, \$438 million by pledged donations, and \$1,063 million will be funded by deferred income on hand.

OUTLOOK

Whilst the economic, social and political environments are presenting great challenges to the University, its stakeholders and Hong Kong as a whole, with the rapid development of the Greater Bay Area ("GBA"), where the University is positioning itself as a pioneer by establishing a strong foothold in Guangzhou, there are more and more opportunities for funding support as well as collaboration with industries and governments, in particular in innovation and technology areas. These collaborations provide the University with an innovation platform to promote knowledge transfer under the GBA Development Framework.

The University entered into agreements on 21 December 2018 with the Guangzhou Municipal Government and Guangzhou University to jointly establish Hong Kong University of Science and Technology (Guangzhou) ("HKUST (GZ)"), marking an important milestone in the University's development and advancement. Under the agreements, construction cost of the campus and daily operating expenses will be funded by Guangzhou Municipal Government. HKUST (GZ) will help steer frontier development of HKUST in education, science and technology, business and management as well as knowledge transfer, adding strength and impetus to Hong Kong and the GBA which are gaining traction in innovation with science and technology. Ground breaking ceremony has been held on 26 September 2019.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

FOR THE YEAR ENDED 30 JUNE 2019

	2019 \$million	2018 \$million
Income		
Government Subventions and Grants	2,632	2,550
Tuition, Programs and Other Fees	1,384	1,246
Interest and Investment Income	348	554
Donations and Benefactions	62	60
Auxiliary Services and Other Income	449	416
Transfers from Deferred Capital Funds	257	235
	5,132	5,061
Expenditure		
<i>Teaching, Learning and Research</i>		
Teaching and Research	2,994	2,836
Library	124	113
Central Computing Facilities	140	126
Other Academic Services	104	98
	3,362	3,173
<i>Institutional Support</i>		
Management and General	386	333
Premises and Related Expenses	706	663
Student and General Education Services	300	293
Other Activities	37	34
	1,429	1,323
	4,791	4,496
Surplus from operation for the year	341	565
Share of Result of an Associate	4	5
Surplus for the year before taxation	345	570
Taxation	(2)	(2)
Surplus for the year after taxation	343	568
Other comprehensive income for the year		
Items that may be reclassified subsequently to income and expenditure:		
Unrealised gain on Available-for-Sale Financial Assets	0	2
Gain previously in Other Funds released on sale of Available-for-Sale Financial Assets	0	(2)
Exchange differences arising from translation	(8)	5
	(8)	5
Items that will not be reclassified to income and expenditure:		
Unrealised loss on equity securities at Fair Value through other Comprehensive income	(1)	0
	(9)	5
Total comprehensive income for the year	334	573
Transfers to:		
UGC Funds	(26)	76
Restricted Funds	(6)	55
Other Funds	366	442
	334	573

CONSOLIDATED BALANCE SHEET

AS AT 30 JUNE 2019

	2019 \$million	2018 \$million
Non-Current Assets		
Property, Plant and Equipment	5,338	5,157
Intangible Assets	13	11
Held-to-Maturity Financial Assets	0	65
Financial Assets at Amortised cost	105	0
Available-for-Sale Financial Assets	0	421
Financial Assets at Fair Value through Other Comprehensive Income	477	0
Financial Assets at Fair Value through Income and Expenditure	6,593	6,354
Interest in an Associate	83	83
Bank Deposits with Original Maturity over One Year	385	0
	12,994	12,091
Current Assets		
Held-to-Maturity Financial Assets	0	4
Financial Assets at Amortised cost	1	0
Inventories	1	1
Accounts Receivable and Prepayments	411	255
Bank Deposits with Original Maturity over Three Months	1,776	1,412
Cash and Cash Equivalents	656	257
	2,845	1,929
Current Liabilities		
Accounts Payable and Accruals	1,153	793
Provision for Staff Benefits	185	180
Deferred Income	868	719
Tax Payable	2	1
	2,208	1,693
Net Current Assets	637	236
Total Assets Less Current Liabilities	13,631	12,327
Non-Current Liabilities		
Provision for Staff Benefits	36	27
Deferred Income	768	0
Deferred Capital Funds	4,086	3,950
	4,890	3,977
NET ASSETS	8,741	8,350
UGC Funds	2,591	2,617
Restricted Funds	1,248	1,253
Other Funds	4,902	4,480
TOTAL FUNDS	8,741	8,350

Approved by the Council on 17 October 2019

APPENDIX V

INTERNAL CONTROL AND RISK MANAGEMENT

SUMMARY OF INTERNAL CONTROL AND MEASURES

The University has developed a system of internal control based on a framework issued by the Committee of Sponsoring Organizations of Treadway Commission (COSO). The five components of COSO Framework, namely Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring, are adopted by the University in ensuring the effectiveness of University governance.

