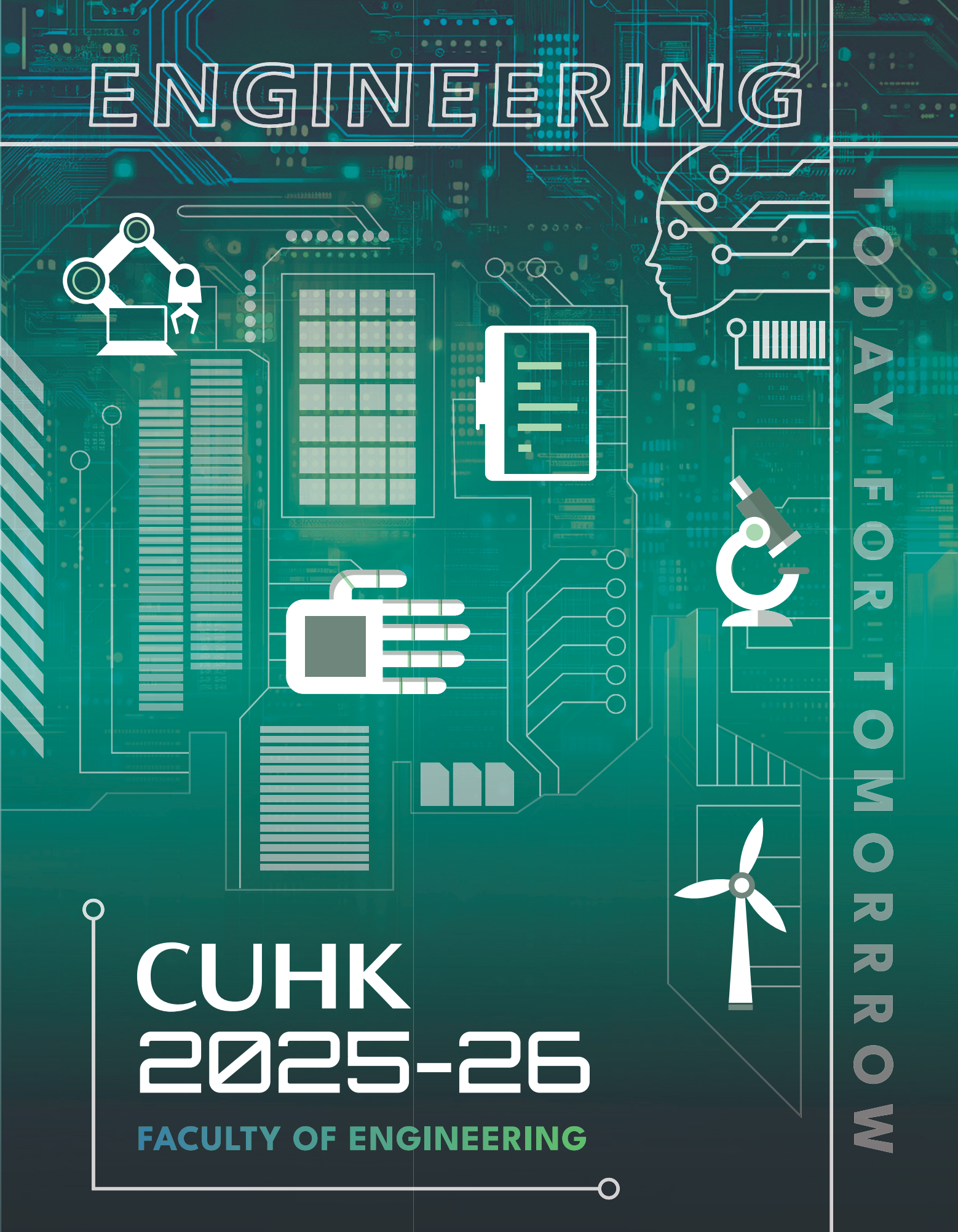
ENGINEERING

TODAY FOR TOMORROW



CUHK 2025-26

FACULTY OF ENGINEERING

CUHK

Founded in 1963, The Chinese University of Hong Kong (CUHK) is a forward-looking comprehensive research university with a global vision and a mission to combine tradition with modernity, and to bring together China and the West. As a top university in Hong Kong and Asia, CUHK aims to nurture students with both specialized knowledge and wisdom for life. 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 a wide array of excellent undergraduate and postgraduate programmes.

CUHK undertakes a wide range of research programmes in many subject areas, and strives to provide scope for all academic staff to undertake consultancy and collaborative projects with industry. The University's insistence on the highest standards of research has won it an enviable research reputation. The University has long promoted interdisciplinary research excellence on a local, national and international scale.

