



The Chinese University
of Hong Kong

Faculty of Engineering
2021-22

the Future
of Engineering

CUHK

Founded in 1963, The Chinese University of Hong Kong (CUHK) is a leading comprehensive research university committed to research and education excellence with a global reputation. Located in the heart of Asia, CUHK has a vision and a mission to combine tradition with modernity, and to bring together China and the West. Under the University's unique collegial system, the programmes and activities offered by its nine colleges complement the formal curricula by delivering whole-person education and pastoral care. The University has eight faculties: Arts, Business Administration, Education, Engineering, Law, Medicine, Science, and Social Science. Together with the Graduate School, the University offers over 300 undergraduate and postgraduate programmes. All faculties are actively

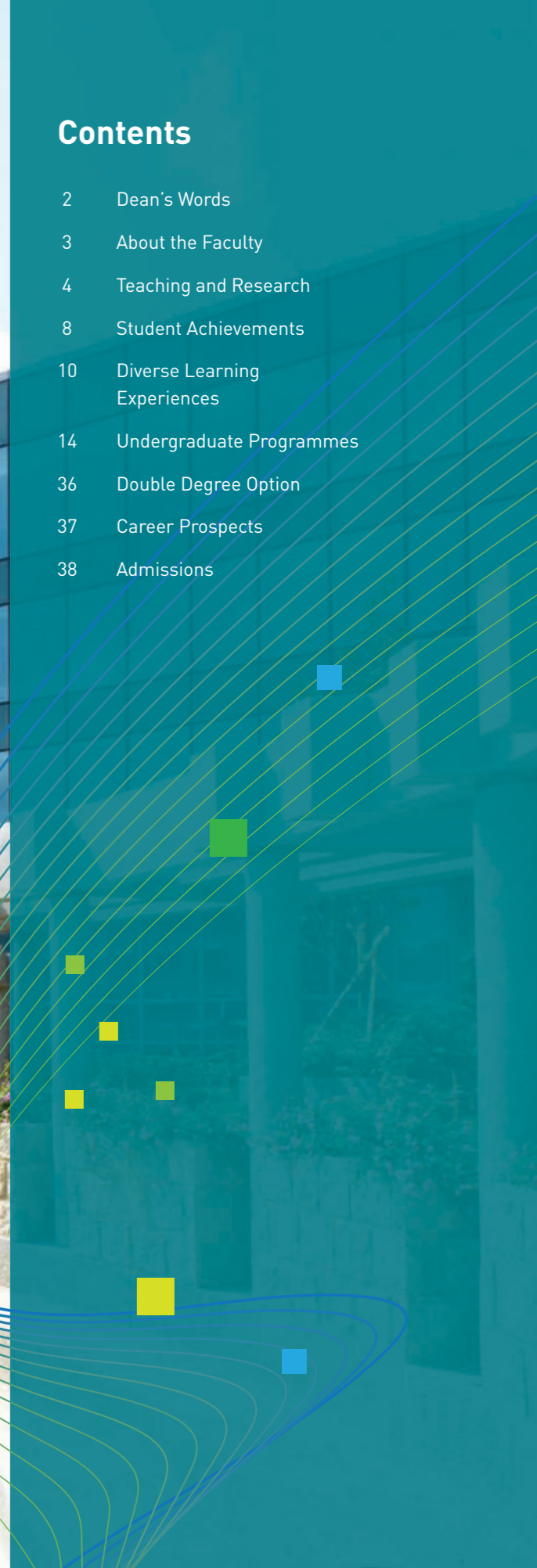
engaged in research in a wide range of disciplines, with an array of research institutes and research centres specialising in interdisciplinary research of the highest quality.

CUHK is recognised as the most innovative university in Hong Kong and 22nd in the Asia-Pacific by Reuters' Asia Pacific's Most Innovative Universities. The list identifies and ranks educational institutions which are doing the most to advance science, invent new technologies, and power new markets and industries. The rankings are determined by the innovative

capacity and achievement of the universities. The University houses a number of research institutes and organisations dedicated to the advancement of sustainable development, including Institute of Environment, Energy and Sustainability, the Institute of Future Cities, and the Jockey Club Museum of Climate Change.

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Dean's Words

Engineering: Shaping the future, Creating endless possibilities

Founded in 1991 by our former Vice-Chancellor Late Prof. Charles Kao, also known as the "Father of Fiber Optics" and Nobel Laureate in Physics, the Faculty of Engineering comprises world leading experts who are at the forefront of their disciplines and commit to teaching and research excellence.

The Faculty provides innovative education to our engineering students. Currently with more than 2,300 undergraduate and graduate students, we offer a wide spectrum of academic programmes in artificial intelligence: systems and technologies, biomedical engineering, computer science and engineering, electronic engineering, energy and environmental engineering, financial technology, information engineering, mathematics and information engineering, mechanical and automation engineering, and systems engineering and engineering management. To enrich students' learning experiences, we provide a variety of ways to engage students in learning such as hands-on experiences, exposure to engineering entrepreneurship, field trips, international exchange, undergraduate summer research internship and year-long work study program.

The Faculty has been well recognized internationally for its excellence in engineering research. Our world-class laboratories and facilities enable excellent research to be carried out. We have been working closely with government and industry for developing new technologies to meet the societal needs and improve the quality of mankind. About 30 years ago, CUHK was the pioneer in Hong Kong's internet infrastructure and development. The fact that over 80% of today's internet traffic in Hong Kong still routes through CUHK's communication equipment is a testimony and legacy of our pioneering and continuing contributions to Hong Kong. Today, Artificial Intelligence (AI) is poised to transform every aspect of our lives. The immense success of the startup SenseTime, the first Unicorn in HK, highlights our leadership position in the area of AI. On international rankings in Engineering, we are among the best in the world. Reuters named CUHK as the most innovative university in Hong Kong in the recent years.

The industrial revolution and the information age have changed the course of history. Engineers shoulder growing responsibilities for the betterment of mankind. We are now in the midst of the "Fourth Industrial Revolution", fusing the physical, digital and biological worlds. The convergence of the internet of things, artificial intelligence, robotics, data science, biotechnology, materials engineering, microelectronics, autonomous vehicles, advanced manufacturing, and nanotechnology are poised to disrupt every industry and every aspect of modern life. CUHK Engineering must work together with other Faculties to play a key role in shaping the Fourth Industrial Revolution. In the years ahead, we will continue to strengthen our teaching and research excellence, as well as responding to the grand challenges facing the world.

In this brochure, you will find information about our Faculty's figures, professors and students' achievements, undergraduate programmes and students' sharings. On top of that, you are more than welcome to talk to our people or visit the facilities when you have the chance.

Prof. Martin D.F. Wong
Dean of Engineering

Faculty of Engineering

Faculty Mission

The Faculty is committed to the education of future leaders in engineering, the pursuit of knowledge at the frontier of modern technology, and the application of technology to meet societal and human needs. In both teaching and research, the Faculty is guided by the highest international academic standards.

There are six departments in the Faculty of Engineering:

- Biomedical Engineering
- Computer Science and Engineering
- Electronic Engineering
- Information Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management

Degree Programmes

The Faculty currently offers the following bachelor, master, and doctoral degree programmes:

Bachelor of Engineering

- Artificial Intelligence: Systems and Technologies
- Biomedical Engineering
- Computer Engineering
- Electronic Engineering
- Energy and Environmental Engineering
- Financial Technology
- Information Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management

Bachelor of Science

- Computer Science
- Mathematics and Information Engineering

Double Degree Option

- Engineering and Business Administration*

Master of Science (full-time/part-time)

- Biomedical Engineering
- Computer Science
- E-Commerce and Logistics Technologies
- Electronic Engineering
- Financial Technology
- Information Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management

Master of Philosophy & Doctor of Philosophy

- Biomedical Engineering
- Computer Science and Engineering
- Electronic Engineering
- Information Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management

* The Engineering and Business Administration Double Degree Option is jointly offered by the Faculty of Engineering and Faculty of Business Administration. Please refer to P.36 for programme details.

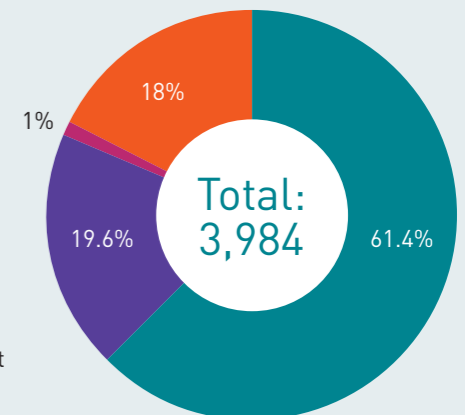
Facts and Figures

Students (2020-21)

2447 Undergraduate | 38 Master of Philosophy
783 Master of Science | 716 Doctor of Philosophy

Academic Staff 112 Professoriate | 243 Research Support

Non-academic Staff 75 Administrative Support | 64 Technical



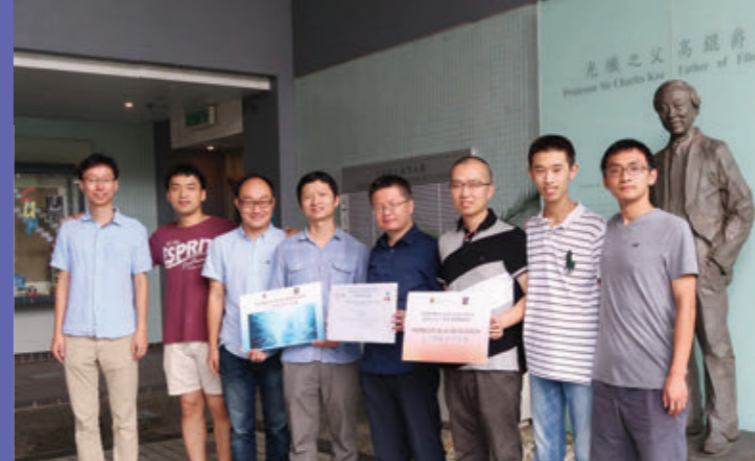
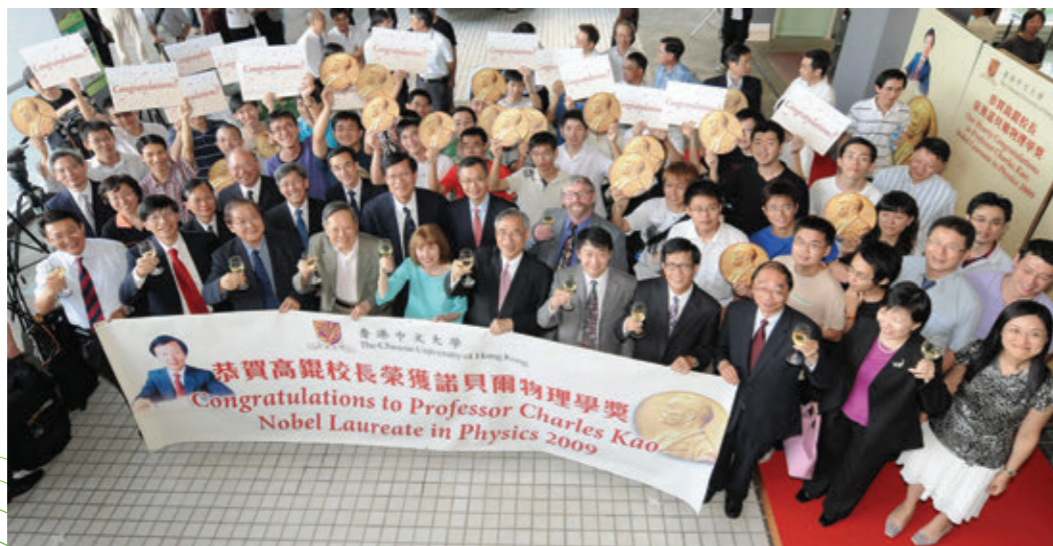
Excellence in Teaching and Research

Our hundred or so Faculty professorial staff possesses extensive teaching and research experience. Not only do they educate youngsters with passion, but they also develop forefront technologies that benefit the society. The great range of research areas include mechanics, electronics, information processing, internet, digital entertainment, etc. Some of the research involves multi-disciplinary knowledge such as biomedical engineering, energy, logistics and financial engineering. Our professors have published extensively in world-class journals and conferences, and at the same time applied their R&D results to practical usage. Their efforts were well recognized by the public, and many of them were awarded different international prizes and honours.