In order to provide assurance about the effectiveness of internal controls to the Council and Senior Management of the University, the following arrangements are in place:

- (a) Whistleblowing Policy is in place and operating to provide a safe and protective means by which staff, students and other stakeholders of the University are enabled to raise concerns with the appropriate University authorities against any malpractice within the University.
- (b) The Internal Audit team is responsible to prepare the annual risk-based audit plans and perform independent reviews to assess adequacy of the design and operating effectiveness of the control as well as providing recommendations to streamline processes for efficiency increase.
- (c) In addition to the statutory annual audit of the University's financial statements, the external auditors also carry out an independent assurance engagement on the University's compliance with the guidelines, terms and conditions imposed by the Government's University Grants Committee.
- (d) The Audit Committee (The AC) of the University approves the annual audit plan, supervises the scope of work performed by the internal audit team, reviews the internal audit reports or concerns on internal controls raised by the internal and/or external auditors. Furthermore, the Audit Committee has an oversight role on the appointment and performance of both internal and external audit team to ensure independence of the reporting line for the auditors and objectivity of the work performed by the auditors.

Risk Management

The University's risk management process ("The Process") is implemented in accordance with the Strategic Risk Management Policy. The Process complies with the recommendation on management of major institutional risks included in the Newby Report on Governance in UGC-funded Higher Education Institutions in Hong Kong, published on 30 March 2016.

The report on risk assessment and supporting risk registers were presented to the Council for approval in October 2019. The following is a summary of the risk assessment results extracted from the report.

Overall Conclusion

The University faces a number of strategic risks that are classified under reputational, operational and financial risks. In general, there are appropriate mitigation actions to mitigate the identified risks. The University also has reliable sources of assurance that the mitigation is effective.

Furthermore, management is well aware of the societal issues faced by the general public in Hong Kong, including the University. Management reaffirms the University's core values of inclusiveness, diversity and respect in mitigating the external risks arising from the societal issues. The University values and respects the differences of individuals, whether in terms of race, gender, cultural backgrounds, religion, personal interests and in other dimensions, and strives to embrace these diverse forces to foster an inclusive and caring environment. Management continues to emphasize that it is essential that all parties, public or private, adopt an open and approachable attitude in listening to one another by means of direct conversation. The University is trying its utmost to provide a safe environment for teaching and learning with an expression of sharing, dialogue and intellectual stimulation within our campus setting. Management also stands ready to provide support to all members, especially those who are new to the University family.

The University also recognizes that new strategic risks may emerge at any time. Going forward, management with the support of the Internal Audit Office will continue to monitor and review the risk registers to identify and assess existing and emerging risks that could lead to serious consequences. The Internal Audit Office will also help to follow up on the completion status of risk mitigating activities at least annually.

Reputational Risk

In line with the University's global vision to be a world-class international university at the cutting edge in all targeted fields of pursuit, there is a robust governance framework to govern the academic, research and administrative related processes. The framework is essential to ensure full compliance with government regulations and upholds the standards expected of a publicly funded institution. The University undergoes periodic exercises such as Research Assessment Exercise (RAE) and Quality Assurance Council (QAC) audits to ascertain and uphold the standards of academic and research excellence.

Financial Risks

As a public university, key funding for administrative services, campus development, academic and research related activities is mainly provided by the government. Apart from public funding, there are also non-government funding sources from the self-financed academic programs, donations and investment in the financial markets to support the University's development and activities. In light of the societal issues in Hong Kong, the University is expected to face substantial challenges in managing the budget for the coming year. There will be significant pressures on the income generated from operating activities due to uncertainties of student enrolment and other factors. At the same time, higher expenditures will be incurred for enhanced campus security. For non-government funding sources such as donations, the University may also need to come up with a contingency plan of depending more on investment returns to finance operational needs. A team of professional external advisors and investment managers is engaged to assist in the investment portfolio management. Risks arising from investment in the financial markets are mitigated by a diversified investment strategy with acceptable risk and return objectives approved by Council. Information on financial risks and relevant mitigating plan is published in the University's financial statements.

Operational Risks

The University aims to develop an exemplar of best-in-class standards, practices, and operations, as an agile and effective organization. To achieve the objective, the University strives to provide an inspirational and sustainable campus to work, study and live in. Management has planned risk mitigating activities for the development and renewal of campus facilities, IT system network, safety and sustainability of University environment. There are also continuous efforts to attract and retain best administrative talents as well as streamline administrative processes to develop best-in-class practices. The University has also implemented measures to tighten campus safety and security, such as campus access controls, Graduated Security Response Plan and others.

The societal issues have impacted the recruitment of faculty members and students, especially those from overseas. Management exerts efforts in attracting and retaining faculty members through various supporting measures. By recruiting high caliber academic leaders in applied research, achievement of the University's strategic objective in becoming a power for innovation and entrepreneurship could be accelerated. Management upholds and promotes the University's core values of inclusiveness, diversity and respect to provide assurance to prospective and existing students that the campus is a safe environment for teaching and learning for sharing, dialogues, and intellectual stimulation.



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