Contents

Dean's Words

CREATIVITY, INNOVATION AND LEARNING @ CUHK ENGINEERING

Founded in 1991 by our former Vice-Chancellor, the late Prof. Sir Charles Kao (2009 Nobel Laureate in Physics) the Faculty of Engineering has many distinguished professors, many of whom are at the forefront of their disciplines, and committed to teaching and advancing the state-of-the-art in Engineering by research.

The Faculty provides internationally accredited education programmes for our undergraduate students, and advanced research training for our research students. Currently with more than 4000 undergraduate and graduate students, we offer a wide spectrum of academic programmes including artificial intelligence: systems and technologies, biomedical engineering, computer science and engineering, electronic engineering, energy and environmental engineering, financial technology, information engineering, materials science and engineering, mathematics and information engineering, mechanical and automation engineering, and systems engineering and engineering management. Our students' learning activities go beyond the classroom and practical training in laboratories: we also offer field trips, international exchange, undergraduate summer research internship and work-study placements in industry.

The Faculty is widely recognized for its excellence in research. Our laboratories and research environment have been assessed as 4* (world leading) by international panel of experts engaged by the Research Grants Council in the latest Research Assessment Exercise. Our professors work with industry to transfer knowledge and introduce new technologies which can serve the wider community and improve the quality of life and solve challenges in society. CUHK was the pioneer in Hong Kong's internet infrastructure and development. That most of today's internet traffic in Hong Kong still goes through CUHK's routers is a testimony and legacy of our pioneering contributions on the internet in Hong Kong. Today, Artificial Intelligence (AI) is poised to transform every aspect of our lives. Our professors have created many startup companies, with notable successes including SenseTime, the first Unicorn in HK in the area of AI. On international rankings in Engineering, we are among the best in the world, with Data Science & Artificial Intelligence ranked 19th in the world in the QS World University Rankings by Subject 2025.

Engineering lies at the core of changes in advancing the technology used in the world today. The mission of Engineers is to create technologies for the betterment of mankind. The 21st century is seeing even more technological changes than the 20th century, with the accelerating changes as technology advances exponentially. The convergence of the Internet of Things, artificial intelligence, robotics, data science, biotechnology, materials engineering, microelectronics, autonomous vehicles, advanced manufacturing, and nanotechnology will disrupt every industry and every aspect of modern life. Engineering teaching and research excellence at CUHK will position our students to embrace the grand challenges facing the world in this century.

In this brochure, you will find information about our Faculty's figures, professors and students' achievements, undergraduate programmes and students' sharings. Please contact us if you wish to learn more or wish to visit the facilities as a prospective student.

Prof. Hon Ki TSANG
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 endeavours to uphold 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
- Materials Science and Engineering
- Mechanical and Automation Engineering
- Systems Engineering and Engineering Management

Bachelor of Science

- Computer Science
- Aerospace Science and Earth Informatics & X Double Major Programme
- Computational Data Science
- Interdisciplinary Data Analytics & X Double Major Programme
- Learning Design and Technology
- Mathematics and Information Engineering

* 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.44 for programme details.

Double Degree Option

Engineering and Business Administration*

Postgraduate Diploma (full-time/ part-time)

Financial Technology

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

- Artificial Intelligence
- Biomedical Engineering
- Computer Science
- E-Commerce and Logistics Technologies
- Electronic Engineering
- Financial Technology
- Information Engineering
- Mechanical and Automation Engineering
- Robotics
- 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

Facts and Figures

Students (as of August 2025)

2,789	Undergraduate
949	Taught Postgraduate
1086	Master of Philosophy & Doctor of Philosophy

Staff (as of August 2025)

152	Professoriate
29.5	Non-Professoriate
363	Research support

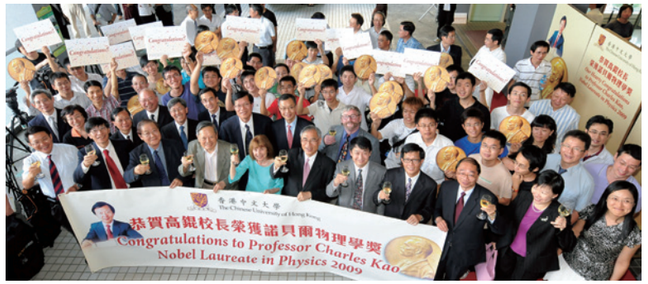
Excellence in Teaching and Research

Excellence in Teaching and Research

Over a hundred of the 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 to 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, energy, logistics and financial engineering. Our professors have extensively published their research findings in world-class journals and conferences, and at the same time applied their R&D results into 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 InnoHK Centres