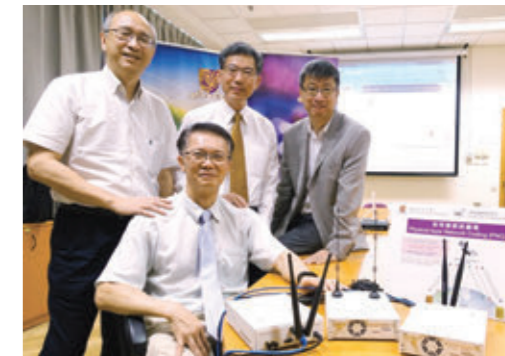
Father of Fibre Optics

The former Vice-Chancellor Late Prof. Charles Kao founded the Department of Electronic Engineering in 1970. He innovated the groundbreaking optical fibre communication that changed the world, and built a long-term research strategy focusing on information and communications technologies at CUHK.



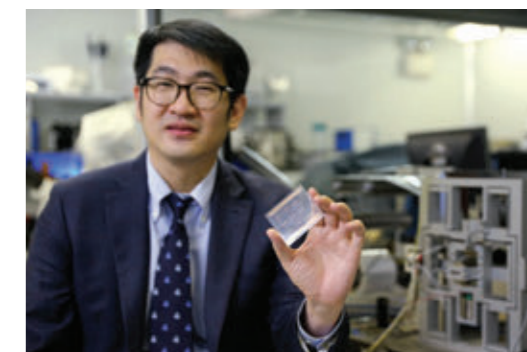
CUHK is one of the pioneers in the research on AI and deep learning. In the GPU Technology Conference 2016 held in Silicon Valley, CUHK was recognized as one of the top ten AI pioneers and was the only institution in Asia to receive this honour. It is also recognised as the most innovative university in Hong Kong for the fifth consecutive year and is ranked 22nd in the Asia-Pacific region by Reuters' Asia Pacific Region's Most Innovative Universities.

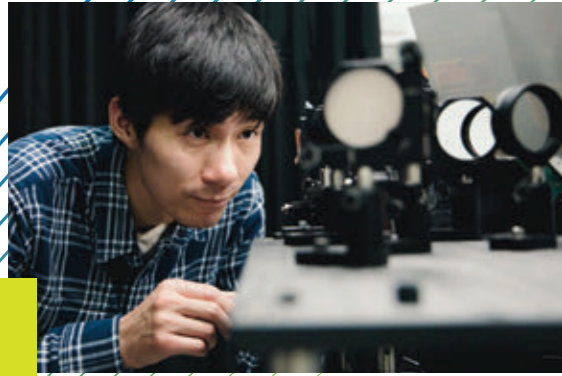
CUHK was named by Thomson Reuters as one of the 10 research institutions in the world with the most impact on telecommunications, the only Asian institution on the list in 2015. Prof. Liew Song-chang's research team has developed the Physical-layer Network Coding as a promising technique that significantly improved the capacity and energy efficiency of wireless networks by tackling the wireless interference problem.



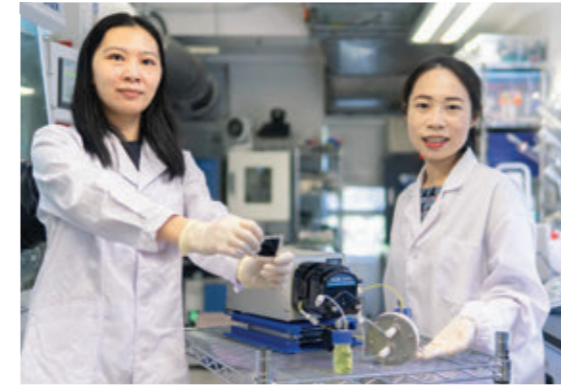
Prof. Kevin Yip's research team and HKU have jointly developed a novel data analysis method called MARVEL (Multiscale Analysis of Regulatory Variants on the Epigenomic Landscape). A scientific article describing the MARVEL method and the corresponding findings about Hirschsprung's disease has recently been published in the journal *Genome Research*.

Prof. Shih-Chi Chen's team has developed a flexure-based multilayer roll-to-roll (R2R) printing system that simultaneously achieves nanometer-level printing resolution and submicron-level overlay accuracy, enabling mass production of high resolution flexible electronics at low cost. The new R2R system can readily be scaled up for industrial processes and generate impact to the manufacturing industry.



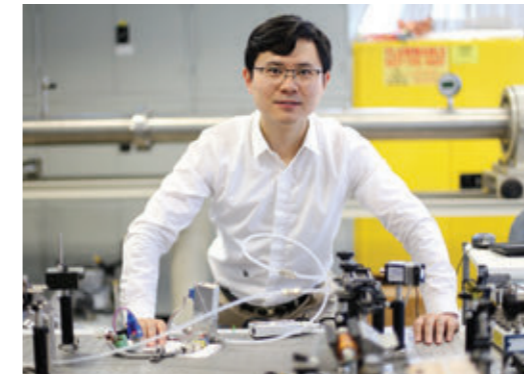


Prof. Renjie Zhou received the Croucher Innovation Award 2019 in the amount of HK\$5 million in research expenses for his outstanding research achievements in optical diffraction tomography and in support of his future research works. He is developing a new "Reflection-mode TPM for label-free in vivo imaging applications using light diffraction and coherence properties", to make new breakthroughs and further applications in vivo imaging technology.

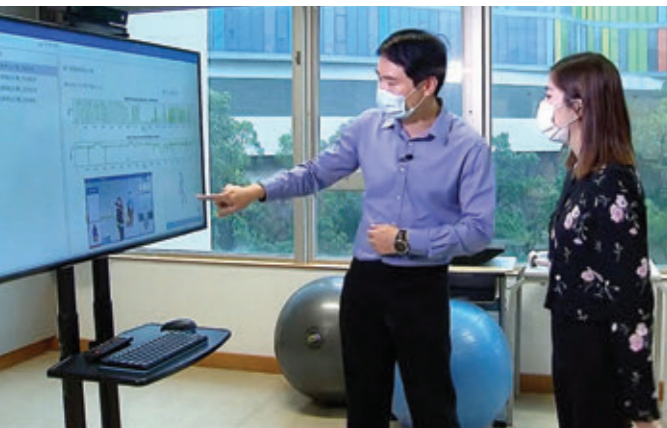


A research team led by Prof. Yi-Chun Lu has developed a novel charge-reinforced ion-selective membrane for sulphur-based redox flow batteries, with 15 consecutive hours of runtime and over 2,000 hours cycling without obvious capacity decay. The new battery has taken a significant step forward in the practical application of redox flow batteries in grid-scale storage for renewable energy, and in its commercialisation, by resolving the problems posed by its poor lifetime and low cost-effectiveness.

Prof. Wei-Hsin Liao's research team has developed an embedded energy harvester which is very efficient in generating electricity to sustainably power the smart watches and wristbands. Prof. Liao was selected to receive the Adaptive Structures and Material Systems Award by ASME for his contributions to the sciences and technologies associated with adaptive structures and material systems and was the first Hong Kong recipient of this award.



A research team led by Prof. Wei Ren has adopted high-level quantum chemistry calculations to provide a definitive answer to the role of water vapour in some important atmospheric reactions. The new findings will enable a more accurate and reliable prediction of air pollution and atmospheric chemistry. He has also established a startup named LaSense Technology with his PhD student Xu Ke in 2019, and has designed and developed a real-time, calibration-free and ultra-sensitive (sub-ppm) gas sensing and control system, which can meet the requirements of the simultaneous measurement of NO_x and NH₃, in order to meet the urgent market demand from the energy industry.



Prof. Raymond Kai-Yu Tong's team has developed an innovative AR rehabilitation system to assist stroke patients in conducting guided rehabilitation exercises. It has an analytical function in tracing 3D postures doing different training tasks and provides real-time feedback. This would be useful to stroke survivors and the rehabilitation team to conduct high-quality rehabilitation training with fun.

Prof. Raymond Wai-Ho Yeung has been named the recipient of the 2022 Claude E. Shannon Award by the IEEE Information Theory Society for consistent and profound contributions to the field of information theory. This award is the highest honour in the field. He has also been named the recipient of the IEEE 2021 Richard W. Hamming Medal for his fundamental contributions to information theory and pioneering network coding and its applications.



A multidisciplinary research team from CUHK Engineering and CUHK Medicine has developed an AI system for the automated, rapid and accurate detection of COVID-19 infections in chest CT images. The system is validated on multiple, unseen, independent external cohorts from mainland China and Europe, showing the potential and feasibility to build large-scale medical datasets with privacy protection, so as to rapidly develop reliable AI models amidst a global disease outbreak such as the COVID-19 pandemic.



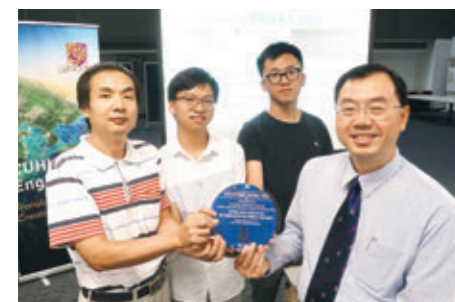
Student Achievements

The Faculty has been nurturing countless engineering professionals with excellent academic performance since its inception in 1991. Apart from academic knowledge acquisition, they have actively participated in various local and international activities, and a number of them have also represented Hong Kong to participate in overseas contests and returned with great success.



The Engineering student robotics team Phantom Dancer was crowned Champion in the The Asia-Pacific Broadcasting Union Asia-Pacific Robot Contest (Robocon). CUHK was the first Hong Kong team to win this international trophy for robotics since the competition began in 2002.

The university received 11 awards at the 6th Hong Kong University Student Innovation and Entrepreneurship Competition. A start-up team from the Department of Biomedical Engineering has been dedicated to the development of latest soft wearable robotics technologies for rehabilitation of people after stroke and the elderly with joint diseases. In partnership with the Neurorehabilitation and Robotics Laboratory at CUHK, they introduced the pioneering soft wearable robotic exoskeletons to hospitals and rehabilitation centers.

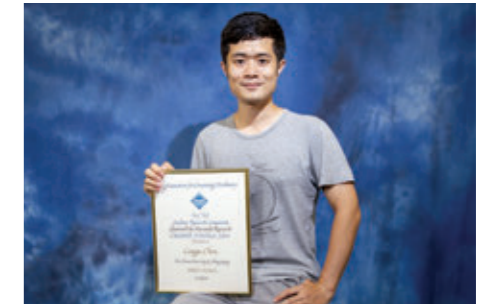


A team of the Department of Information Engineering has won the third place of the 2018 Internet Defense Prize and a research grant of US\$40,000 funded by Facebook at the 27th USENIX Security Symposium. The award was for their contribution to the critical analysis of the security of Single Sign-On (SSO) Software Development Kits (SDKs) deployed in practice. This was the first time for researchers from an Asian institution to receive this international award.

The programming team won a bronze medal at the 43rd Annual World Finals of the International Collegiate Programming Contest held in Porto, Portugal, defeating traditional prestigious teams from Stanford University, Harvard University, and Carnegie Mellon University.

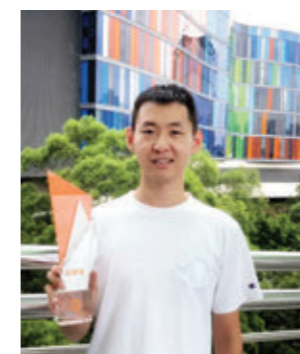


Mr. Gengjie Chen, a PhD student, has taken First Place in the Association for Computing Machinery (ACM) Student Research Competition Grand Finals, with the research project themed "VLSI Routing: Seeing Nano Tree in Giga Forest".



A genetic engineering team of undergraduate students has been awarded a Gold medal at the International Genetically Engineered Machine (iGEM) 2019 Giant Jamboree held in Boston, USA for developing a rapid test for the new disease Banana Xanthomonas Wilt (BXW). This is the sixth time that a CUHK team has won gold in the annual premier synthetic biology competition.

Two teams have won the Championship in the Bank of China (Hong Kong) FinTech Hackathon and received first runner-up in the UHackFin organised by the HKUST. The first team proposed a new platform named 'A.I. Stock Analyser' that digests huge amounts of market information and provides personalised stock analysis to meet the rising demands of investors. The other team focused on the past performance of initial coin offering (ICO) for improving the future of financial services.



Hao Xu, a PhD student from the Department of Computer Science and Engineering and his teammates have designed an AI system that can automatically generate a mini-figure brick model in the DeeCamp 2020. It can fully automatically compute and construct LEGO Technic designs, the first of its kind in the world.

A student team supervised by Prof. Daniel Long has won the Championship in The Chartered Institutions of Logistics and Transportation in Hong Kong (CILTHK) Student Day 2019. They have tackled and presented the topic "What are your proposed solutions to ensure no invasion of drone in airport".



Diverse Learning Experiences

Engineering Leadership, Innovation, Technology and Entrepreneurship Stream (ELITE Stream)

The ELITE Stream is offered by the Faculty to students with excellent academic performance. It aims to nurture outstanding engineering students and to develop their potentials through additional challenging courseworks and invaluable extra-curricular activities. The award of the ELITE Stream to qualified students will be officially recorded on academic transcript together with a certificate. A series of stimulating and inspiring courses will be offered exclusively for ELITE students. There are exclusive scholarships, special exchange opportunities, social and scholarly events specially organized for ELITE students.

Details of the entrance, coursework requirements and declaration procedures for the Stream can be viewed at: www.erg.cuhk.edu.hk/erg/elite



European Innovation Academy

ELITE students were nominated to participate in European Innovation Academy in Europe, a three-week programme where participants from various universities around the world worked in multidisciplinary teams to start up new IT innovations, mentored and educated by industry leaders and professors.



Choi Chi Kit, Jason
Computer Science graduate under ELITE Stream

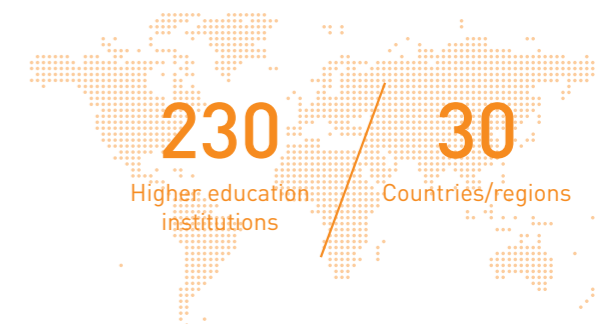
There are no shortcuts in engineering. From computer science to mechanical engineering, all engineering disciplines require both rigorous theoretical knowledge and in-depth practical skills. Having realised this, I am extremely glad to have chosen CUHK Engineering programme. Not only do we get extensive theoretical training in maths and physics, but we could also apply our knowledge through project-based learning. I am also grateful for the special care given to high-achieving students through the ELITE Stream, through which top students are challenged to broaden and deepen their learning scopes. I have met like-minded friends and study partners.

Undergraduate Summer Research Internship

The Faculty has launched the Undergraduate Summer Research Internship programme to support its students to undertake research projects under supervision of professors in summer. This programme gives students exposure to research environment, and grooms them for graduate studies.

International Exchange

The University has exchange agreements with over 230 higher education institutions in 30 countries/regions covering Asia, Australia, Europe, and the Americas. To broaden students' international exposure, the Faculty also offers numerous overseas summer study programmes and internship opportunities.



Professor Charles K. Kao Research Exchange Scholarship

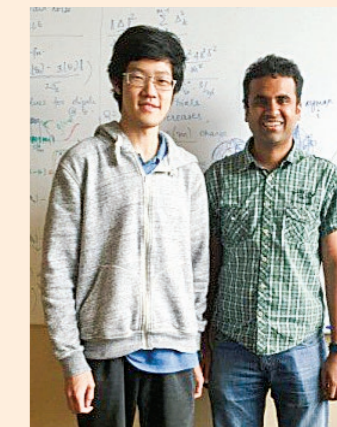
To pay tribute to Prof. Charles K. Kao for his achievements in science and technologies and to commemorate his being awarded the Nobel Prize in Physics 2009, the University has set up the Charles K. Kao Scholarship Endowment Fund to support outstanding students of Engineering and Physics to go on research exchange at prestigious institutions overseas.



Professor Sir Charles K. Kao and Lady Kao meet the scholars at the inaugural ceremony of the CUHK Professor Charles K. Kao Scholars Association.

Bai Ziqian
Computer Science graduate
Recipient of Professor Charles K. Kao Research Exchange Scholarship

It was my great honor to be able to participate in this overseas research exchange program, during which I conducted research at the ECE department of Carnegie Mellon University about coded distributed computing for speeding up machine learning computations, supervised by Prof. Pulkit Grover. This wonderful experience not only enhanced my academic background, but also gave me an insightful understanding of the life in USA, and more specifically, a university student's life in Pittsburgh, and plenty of opportunities for making friends with talented minds.



GLOBEX Summer Programme@PKU

The programme, in collaboration with Peking University (PKU), supports engineering students to study both engineering and cultural courses in the College of Engineering, PKU.

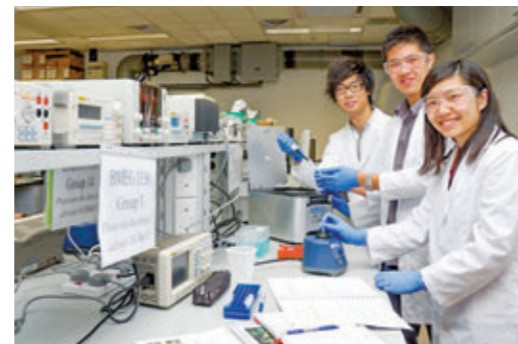


Leong Samantha Antonio
Biomedical Engineering graduate

It was in class that I met amazing and brilliant minds. There were students who were not afraid to speak up, challenge new ideas and question unclear concepts. There were students who could combine knowledge from other GLOBEX courses and use it in their own design in presentations. There were friends I made that were brilliant not only in engineering, but also in other fields that I share an interest in. This month-long exchange was a never-ending stream of constant self-improvement. Needless to say, this exchange is very beneficial.

General Education

General Education plays a vital role in the University's mission to provide a balanced undergraduate education for all students. It equips students with the intellectual capacity for understanding critical issues, ideas, and values of humanity and of modern society. Engineering students, other than professional knowledge, should also equip themselves with broad knowledge to be successful. The University offers a wide range of general education courses that nurture students to be educated persons capable of making informed judgment, serving the community and taking up the challenges of this ever-changing world.



Double Majors and Minor Programmes

Engineering students can flexibly pursue second major or minor programmes according to their orientation and interest in other disciplines such as Business Administration, Economics, Journalism and Music, etc. Students developing multiple talents in combination of the Engineering major and minor programmes would certainly gain advantages after graduation.

Placement and Internship Programme

To assist students in developing their future career, the Faculty has been running the Placement and Internship Programme (PIP) for decades. Many students take the option of a one-year industrial full-time placement before they continue their final year of study. They will be engaged in supervised training in an organization normally for a period of twelve months, during which they will be exposed to real working environment and will take part in projects working together with experienced engineering professionals. The comprehensive and intensive training provides students with valuable working experience.

The Faculty also collaborates with companies to hold regular recruitment talks, technology seminars and workshops so that students can keep abreast of the industrial trend.



List of selected companies participating in the PIP

- Asia Satellite Telecommunications Co. Limited
- ASM Pacific Technology Limited
- CLP Holdings Limited
- Fujitsu PC Asia Pacific Limited
- Google
- Hewlett Packard HK SAR Limited
- Hong Kong CSL Limited
- Hong Kong Deposit Protection Board
- Hong Kong Monetary Authority
- Hong Kong Science and Technology Parks Corporation
- IBM
- ITE Smartcard Solutions Limited
- LinkPOWER Technology Co. Limited
- Microsoft
- Chief Information Office, Office of the HKSAR Government
- OKIA Optical Co. Limited
- Securities and Futures Commission
- Smartone Telecommunications Holdings Limited
- Sun Hung Kai Real Estate Agency Limited
- The Hong Kong Jockey Club
- The Hong Kong and Shanghai Banking Corporation
- The Hong Kong Mortgage Corporation Limited
- The Hong Kong School Net Limited
- Thomson Reuters Hong Kong Limited
- TNS
- VTech Telecommunications Limited

For more information, please visit the website of Centre for Innovation and Technology, Faculty of Engineering:
<https://pip.erg.cuhk.edu.hk>



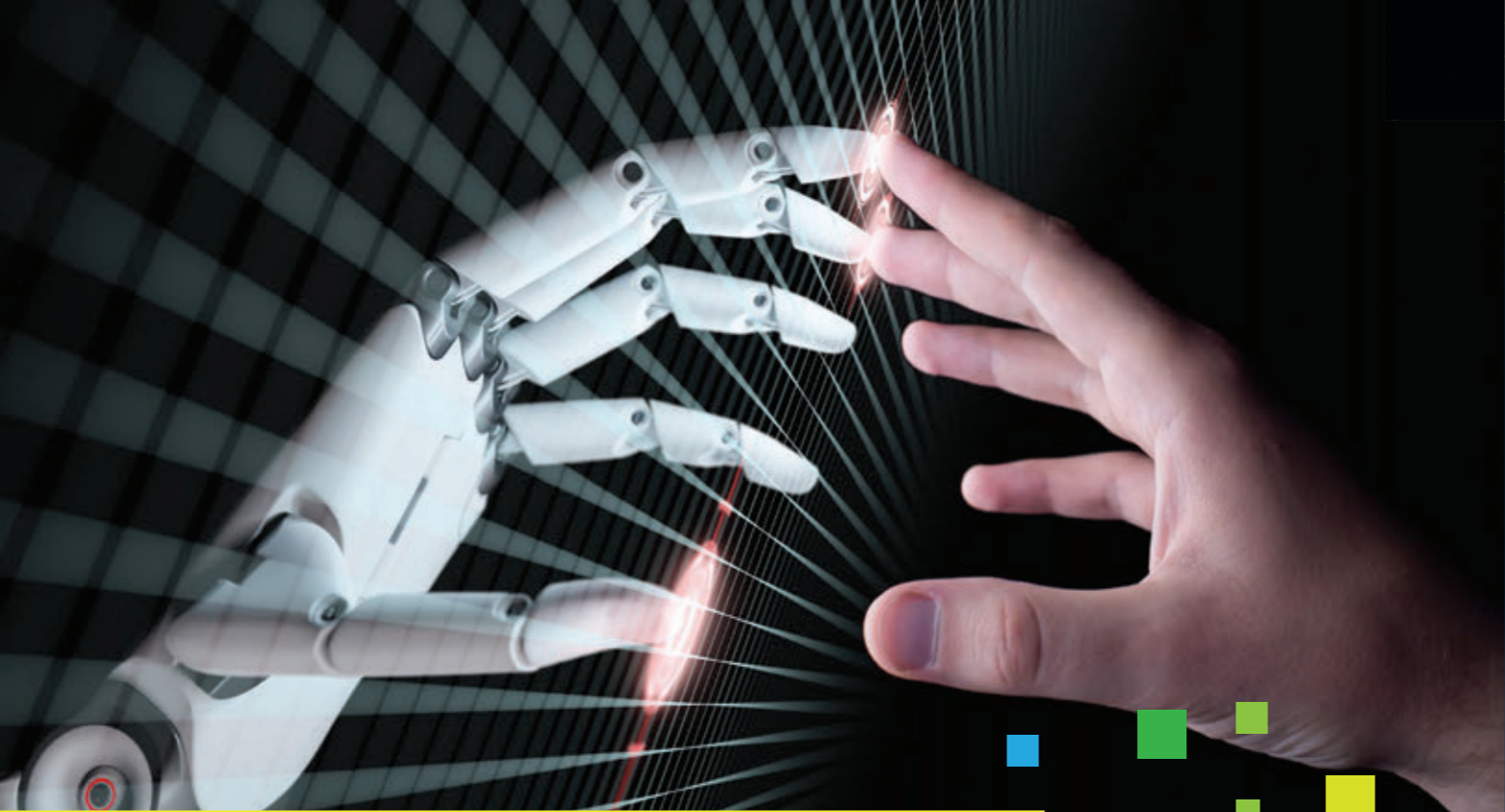
Undergraduate Programmes

Starting from the 2022 entry, the Faculty of Engineering will adopt programme-based admission, which enables our undergraduate students to enjoy greater flexibility in planning their study pathways. Prospective students can apply for any of the 10 undergraduate engineering programmes through the JUPAS and non-JUPAS admission routes.