InnoHK is a major initiative of the Hong Kong Special Administrative Region Government to develop Hong Kong as the hub for global research collaboration. This involves the establishment of world-class research clusters at the Hong Kong Science Park with research laboratories set up by world-renowned universities and research institutes to conduct collaborative researches. In a major contribution to Hong Kong's innovation agenda, the Faculty of Engineering has launched three research centres under AIR@InnoHK, one of InnoHK's two research clusters focusing on AI and robotics technologies:

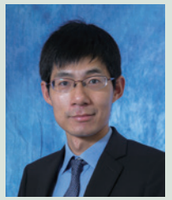
- **Centre for Perceptual and Interactive Intelligence**
- **Hong Kong Centre for Logistics Robotics**
- **Multi-Scale Medical Robotics Centre**

RGC Senior Research Fellow / Research Fellow

Professor Xing Guoliang and Professor Chen Shih-Chi received awards under the 2025-26 Research Grants Council (RGC) Senior Research Fellow Scheme (SRFS) in recognition of their distinguished research achievements. Professor Xing received the award for his project "Multi-modal Perception Fusion and Interaction for Infrastructure-assisted Driving Systems" and Professor Chen received the award for his research project on "Closed-loop High-throughput Super-resolution Two-photon Lithography". They will be given the title "RGC Senior Research Fellow" and receive a fellowship grant of about HK$8.2 million each to support for research projects over a period of 60 months.

Xing Guoliang

Chen Shih-Chi



Zhou Renjie

Professor Zhou Renjie received an award under the 2025-26 RGC Research Fellow Scheme (RFS) in for his project "High-sensitivity Morpho-molecular Microscopy for High-throughput Imaging Applications". He will be given the title "RGC Research Fellow" and receive a fellowship grant of about HK$5.5 million to support for research project over a period of 60 months.

Engineering projects receive funding from ITC's RAISe+ Scheme

The Innovation and Technology Commission (ITC) of the Hong Kong government launched the Research, Academic and Industry Sectors One-plus Scheme (RAISe+ Scheme) in October 2023. Various project teams led by Faculty of Engineering Professors received funding support from the scheme. The projects cover a diverse range of innovative areas from advanced engineering, biomedical to biotechnology, demonstrating a high level of technology which enables the translation of research outcomes into product developments.

Five projects received funding support in the first cohort in 2024

Three projects received funding support in the second cohort in 2025

Professor Raymond Tong and his research team from the BME Department have achieved remarkable success in the Start-up Express 2025 competition, organized by HKTDC. Their startup company, RT HealthTech, showcased groundbreaking innovations, including Bionic Muscles and XoBrace, which also received the prestigious Silicon Valley Award. This recognition highlights a strong commitment to advancing biomedical engineering and innovation.

Professor Li Yu was elected as one of MIT Technology Review's Innovators under 35 China (TR35) in 2024, which aims to select and recognize top-notch young innovators from various cutting-edge S&T and industry fields annually and accelerate the pace of S&T innovations from around the globe. Professor Li was recognized for leading his team in a series of research projects related to RNA therapeutics and artificial intelligence, including disease modeling, RNA sequence and structure modeling, and RNA design.

Professor Yu Bei was awarded the Best Paper Award at ICCAD 2024, one of the premier conferences in electronic design automation (EDA). His award-winning paper, titled "An Agile Framework for Efficient LLM Accelerator Development and Model Inference" addresses the pressing challenges of designing efficient hardware accelerators for Large Language Models (LLMs), particularly in edge computation scenarios.

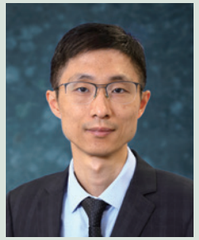
This impactful work is a collaborative effort between CSE Department and Zhejiang University, showcasing the power of academic partnerships in tackling complex engineering problems. This recognition marks the third time Prof. Yu has received the ICCAD Best Paper Award, having previously been honored in 2013 and 2021. His continued success reflects his dedication to advancing the field of EDA and exemplifies the cutting-edge research being conducted in our department.

Professor Sun Xiankai has been elected as a 2025 Fellow of Optica for his outstanding contributions to integrated photonics, optoelectronics, and optomechanics. Professor Sun is an expert on chip-scale integrated photonic, electronic, and mechanical devices and systems. His current research focuses on novel photonic and optomechanical nanodevices for both fundamental research and practical applications. Optica (formerly OSA), Advancing Optics and Photonics Worldwide, is a society dedicated to promoting the generation, application, archiving, and dissemination of knowledge in the field.