Programme-based Admission

- Artificial Intelligence: Systems and Technologies (JS4468)
- Biomedical Engineering (JS4460)
- Computer Science and Engineering (JS4412)
- Electronic Engineering (JS4434)
- Energy and Environmental Engineering (JS4462)
- Financial Technology (JS4428)
- Information Engineering (JS4446)
- Mathematics and Information Engineering (JS4733)
- Mechanical and Automation Engineering (JS4408)
- Systems Engineering and Engineering Management (JS4458)





**“Predicting the future isn’t magic,
it’s Artificial Intelligence”** – Dave Waters

ARTIFICIAL INTELLIGENCE: SYSTEMS AND TECHNOLOGIES

Au Yong Chun Sang, Marco

Artificial Intelligence: Systems and Technologies student (Year 3)

For the past two years, though I practically spent only one term on the campus, the learning experience has been eye-opening. The special thing about the AIST programme is that it is an “engineering degree” programme, so you get to build a solid foundation on not only the problem-solving mindset but also fundamental knowledge such as calculus and statistics. Although some may find these topics challenging, they are valuable tools that will help distinguish you from non-engineering counterparts. Other than the faculty package, general education in the CUHK has also broadened my horizons, enabling a multi-disciplinary academic pursuit, which is pivotal, since the application of Artificial Intelligence is also multi-faceted. With the campus opening soon, surely you will enjoy this program even more than I did. I hope to see you on campus sometime!



Programme Features

Artificial Intelligence (AI) is an emerging engineering discipline that focuses on technological innovations in enabling computing systems to behave and discover new knowledge with human-like intelligence. It is a broad area that covers many specializations, such as machine learning, deep learning, knowledge representation/inference, large scale computing systems and distributed systems, logic/constraint programming, human-computer interactions, natural language processing, big data analytics, etc. It has evolved in multiple disciplines, such as finance, medicine, manufacturing, robotics, multimedia, telecommunications, computational linguistics, etc. On the other hand, there are critical challenges on how to innovate and design solid and rigorous solutions for AI, as well as how to properly address the ethical and societal issues with AI.

The AIST programme aims to equip students with the capabilities of designing and implementing AI systems and technologies that can analyze, reason, and infer knowledge from massive information, backed by rigorous foundations of mathematics, basic sciences, data structures, statistics, algorithms, distributed computing, etc. Such capabilities enable students to develop cutting-edge AI solutions that are of practical interest to academia, industry, and society.

The AIST programme emphasizes on fundamental mathematics, sciences, theories, and complements the knowledge with practical systems skill sets. Four optional specialized streams are offered for students to choose according to their interests:

- Biomedical Intelligence
- Intelligent Multimedia Processing
- Large-scale Artificial Intelligence
— Theory and Systems
- Intelligent Manufacturing and Robotics

Career Prospects

The AIST programme is designed to meet today’s tremendous demand for well-trained talents in AI and related specializations. There is now a manpower shortage of AI specialists in both local and global employment markets. According to the Innovation and Technology Bureau, the HKSAR Government’s policies in innovation and technology such as re-industrialization, the expansion of the Science Park in Tseung Kwan O Industrial Estate, and the establishment of HK-Shenzhen Innovation and Technology Park in Lok Ma Chau Loop, are expected to create 50,000 jobs for people with knowledge and skills in high-end technologies. On the other hand, AI specialist is the top among the 15 emerging jobs in the USA, with an annual growth of 74% in demand, according to LinkedIn 2020 Emerging Jobs Report. For these reasons, CUHK aims to train talented AI engineers/scientists for the following industries: biomedical engineering/science, information and computing technologies, manufacturing and robotic, as well as intelligent multimedia processing for various Internet companies.

Rank	Emerging Jobs	Annual Growth in Demand
1	Artificial Intelligence Specialist	74%
2	Robotics Engineer	40%
3	Data Scientist	37%
4	Full Stack Engineer	35%
5	Customer Success Specialist	34%

Source: LinkedIn 2020 Emerging Jobs Report

Biomedical engineering is an interdisciplinary field in which engineering and technology are innovatively applied to solve biological and medical problems for the benefit of mankind. The Biomedical Engineering programme is offered by the Faculty of Engineering in deep collaboration with Faculty of Medicine. Students not only benefit from learning at the forefront of the engineering and medical fields through the programme's core courses, but also enjoy the flexibility to choose from a wide variety of electives that allow them to focus on areas critical to their chosen careers.

The field is responsible for the development of medical engineering technology such as MRIs, brain-computer interface cardiac pacemakers, orthopaedic implants, rehabilitative devices, medical robotics, minimally-invasive endoscopes, etc. Biomedical devices are being developed at the micro- and nano-scale to enable diagnosis and therapeutics at the molecular and cellular levels. Students can take advantage of the breadth of cutting-edge biomedical engineering research available on campus through collaborative research in the Faculties of Engineering and Medicine.

BIOMEDICAL ENGINEERING



**Technology and innovation is transforming our Health.
Biomedical Engineers are enabling the transformation.**

Programme Features

The programme's specialty areas are:

- Medical Instrumentation and Biosensors
- Biomedical Imaging, Informatics and Modeling
- Molecular, Cell and Tissue Engineering

Career Prospects

BME graduates work in hospitals, universities, government departments and other public organizations as well as industries. The careers available to programme graduates cover the entire value chain of BME, namely research and development, manufacturing, quality assurance, consultancy, distribution and sale, clinical engineering, regulatory affairs and entrepreneurship in technology. Graduates are also well equipped to pursue advanced study in engineering and biomedical sciences. Some graduates are also pursuing their careers in business, law and medicine.

Pang Cheuk Him, Johnny

2020 BEng (Biomedical Engineering) graduate

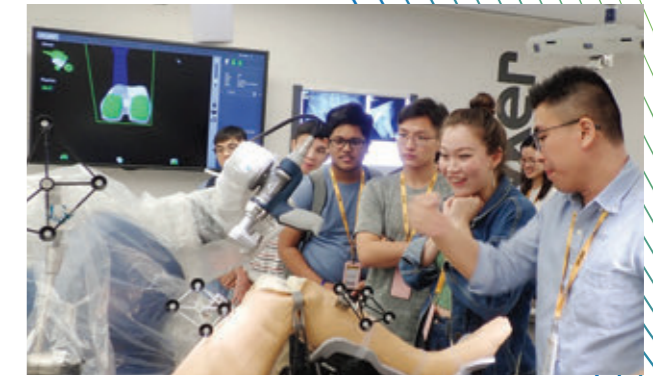
Biomedical Engineering Graduate, Electrical and Mechanical Services Department (EMSD), HKSAR Government

My university life at CUHK BME was full of joy. I really enjoyed studying this programme as it provided me with a solid foundation in biomedical science and engineering. I have much interest in this interdisciplinary approach and this enhanced my knowledge in all related aspects.

After graduation, I joined the Graduate Training Scheme of the Electrical and Mechanical Services Department, a two-year training program recognized by the Hong Kong Institution of Engineers. I have the opportunity to work in the different divisions of EMSD and the Department of Health on a rotational basis to learn how to become a qualified biomedical engineer in the healthcare system of Hong Kong.



I am fortunate to be able to pursue the career I want in this field. I am glad that what I learned at CUHK BME allows me to achieve this desire and apply the relevant knowledge and skills in my work.



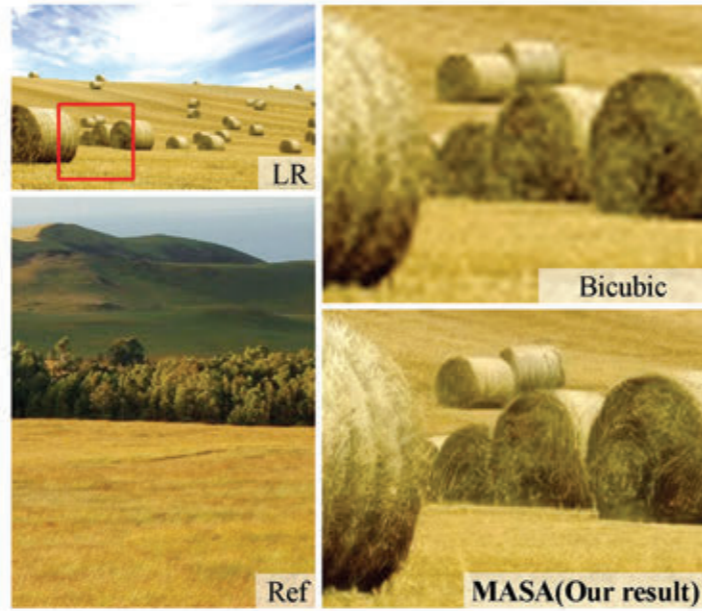
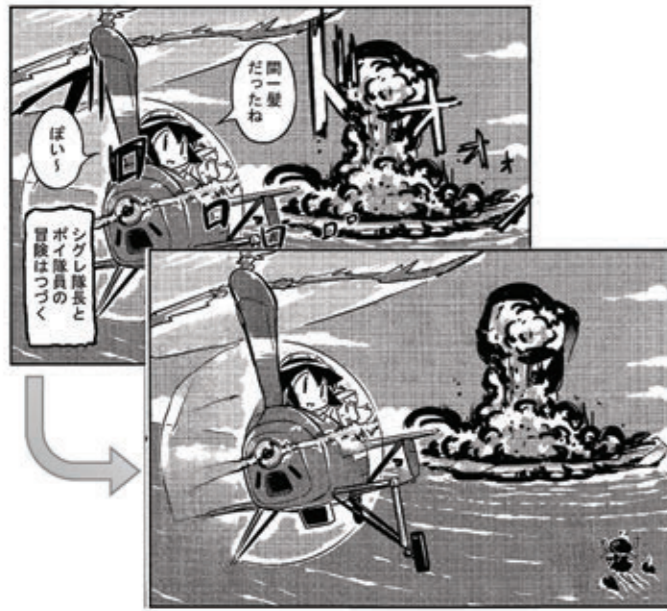
Shyngys Moldir

Biomedical Engineering student (Year 4)

I vividly remembered being asked what would make me think BME is different from other engineering and sciences majors in an admission interview. I took a deep breath and believed biomedical engineering incorporate a wide range of sciences disciplines including physics, mathematics, chemistry and biology.

In my first year of study in CUHK, I gained a priceless experience through summer training in hospital, medical devices companies and various local university laboratories. It was so wonderful that I was offered something more than pure knowledge but continuous inspiration, motivation and practical use. I also met many new friends from all different regions like South Korea, Kyrgyzstan, Bangladesh, Kazakhstan, India and many others.





COMPUTER SCIENCE AND ENGINEERING

From 2022-23, students can be directly admitted to the Department of Computer Science and Engineering (CSE) through “department-based” admission. Upon completing the first year of study, CSE students will be invited to declare their major in Computer Engineering (CENG) or Computer Science (CSCI). Students with outstanding HKDSE results and good academic performance in their first year of study are guaranteed of their first choice of major.

“Those who can imagine anything, can create the impossible.”

- Alan Turing

The CENG Programme

The CENG programme was formally established when the Faculty of Engineering was inaugurated in 1991, with an emphasis on both computer hardware and software. Our CENG programme distinguishes itself from others by offering specialized training for students in computer design, mobile embedded systems, microprocessors, and very large-scale integrated circuit (VLSI) design. The CE curriculum consists of courses in many areas:

- Application: mobile embedded devices, computer graphics, multimedia processing;
 - Computer hardware: circuitry theory, logic system design, computer architecture and interfacing, computer arithmetic;
 - Computer software: programming, data structure, operating systems, algorithm, software engineering;
 - Very large-scale integrated circuit (VLSI) design: Computer-aided design and applications;
 - System connectivity: Computer network; etc.
- For more details, please visit <https://www.cse.cuhk.edu.hk/admission/cengn/>.

Career Prospects

Over the years, the Department of Computer Science and Engineering has built up a large alumni network in the computer industry of Hong Kong. Many of our graduates have taken up important positions in various organizations and companies, such as the HKSAR Government, The Hongkong and Shanghai Banking Corporation Limited (HSBC), Apple, Deloitte, Facebook, Google, IBM, Intel, Microsoft, Yahoo, and various investment banking institutes. Through this network, our graduates can enjoy a comparative advantage in professional career development. Apart from choosing to work in the industry, some graduates have chosen to further their studies in our postgraduate programme or programmes in internationally renowned universities overseas.



The CSCI Programme

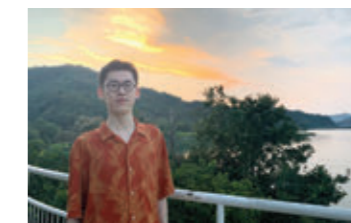
The CSCI programme is the first computer science programme in Hong Kong, launched for more than 40 years. It is accredited by the Hong Kong Institution of Engineers (HKIE) and has gained an international reputation for excellent research and teaching. Overall, the CSCI programme focuses more on software innovation and aims to train students with a flexible curriculum that covers diverse and specialized areas such as artificial intelligence, big data analytics, bioinformatics, computer and network security, computer systems and networking, computer-aided design, databases, digital hardware technologies, information systems, internet, multimedia technology, programming languages, software engineering, and theoretical computer science.

For more details, please visit <https://www.cse.cuhk.edu.hk/admission/cscin/>

Chao Yu

2020 BSc (Computer Science) graduate
Software Engineer, Google

Most tech companies nowadays look for candidates with good algorithmic problem-solving skills, so I regard “Data Structures” (CSCI2100) and “Design and Analysis of Algorithms” (CSCI3160) as the two most essential courses in CS. Though the courses were very challenging and time-consuming, it made me comfortable in translating algorithmic ideas into actual working programs. CSCI3160 laid down the theoretical foundations and made me excel in analyzing the time and space complexities. “Operating Systems” (CSCI3150), “Database” (CSCI3170), “Programming Languages” (CSCI3180) and “Computer Networks” (CSCI4430) are equally important; they came up a lot during knowledge-based interviews. I’m now working in Google’s Android Pixel team, topics from these courses still often pop up during my day-to-day job. The courses offered by the CSE department give a solid foundation on both the practical and theoretical sides of CS. As the software industry becomes increasingly competitive, I feel quite lucky that I’ve undergone such rigorous academic training.



ELECTRONIC ENGINEERING

The Department of Electronic Engineering was established in 1970 by Late Prof. Charles Kao, former Vice-Chancellor of CUHK and a 2009 Nobel Laureate who pioneered the use of optical fibres in communications. Our mission is to educate students to enhance their potential to become global leaders in electronic engineering and instill in them the desire to pursue knowledge and advance the state of the art in electronic engineering. This includes hardware, software, and design aspects of electronics as the core, ranging from materials, devices, circuits, to systems, and their applications for the betterment of mankind. The programme leads to a Bachelor of Engineering (BEng) honours degree, accredited by The Hong Kong Institution of Engineers (HKIE).

Programme Features

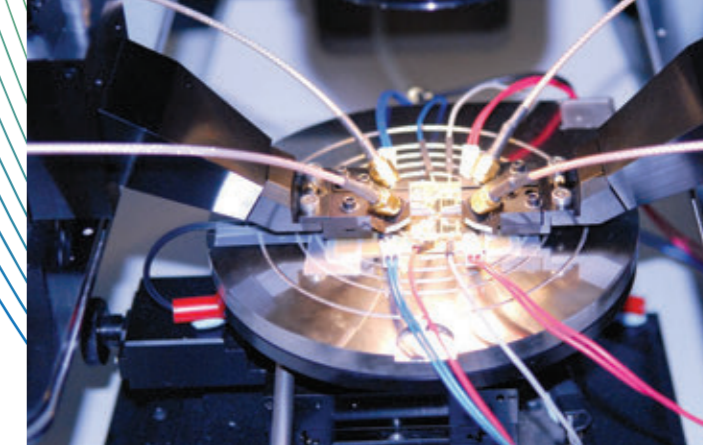
The Electronic Engineering (EE) Programme provides the broadest and most foundational engineering training for modern society and generates rewarding career opportunities. The courses EE offered are designed to convey both theoretical and practical knowledge and to provide balanced training in both hardware and software skills. The major topics of study include:

- Integrated circuits
- Wireless and microwave engineering
- Digital signal processing and communications
- Multimedia technology and machine learning
- Semiconductor devices and nanotechnology
- Photonics and optoelectronics
- Robotics, perception, and artificial intelligence

The work-study scheme in the Electronic Engineering programme allows students to spend one year working full-time in selected electronics or IT companies. Under the Personal Tutor scheme, professors meet regularly with students to provide advice on their academic and personal development. Thanks to the generous support and patronage of professional societies, local industry and distinguished alumni, the department is able to offer a large number of scholarships to our undergraduates.

Career Prospects

EE graduates pursue successful careers in a wide range of hi-tech industries and business sectors including telecommunications, computer hardware, information technology, e-commerce, technology services, industrial manufacturing, and product design and development. Some of the graduates also choose to pursue postgraduate studies in local or overseas institutions.

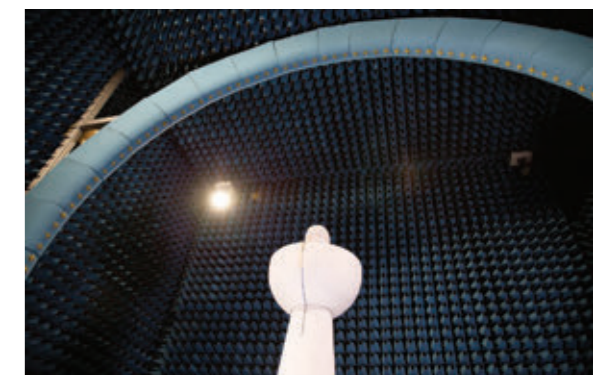


Chan Joi Hei, Joshua

2017 BEng (Electronic Engineering) graduate
Graduate Engineer, MTR Corporation Limited

After my graduation from CUHK EE, I embarked on the Graduate Development Programme in MTR. As a Graduate Engineer, I am privileged to obtain ample opportunities in developing the managerial skills and technical knowledge ranging from maintenance strategies for rolling stocks and infrastructure to the stringent design criteria for different engineering systems during the 2-year cross-functional rotation. The past holistic training in CUHK EE helps me pick up new knowledge in the workplace more quickly and comprehensively to embrace the cutting-edge technologies and proactively propose value-added solutions in a pursuit of delivering a safe, reliable and efficient railway service to Hong Kong's commuters.

I used to think that engineer was simply a career. It now turns out that engineer to me is a meaningful job carrying the commitment of shaping a better society and a better world.



ENERGY AND ENVIRONMENTAL ENGINEERING

The Energy and Environmental Engineering programme at CUHK provides students with the engineering knowledge and training needed to tackle a broad spectrum of energy issues pertaining to sustainable, environmental and building technologies. The programme provides a strong platform and broad-based perspective for learning and understanding the relations and trade-offs between energy and environment, and the ensuing engineering challenges to attaining viable solutions.



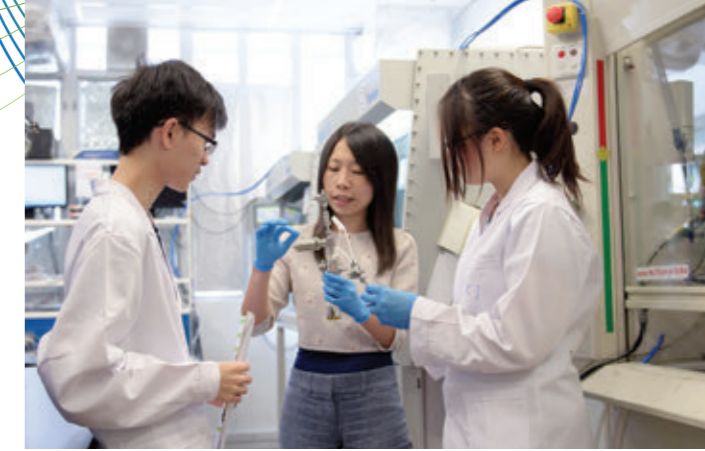
Programme Features

Interdisciplinary by design, the Programme strongly leverages the relevant expertise and capabilities offered by CUHK as a comprehensive university. In addition to the fundamental knowledge of energy principles, technologies and systems, the Programme features a number of required and core elective courses co-designed with the Earth System Science Programme and the School of Architecture, and a host of elective courses from the Environmental Science Programme and the Department of Geography and Resource Management, for a broader and in-depth education on the environmental impact of pollution in urban settings. Students are able to pursue any one of the three streams of study according to their personal and career interests: the Sustainable Energy Technology stream for enhanced coverage of renewable energy generation, system design, storage, distribution and management; the Green Building Technology stream for fundamental knowledge of environmental performance assessment and energy management of urban buildings; and the Environmental Engineering stream for principles of natural and built environments, and air pollution monitoring and control challenges.

The Programme also includes courses in technical communications, engineering ethics, design application and final year projects to enhance students' training as professional practitioners. Students are able to participate in and benefit from the many campus and community projects and research topics offered by the university-based institutes and units on environmental studies and sustainable development. They can also enjoy ample opportunities for summer internships, work-study programmes and international exchanges.

Career Prospects

The knowledge and skills gained by students of the Programme will afford them strong career prospects. They will be employable in current and emerging areas of energy systems, environmental monitoring and control, sensor instrumentation, and smart and green building technologies, among other areas. They can land jobs in government, electric companies and power grid enterprises, building and construction industries, consulting firms and green groups, renewable technology companies and vehicle industries, to cite just some of the possibilities. They can also pursue postgraduate studies in their specialized areas of interest in Hong Kong or overseas.



Wong Wai Kun, Carol

2017 BEng (Energy Engineering) graduate
Start up in business

Being a citizen of the global village, I am passionate in making a better world by energy and environmental aspect. CUHK Energy Engineering programme offers great diversity of courses which equipped me to be engineering professional. Energy, building service, environmental science and related technologies are taught and investigated in courses which are specialized and unique among the other undergraduate programmes in Hong Kong.