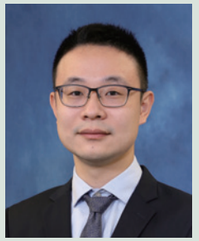
Professor XU Jianbin, Associate Dean (Mainland Affairs), has been elected as a Foreign Fellow of the European Academy of Sciences (EURASC) in recognition of his outstanding research and contributions in the field. EURASC is a non-profit non-governmental, independent organization of the most distinguished scholars and engineers performing forefront research and the development of advanced technologies, united by a commitment to promoting science and technology and their essential roles in fostering social and economic development.

Two pioneering projects from Professor Xing Guoliang and Professor Yan Zhenyu's teams have been awarded Gold Medals at the 50th International Exhibition of Inventions Geneva.

The project "An Intelligent LiDAR with Adaptive Focus", led by Professor Xing, is recognized as the world's first advanced adaptive LiDAR system that enhances scanning efficiency by dynamically optimizing scan focus through an intelligent, software-defined mirror controller. It achieves much higher resolution on regions of interest, leading to significantly more efficient and safer autonomous driving.



Another project "Sonar-based Underwater Human Activity Monitoring System", led by Professor Yan, is the first-of-its-kind underwater sonar system enhances safety in swimming pools by monitoring human activity and alerting lifeguards to potential dangers.



Professor Lu Yi-Chun was selected as the winner of the Tajima Prize 2024 for her innovative work in the field of advanced rechargeable batteries such as redox-flow, metal-air, and metal-sulfur batteries. The Tajima Prize is a society award given by the International Society of Electrochemistry (ISE). It recognises the contributions made by younger electrochemists.

Professor Liao Wei-Hsin's team has developed two pioneering innovations: a battery-free wireless keyboard and a batteryless smart insole for gait monitoring. The inventions have received international recognition at the 50th International Exhibition of Inventions Geneva, winning a Gold Medal with Congratulations of the Jury and a Bronze Medal respectively.

The battery-free wireless keyboard utilises cutting-edge "kinetic-to-electrical" energy conversion technology, which transforms the kinetic energy from each keystroke into electrical power to operate the keyboard and transmit signals. The batteryless smart insole integrates energy harvesting and sensing capabilities within a single piezoelectric-powered beacon. By harvesting kinetic energy from walking, it operates entirely without external power sources.

Professor Anthony Man-Cho So, together with Professor Krishnakumar Balasubramanian, Dr. Shixiang Chen (former SEEM PhD student), Dr. Jiaxiang Li, Professor Shiqian Ma (former SEEM academic staff), and Professor Tong Zhang, received the 2024 INFORMS Computing Society (ICS) Prize at the 2024 INFORMS Annual Meeting for their "path-breaking work in Riemannian Optimization". The ICS Prize is an annual award for the best English language paper or group of related papers dealing with the Operations Research/Computer Science interface.

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 active participation 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.

Ms. Siu Man Hei Connie, BME Undergraduate student graduated in 2024, has been awarded the title of Champion (Undergraduate Group) in the Best Paper on Materials 2024 Competition by HKIE. Her paper, titled “Gold Nanoparticles for Alleviating Inflammatory Skin Disease – Exploring Alkyl-Terminated Gold Nanoparticles as a Novel Self-Therapeutic Treatment for Atopic Dermatitis (AD),” showcases her innovative research in the field.

ENKHTAIVAN Ankhbayar, LEI Hei Tung, and YUM Ho Kan, undergraduate Computer Engineering (CENG) students supervised by Dr. SUM Kwok Wing Anthony from the CSE Department, were awarded Third Prize in the Innovation Track of Huawei ICT Competition 2024-2025 Asia-Pacific Regional Final for their project, “Revolutionizing Rodent Management: An Intelligent AI-Powered Control Solution”. The project utilizes advanced Huawei AI technologies to create an embedded IoT system addressing real-world community issues.

The awards ceremony, jointly hosted by Huawei and the ASEAN Foundation, was held in Kuala Lumpur, Malaysia on February 27, 2025. The competition attracted more than 8,000 students from over 20 countries and regions.

A team of undergraduate students, including LEI Hei Tung, an undergraduate Computer Engineering (CENG) student and XIAN, Yi Fan, an undergraduate Artificial Intelligence – Systems & Technologies (AIST) student from the CSE Department, received the 1st runner up in the Smart Campus Solution Competition. The award-winning project develop innovative solutions aimed at enhancing the learning experience for local students. Their project was inspired by a common challenge faced by many of their peers—difficulty in grasping key concepts during lessons, which often leads to falling behind.