Participating in one-year placement has broadened my horizon and equipped me with workplace skills, which is a valuable experience. Energy and environmental problems are always the most challenging crises for the globe. As a graduate of CUHK energy engineering, I am contributing to environmental protection. The all-rounded courses not only provided me with knowledge combined with mechanical, chemical and electrical background, but also developed my creativity and problem-solving skills as an engineer. I am so glad that I have taken Energy Engineering as my major in CUHK.



Wong Hoi Yi, Jane

2017 BEng (Energy Engineering) graduate
Graduate Trainee, CLP Power Hong Kong Limited

Energy is invisible, but you can find it everywhere. Upon the rapid growth of population and urban development, from the energy source to the process of generating and using energy effectively, all these become essential topic to me. That's why I study Energy Engineering which covers all the critical energy and environmental-related issues, such as renewable energies, battery storage, green building design and energy efficiency of electrical transmission.

Apart from the knowledge on architecture, mechanical and electronic design, the energy programme fully equips students with many hands-on experiences of courses, solar car competition, exchange programme, internship and solid supports from the professors. After graduation, I find all these trainings and practical experience did strengthen my technical skills, so as to get the desirable job and continue to pursue my career in the engineering field.



FINANCIAL TECHNOLOGY

Financial Technology (FinTech) is an emerging engineering discipline that focuses on employing technological innovations in financial practices. Leveraging on the cutting-edge developments of engineering, in particular information technology and data sciences, it demonstrates an unprecedented potential to revolutionise the nature of traditional financial service industry in a fundamental way. Examples of FinTech developments include but are not limited to virtual banks, crowdfunding, digital currencies, and robo advisory services.



“Technological innovations will be the heart and blood of the banking industry for years to come and if big banks don’t make most of it, the new players from FinTech and large technology companies will surely win.”

- David M. Brear

Programme Features

The mission of the FinTech programme is to educate and equip students with the essential knowledge and capabilities to apply technological innovations to financial services, and to nurture leadership and entrepreneurship for the next generation of financial talents in support of Hong Kong’s endeavor to grow into an international FinTech hub.

This programme is built upon a strong collaboration between Faculty of Engineering and Faculties of Business Administration, Law, and Social Science. It offers multi-disciplinary training, which will equip students with both solid technological education in engineering innovations and insightful understanding of the business and legal environment for FinTech. New course offerings, including Financial Infrastructures, E-Payment Systems and Cryptocurrency Technologies, Internet Finance, Financial Informatics, bring to our undergraduate education state-of-the-art developments in the field for the first time. Closely collaborating with the Hong Kong Monetary Authority (HKMA) and Hong Kong Applied Science and Technology Research Institute (ASTRI), the programme also organises internships and overseas exchange to encourage students to apply theories to practices. In addition, the programme partners with Peking University (PKU) to offer a dual degree programme in Financial Math and FinTech, in which students study for two years at PKU and two years at CUHK.

Career Prospects

Programme graduates will be ideally suited for positions that require strong quantitative and technological skills in the financial service industry. Prospective career opportunities include investment and commercial banking, insurance, asset management, Internet finance, government regulatory agencies, FinTech startups, and so on. Graduates can also pursue further advanced studies in finance, management sciences and engineering, computer sciences, information engineering and related fields. Recent internship placements include DBS, Haitong Securities, Hang Seng, HSBC, HKMA and Zhong An Insurance.

Chen Yu

2021 BEng (Financial Technology) graduate
Global Market Engineering Analyst, Goldman Sachs

I declared FinTech as my major because it allows me to take courses from two different disciplines. During the four years at FinTech program, I learned a wide range of knowledge from pricing techniques for financial derivatives to cyber security. These courses deepened my understanding about how to deploy technological solutions in the finance world. The program also offers fantastic internship and research opportunities, where we apply what we have learned to real-life applications. Equipped with finance knowledge and coding capability, my classmates and I become thinkers, developers, and creators — we think of the pain points in business and utilize software engineering to develop solutions to these problems.



INFORMATION ENGINEERING

The study of Information Engineering (IE) encompasses elements from Computer Science, Electronic Engineering, Data Science, Information Security, Information Theory, Telecommunication Networking, and Artificial Intelligence, and their integration and applications in emerging disciplines such as Big Data Analytics, Financial Technology, and Internet-of-Things. This multi-disciplinary nature is what makes our programme unique, challenging, and rewarding. Our IE department, established in 1989 as the first IE department and remains one of a kind in Hong Kong, is devoted to nurture and educate engineering leaders for the information world of today and tomorrow. Our professors are dedicated educators and world-class researchers. Many of them have extensive experience with leading research institutions worldwide before joining the department. We have a strong presence in top-tier venues of the global scientific community.

**Knowledge is Power;
Information is King.**

Programme Features

Information Engineering centers around the generation, distribution, analysis, and application of information in engineering systems. Key areas of study include:

- **Big Data and Multimedia:** Building Scalable Internet Services, Multimedia Coding, Image and Video Processing, Programming Big Data Systems, Reinforcement Learning, Social Media and Human Information Interaction, Web-scale Information Analytics;
- **Cyber Security:** Applied Cryptography, Cloud Computing Security, Digital Forensics, Secure Software Engineering, Security and Privacy in Cyber Systems. Web Programming and Security, Advanced Topics in Blockchain, E-Payment Systems and Cryptocurrency Technologies;
- **Internet and Applications:** Internet Protocols and Systems, Internet of Things, Mobile Networking, Network Economics, Network Software Design and Programming, Online Social Networks;
- **Telecommunications:** Optical Networks, Wireless Communications, Analog and Digital Circuits, Switching Systems, Teletraffic Theory, Network Coding, Information Theory;

Students have great flexibility to pursue their own interests and may choose to specialize in one or more of the five streams — **Big Data, Communications, Cyber Security, Internet Engineering,** and **Enrichment Streams.**

The programme is accredited by the Hong Kong Institution of Engineers (HKIE).

Career Prospects

IE graduates are equipped with solid engineering knowledge and analytical problem-solving skills to create innovative solutions for important practical problems. Our graduates have embarked on successful careers in companies like Morgan Stanley, PwC, Société Générale, HSBC, SmarTone, IBM, MTR, Google, and more, or have started their own business, overseas or locally. Each year, around 10% of our graduates further study for masters or doctorate degrees, also overseas or locally. Their destinations include top universities such as CMU, MIT, Stanford, UC Berkeley, Caltech, Cambridge, Georgia Tech and more.



Xia Jialu

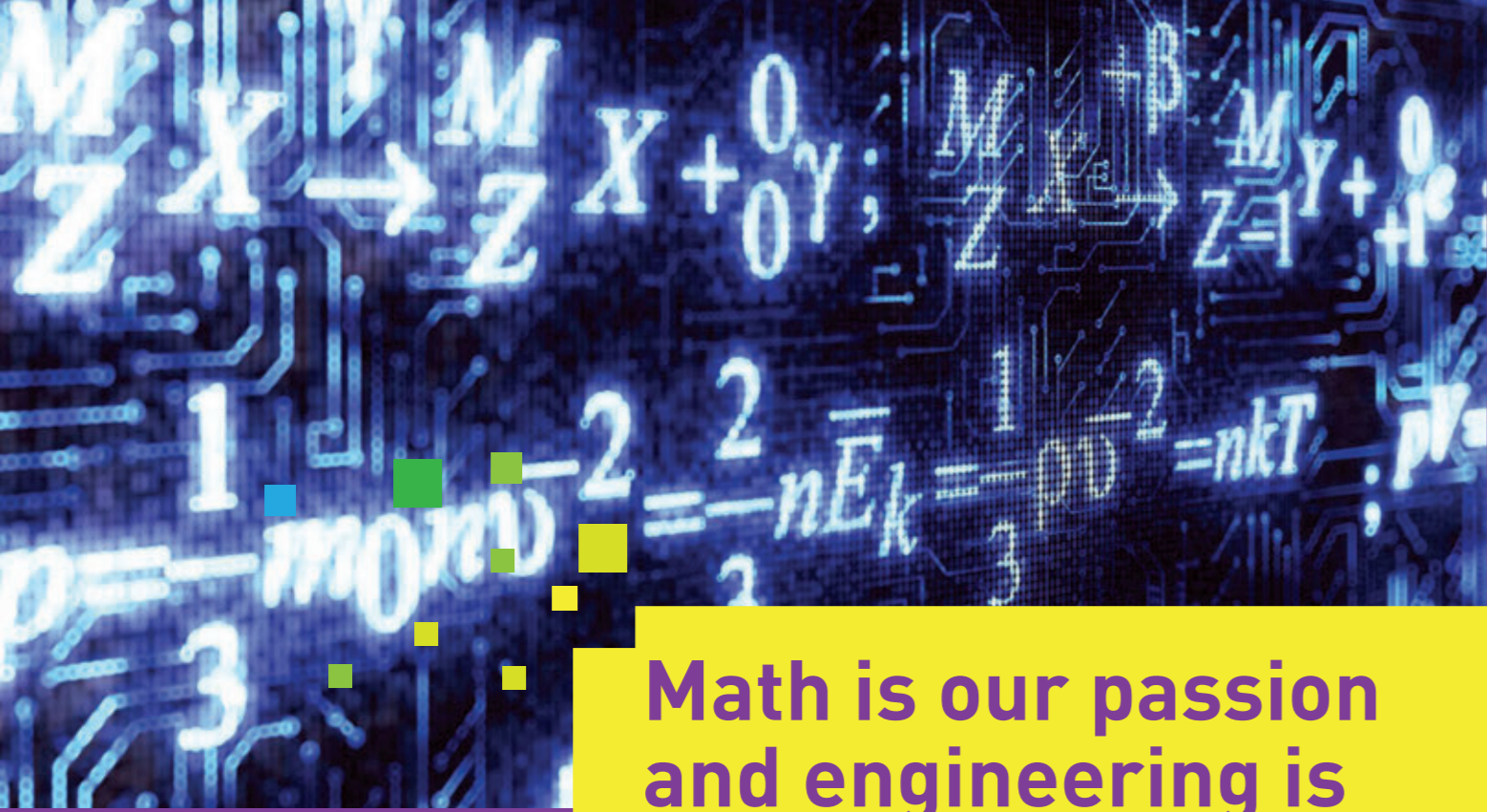
2019 BEng (Information Engineering) graduate
Data Scientist, Splunk Technology

Time flies; I graduated from Information Engineering and started my graduate career during the pandemic time. Everything was rushing. This summer, I work as a data scientist intern at Splunk, a big data company in California, US, and will be a full-time data scientist after graduation.

During the study in IE, we had basic programming classes, some useful discrete mathematics classes, and a lot of flexible electives. I tailored a set of electives, including machine learning, stochastic process, etc., to meet the requirement for a top data science master's programme at Columbia University after my undergraduate graduation. I also met very nice and supportive professors who gave me valuable advice in academics and career plans. In the final year project, we got a chance to research a topic that intrigued us, which is on Stroke Pattern Recognition in Chinese Medicine project, supervised by Prof. Lian. I learned to apply machine learning models to real-world data and contribute to a different field beyond Engineering. It had become an impressive experience on my resume.

You won't regret choosing CUHK. IE is an excellent major if you are interested in various latest advances in technology, and I chose big data.





**Math is our passion
and engineering is
our profession.**

MATHEMATICS AND INFORMATION ENGINEERING

This programme is offered jointly by the Departments of Mathematics and Information Engineering to provide students with diversified and advanced knowledge in the interdisciplinary study of mathematics and engineering. This demanding and boutique programme aims at educating a new generation of cutting-edge information scientists who are well-trained in the basics of communications, computer networks, algorithm design, and formal mathematics.



Programme Features

The programme places strong emphasis on research and encourages independent studies under supervision of professors from both Departments. Students will have opportunities to take up research work during their later years of study and a significant fraction of graduates from this small programme get to pursue graduate studies in the top schools worldwide.

Career Prospects

The career prospects of graduates are very promising because of the unique combination of abstract mathematical thinking abilities and solid engineering know-how for tackling problems. Career opportunities cover a diversity of fields including (but not limited to):

- Research — pursue postgraduate studies in areas related to mathematics, information engineering, or computer science;
- Information analysis — analyse and process information in quantifiable forms for the finance and banking industries;
- Engineering — engineering careers related to networking, security, and system management.



Liu Yinyin

2020 BSc (Mathematics and Information Engineering graduate)

Currently a Master student in Electrical Engineering & Computer Science at UC Berkeley

I chose MIEG as it is a unique programme combining mathematics and engineering. During my study, one of the most valuable things I learned is the two ways of thinking method: the mathematical bottom-up type of thinking and the engineering top-down type of thinking. Those two types of thinking trained us to be both creative and rigorous.

Most freshmen who aim to work in academia tend to choose a very specific major aligned with their interest. However, this may not be the best choice as a researcher's ability is generally limited by his/her math/physics ability at the graduate level. The same goes with students who aspired to work in finance, especially trading or investment. MIEG is a programme that provides a solid quantitative background for students, and we generally feel comfortable and confident entering any quantitative field.

Another impressive part of the MIEG programme is the community it builds, not only the students but also the professors. The professors and TAs are willing to help us whenever we are in trouble. The teaching staff would listen to our feedback and continuously improve their teaching methods and course materials. Although we pursue different career or academic goals, we help and share with each other. This is a lifetime relationship that not only exists between peers in the same year, but also between seniors and juniors. For example, I keep receiving help and suggestions from alumni as much as seven years older than me, and I also help juniors who are, maybe, five years younger than me. Prof. Nair has put a lot of effort in building this community.

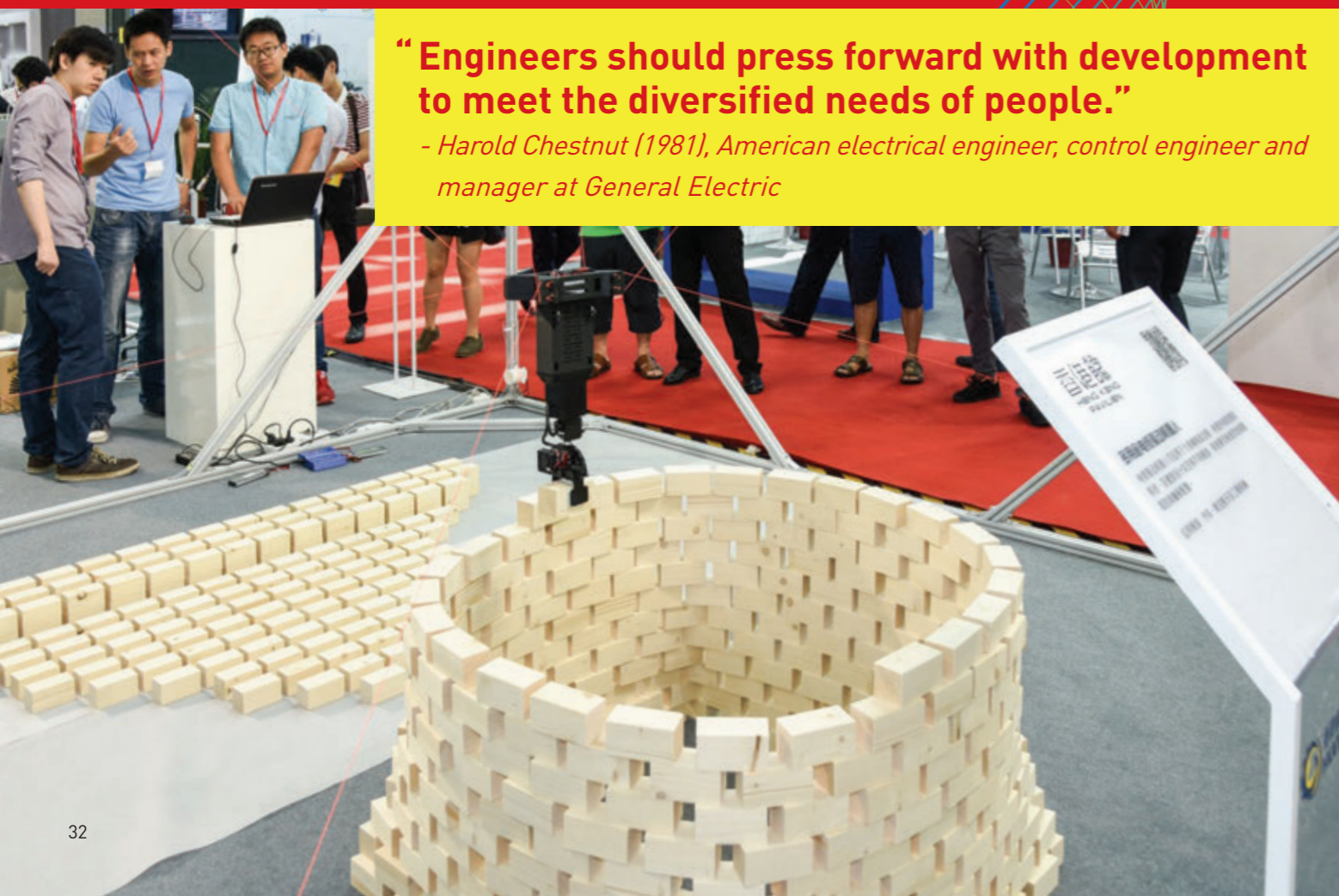
Do apply MIEG if you have an interest in math and engineering. It is indeed challenging, but you would enjoy the journey!

The Mechanical and Automation Engineering (MAE) programme emphasizes the impact of modern automation technologies on current and future developments in the field of mechanical engineering. The programme stresses a balanced curriculum in both basic theory and hands-on practice, and covering subject areas such as mechanics and materials, thermodynamics, mechanical design, manufacturing processes, mechatronics and robotics.

MECHANICAL AND AUTOMATION ENGINEERING

“Engineers should press forward with development to meet the diversified needs of people.”

- Harold Chestnut (1981), American electrical engineer, control engineer and manager at General Electric



Programme Features

The curriculum covers the fundamental knowledge in the areas of mechanical and automation engineering, including mechanics and materials, thermodynamics, control, manufacturing, and electronics. Students can pursue more in-depth knowledge in the subjects of their choices, such as computer-aided design and graphics, robotics, mechatronics, intelligence system, engineering optimization and MEMS. Students may choose to specialize in one of the following three streams or not to specialize in any stream:

- Design and Manufacturing
- Mechatronics
- Robotics and Automation

Courses in business, technical communications, engineering ethics, design application and final year projects are included in the programme to enhance students' training as professional practitioners. The Department also provides summer internships, work-study programmes and international exchange opportunities for its undergraduate students.

Lam Miu Ling, Cherry

2000 BEng, 2002 MPhil, and 2008 PhD (Mechanical and Automation Engineering) graduate

Associate Professor, School of Creative Media, City University of Hong Kong

I am a media artist and an associate professor in School of Creative Media at City University of Hong Kong. I received my BEng, MPhil and PhD degrees all from the Department of Mechanical and Automation Engineering with a focus on robotics and wireless sensor network research. I was an engineer in Hong Kong Aero Engine Services Limited before the PhD Programme. Upon PhD graduation, I was awarded a prestigious fellowship by the Croucher Foundation to support my postdoctoral research at the California Nanosystems Institute at UCLA. My current research projects focus on bioinformatics and physical intelligence.

As a media artist, I create artworks on the cutting-edge technologies and at the intersection of art, technology and science. The trainings on computer science, engineering design, and electronics obtained from MAE Department equipped me to explore new art dimensions by introducing novel ingredients to media arts. The MAEG Programme is not only practical for the development of engineering perspectives and researches, but also offering the possibilities to bridge across multiple disciplines.



Career Prospects

Upon graduation, MAE students find career opportunities as mechanical engineers, production engineers, control engineers and design engineers and other professions that rely on the programme's engineering training. They can also pursue graduate studies in their specialized areas of interest in Hong Kong or overseas.

Ho Chung Yan

2016 BEng (Mechanical and Automation Engineering) and 2017 BBA (Integrated BBA) graduate

Graduate Engineer, Airport Authority Hong Kong

It is my passion in the aviation industry that motivated me to become an engineer. During my five-year study, I have learnt much practical knowledge in engineering field including robotics and material engineering. I have participated in the Robocon HK competition 2016 which utilized much of what I have learnt and resulted us in championship. Also, I could further apply them in my internship in the air cargo terminal. My energy management skills were applied on the cooling fan installation project and the theory of electronics was important when handling with the conveyor system.

Besides, I seized the opportunities provided by MAE to explore more beyond our study in CUHK. In 2015, I went on an exchange programme in the Engineering Department in University College London to learn more engineering management skills. Furthermore, I joined the double-degree option majoring in Marketing, IBBA as well to train my mindset to be more innovative which is essential for an engineer. After graduation, I worked in the Airport Authority Hong Kong as a graduate engineer which fulfilled my passion. In my current career, the tasks I need to handle are more complicated and are not only related to the engineering discipline.





SYSTEMS ENGINEERING AND ENGINEERING MANAGEMENT

The Department of Systems Engineering and Engineering Management uses information technologies and mathematical tools to tackle the problems that arise in the study of complex, man-made systems such as supply chains, financial markets, logistics management, transport networks and business operations. Our undergraduate programme offers students a well-rounded education that equips them with the knowledge and skill-set necessary to compete not only in Hong Kong — a major financial and logistics centre with a thriving service industry — but also in the knowledge- and technology-based global economy.

“Not enough of our society is trained how to understand and interpret quantitative information. This activity is a centerpiece of science literacy to which we should all strive — the future health, wealth, and security of our democracy depend on it. Until that is achieved, we are at risk of making under-informed decisions that affect ourselves, our communities, our country, and even the world. — Neil DeGrasse Tyson

Programme Features

Our undergraduate programme offers intensive training in the fundamentals of information systems, decision sciences, technology management and entrepreneurship. In addition, the programme offers the following two specialized streams:

- Business Information Systems — focuses on the design, analysis and management of effective systems for storing, communicating and extracting information, which form the backbone of modern-day business and industrial operations.
- Decision Analytics — equips students with decision analytical skills such as statistical models, system simulation and optimization methods. The students will incorporate such skills in the decision making in the following areas:
 - Financial Engineering — emphasizes on the design and analysis of innovative financial instruments and strategies, as well as the use of advanced quantitative techniques and information technologies to manage and execute those strategies.
 - Logistics and Supply Chain Management — concerns with the coordination and management of material, financial and information flows of an enterprise’s operations.
 - Service Engineering and Management — a newly introduced specialization, which combines interdisciplinary knowledge, such as information technologies, cognitive science, economics, marketing, etc., to support operations and create value in the ever-growing service industry.

Career Prospects

Training in Systems Engineering and Engineering Management provides exposures to interdisciplinary knowledge and a solid understanding of both technical and economic aspects of complex systems.

Our graduates typically take up positions in logistics management, financial analysis, consulting, information technologies and related fields. Many are currently enjoying very successful careers in organizations such as HSBC, Deloitte, IBM, P&G and Kelly Logistics.

Wong Yin Ming, Anson

2020 BEng (Systems Engineering and Engineering Management) graduate
HKEX

SEEM provides a combined training in analytical foundation, business and technology to prepare students for solving problems in complex environments. Throughout the programme, I learned knowledge in different domains, such as business innovation, software engineering, financial investment and management consulting. As I have started to work in HKEX after graduation, I am able to seamlessly apply my acquired business analysis skills and trending development methodologies in this global leading bourse.

The business world and technology could be everchanging. With the education and support from our SEEM program, we are capable of tackling new challenges.



Double Degree Option

Engineering and Business Administration Double Degree Option

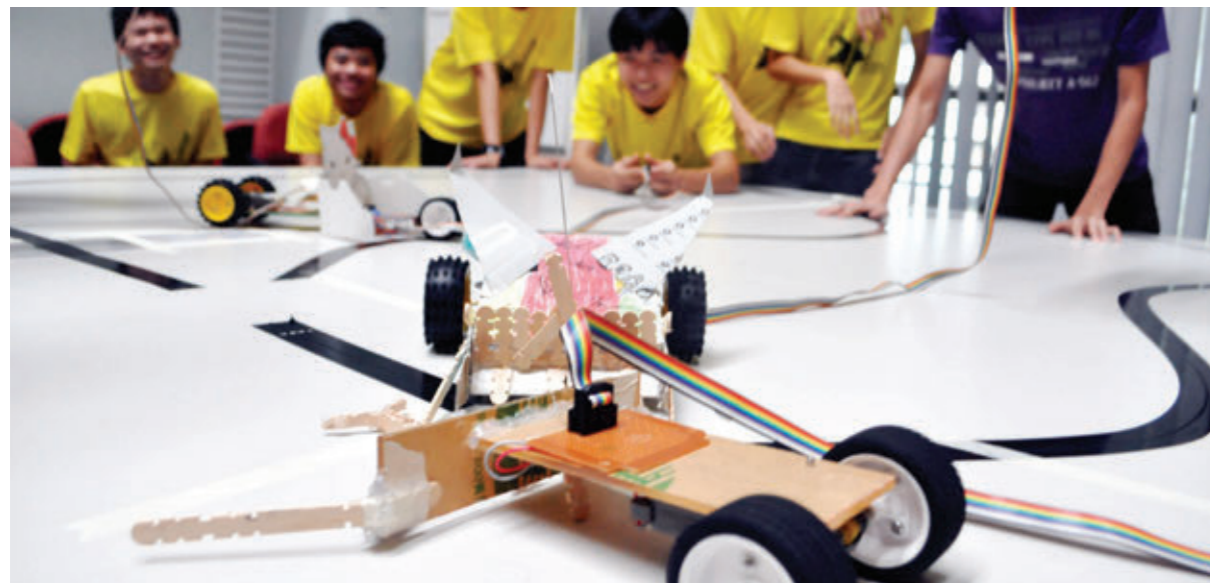
Hong Kong has transformed into a technology-enabled service economy, and the demand for engineers has changed. There are growing desires for many enterprises from small businesses to large corporates like banking and finance to recruit professionals with IT and related expert knowledge. Students graduated from this double degree option will be equipped with both strong technical and business knowledge, making them extremely competitive in the job market.

Programme Structure

Eligible students could pursue their first bachelor degree at the Faculty of Engineering with a selected major (BMEG, CENG, CSCI, ELEG, EEEN, FTEC, IERG, MAEG or SEEM), and after completion of the first degree, pursue the second bachelor degree at the Faculty of Business Administration for one year. Students would be awarded a Bachelor of Engineering and a Bachelor of Business Administration (BBA) in Integrated Business Administration (IBBA) upon completion of both programmes' requirements.

Programme Features

- No admission quota
- Students will first complete the Engineering degree before pursuing their second degree in the last year on self-financed basis. Students will need to take some Business Administration courses during the study period of the first degree.
- Students who eventually do not complete the second degree in Integrated Business Administration will be awarded a Minor in Integrated Business Administration in recognition of the credit units earned from the BBA courses if they fulfill the relevant academic requirements of the IBBA Minor programme.



www.erg.cuhk.edu.hk/ergbba

Career Prospects

Graduates of the Faculty of Engineering at The Chinese University of Hong Kong have always been put on the top priority by employers. The multi-disciplinary and multi-talent training offered by the Faculty prepares its students best for a wide variety of career choices both in the business and government sectors. Quite a number of engineering graduates started their own business and become successful entrepreneurs. Apart from this, many of our graduates have pursued their postgraduate studies and taken up teaching and research work in local and overseas prestigious institutions.

Job Statistics of Full-time Engineering Graduates 2020

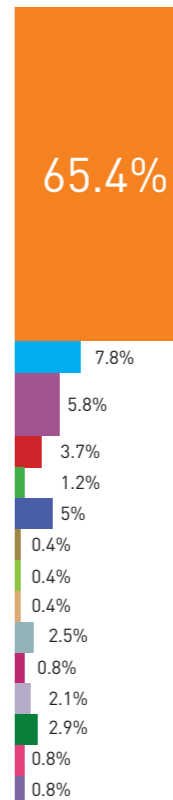
Employment Status



Career Fields

- IT: Computer Hardware & Engineering
- IT: Data Communications & Network / Internet Engineering
- IT: eBusiness
- IT: Electronic Engineering
- IT: Engineering Consultancy
- IT: Financial & Quantitative Analysis / Engineering
- IT: Information Systems Administration & Management
- IT: Multimedia & Digital Entertainment
- IT: Software Design & Development
- IT: System Solution & Services
- IT: Telecommunications
- Mechanical Engineering
- Banking / Finance / Business Consultant / Insurance / Wealth Management
- Administration / Management
- Medical Devices & Instrumentation
- Scientific / Research Work
- Sales / Marketing
- Customer Service
- Logistics / Shipping
- Teaching: Secondary / Teaching Assistant / Others
- Architecture / Surveying / Construction
- Others / Disciplined Service
- Industrial Engineering & Product Design / Manufacture
- Accounting / Auditing
- Art / Design

Sectors of Employing Organizations



Successful entrepreneur's story – An energetic social mobile solution company

Computer Science & Engineering graduate Louis Li is passionate about making a direct impact with his solid experience in engineering design. His team at RedSo develops new solutions to manage web-based mass queuing systems and prevent website crash due to high online traffic. The system allows operators to control traffic peaks of a website that may expect hundreds of thousands of visitors for high-demand sales events, flash sales and/or quota allocations.

"The covid-19 outbreak has made desperate crowds to crash websites for surgical masks, but I am glad my team has ultimately helped deliver smooth experience for end users. Technology does play a vital role in our life and I believe engineering is a great career changing the world in a better way" says Li. Together with his business partner Eric Ng, Louis has grown the team to over 30 employees, many of whom are also graduates of CUHK Engineering.



Admissions

JUPAS Admission

Secondary school students taking the Hong Kong Diploma of Secondary Education (HKDSE) Examination should apply for admission through the Joint University Programmes Admissions System (JUPAS). To be admitted to CUHK, an applicant must first fulfill the university and programme-specific subject requirements. Please refer to the website of the Office of Admissions and Financial Aid for further information.

<http://admission.cuhk.edu.hk/jupas>

Non-JUPAS (Local) Admission

Local applicants holding other qualifications can apply through the non-JUPAS admission scheme. These qualifications include Associate Degree/Higher Diploma, GCE-AL, IAL, IB, SAT/AP and other overseas qualifications for university admission. Applications will be assessed on a case-by-case basis. Please refer to the website of Office of Admissions and Financial Aid for further information.

<http://admission.cuhk.edu.hk/non-jupas-yr-1>

International Students Admission

Applicants who require a student visa to study in Hong Kong can apply through this scheme. Applicants must possess relevant high-school or post-secondary qualifications, which include GCE-AL, IAL, IB, SAT/AP, GSAT (Taiwan), OSSD (Canada), ATAR (Australia), and other relevant ones. Applications will be considered on a case-by-case basis. Please refer to the website of Office of Admissions and Financial Aid for details.

<http://admission.cuhk.edu.hk/international>



Admission with Advanced Standing

A non-JUPAS (local) or international applicant may apply for "Admission with Advanced Standing" if he/she meets specific requirements with relevant qualifications (including GCE-AL, IAL, IB, Associate Degree/Higher Diploma). For students admitted with Advanced Standing, the minimum number of units for graduation may be reduced by up to 24 units (normative period of study may be shortened by up to one year).

Senior-Year Admission for Sub-degree Holders

Applicants holding the qualification of Associate Degree or Higher Diploma could apply for direct admission to senior year places. Applicants admitted to senior year places are generally expected to complete their undergraduate studies in two years. For the 2022-23 entry, nine engineering programmes offer senior year places. They are Biomedical Engineering, Computer Engineering, Computer Science, Electronic Engineering, Energy and Environmental Engineering, Financial Technology, Information Engineering, Mechanical and Automation Engineering, Systems Engineering and Engineering Management.

Admission through National Colleges and Universities Enrolment System

Mainland students, who are current Gao Kao candidates, are welcome to apply through the National Colleges and Universities Enrolment System. Applicants may refer to the website of Recruitment of Mainland Students

<http://admission.cuhk.edu.hk/sc/mainland> for details.

Admission Scholarships

The Office of Admissions and Financial Aid, colleges, academic and administrative departments altogether offer plenty of scholarships each year. These scholarships provide not only recognition and encouragement to outstanding students, but also some financial support to needy students. The Faculty offers various entrance scholarships to newly admitted students with excellent entrance results in public exams. For the 2021 entry, about 90 students were awarded the Faculty Admission Scholarships.

Award Criteria for Admission Scholarships

For JUPAS students

Dean's Award (Remarks)		Scholarships by the University Information of 2021 entry is listed for reference. Scholarship information of 2022 entry will be announced through the Office of Admissions and Financial Aid website: admission.cuhk.edu.hk	
Achievements (Marks in any best 5 subjects)	Scholarships by the Faculty	Achievements	Scholarships by the University
35 marks	Cash award of \$56,000 (renewable)	Level 5** in 6 or more subjects	(i) Full Tuition (renewable); (ii) Annual Allowance of \$20,000 (renewable); AND (iii) One-off Exchange Scholarship of \$30,000
33-34 marks	(i) Half Tuition (renewable); AND (ii) Cash award of \$30,000 (renewable)	Level 5** in 5 subjects	(i) Half Tuition (renewable); AND (ii) One-off Exchange Scholarship of \$10,000
30-32 marks	(i) Half Tuition (one-off); AND (ii) Cash award of \$30,000 (one-off)	Level 5** in 4 subjects	(i) Half Tuition (one-off) (ii) One-off Exchange Scholarship of \$10,000
		Level 5** in 3 subjects	(i) Scholarship: \$10,000 (one-off) (ii) One-off Exchange Scholarship of \$10,000
		Level 5** in 2 subjects	Scholarship: \$5,000 (one-off)

Students eligible for scholarships have the opportunity to be awarded both scholarships by the University and the Faculty. The exact amount is subject to University regulations.



Calculation of Marks (for Scholarship)

Conversion Table							
HKDSE Level	5**	5*	5	4	3	2	1
Mark	7	6	5	4	3	2	1

Remarks:

Mathematics Extended Module 1 or 2 is counted as one subject for scholarship considerations.

For Non-JUPAS (Local) and International students

Admission scholarships will be provided to non-JUPAS (local) and non-local applicants admitted with outstanding entrance grades in public examinations such as GCE-AL, IAL, IB diploma, etc.

For Sub-degree holders

\$10,000 scholarship for students admitted to the Faculty with the qualification of "Distinction" of their Associate Degree or Higher Diploma from institutions in Hong Kong.

Faculty Office

Faculty of Engineering
Room 606, Ho Sin Hang Engineering Building,
The Chinese University of Hong Kong,
Shatin, N.T., Hong Kong
Tel: (852) 3943 8446
Email: info@erg.cuhk.edu.hk
Website: www.erg.cuhk.edu.hk



Centre for Innovation and Technology (CINTEC)

Technology Transfer | Industrial Collaboration | Incubation
Room 601-2, Ho Sin Hang Engineering Building, CUHK
Tel: (852) 3943 8221
Email: enquiry@cintec.cuhk.edu.hk
Website: www.cintec.cuhk.edu.hk



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