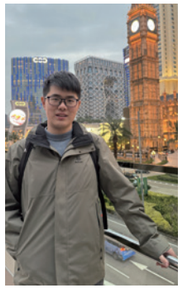
Faculty of Engineering Robotics Team

CUHK robotics teams “Wonder Seed” and “Golden Farmer” won the Championship and the First Runner-up respectively in the Robocon HK Contest 2024. This is the 4th triumphs in four consecutive years for CUHK robotics team! The team was selected to represent Hong Kong in the ABU Robocon after winning the championship at the Robocon 2024 Hong Kong Contest, and won the Grand Prix Award and Best Design Award in Asia-Pacific Broadcasting Union’s Asia-Pacific Robot Contest (ABU Robocon) 2024.

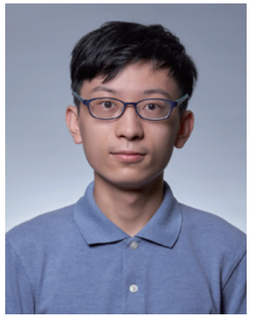
The Engineering robotics team the Faculty of Engineering received the Grand Prix Award at the ABU Robocon in 2024. It was the third time CUHK took the award. Since ABU Robocon’s inception in 2002, CUHK robotics team has advanced to six finals (2016, 2019, 2020, 2021, 2022, 2023 and 2024) of this international trophy, and in 2019 became the first Hong Kong team to win the championship.

Mr. NG Chi Kit, an outstanding EE year-4 undergraduate student, won the Creativity Award in the Grand Final of CUHK Capstone Project Presentation Competition 2024 due to his lively presentation on autonomy enhancement of robotic surgery. The competition aims to provide a university-wide platform for students to showcase the outcomes of their year-long capstone projects to a much wider audience. This initiative will promote academic excellence and interdisciplinary communication by providing an opportunity for final-year students from various backgrounds to gain valuable experience in presenting their research work in public.

Mr. HU Gaolei, a PhD student under supervision of Prof. TSANG Hon Ki won one of the three Best Student Paper Awards at the IEEE Silicon Photonics Conference held in Tokyo on 15-18 April 2024 for his paper "Multimode-Fiber Imaging Using a Wavelength-Scanned Integrated Optical Phased Array". The prize recognized his innovative method for getting images from light transmitted by a multimode optical fiber in a single pixel imaging system.



Sherman Chow



Andes YL Kei

Andes YL Kei (IE PhD student and Hong Kong PhD Fellowship recipient) and Professor Sherman Chow won the Distinguished Artifact Award at NDSS Symposium 2025, a leading security conference, with the paper “SHAFT: Secure, Handy, Accurate, and Fast Transformer Inference”. SHAFT is an efficient private inference framework for transformers, enabling secure computations on encrypted data. It supports large language models by importing pretrained models from Hugging Face via ONNX, allowing the machine learning community to deploy private inference without cryptographic expertise.

Mr. CHOI Ho Yin Issac (SEEM student), led a team of 4 won the 1st Runner-up in the Citibank Disruptive Client Experience in the Digital Banking Era.

The team strives to enhance the user journey by revamping Citibank HK mobile app, introducing Calendar Banking, integrating with mobile OS ecosystems, and redefining Relationship Management with the use of data and algorithms. They are proud to introduce solution with three essential aspects: instant, lively, and personalized. They capitalize on digital banking technology to penetrate and blend into every second in everyone’s life, driving all individuals in the mass market to the digital transformation journey.

The CUHK team, comprising MAEG students LAW Yee Shun, NG Tsz Hin, and SIN Shing Yu, won the Robot Skills Champion at the 2024-2025 VEX Robotics Competition Asia Open Finals, held in Taizhou, China.

The team subsequently represented Hong Kong at the 2025 VEX Robotics World Championship, held in Dallas, Texas, USA in May 2025. Following the event, they were ranked 17th out of 249 teams in the World Skills Standings on RobotEvents.com, as of May 2025. The VEX Robotics Competition is one of the largest-scale robotics competitions in the world.

Miss WONG Hung Wa Helen, an EEEN student, received the IMechE Hong Kong Branch Best Student Design Award 2024/25 for her project entitled “OptiGrip: Sustainable, Minimal & Optimized Prosthetic Mount and Rehab Splintage”. The design ensures optimal stability and range of motion to deliver exceptional functionality and experience for both rehabilitation and daily tasks.

Organized by The Institution of Mechanical Engineers Hong Kong Branch, the Award aims to recognize contributions to the mechanical industry from student design projects and to appreciate the performance of outstanding mechanical engineering students. One award is given to each institution only.

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. Its aims to nurture outstanding engineering students and to develop their potentials through additional challenging course works 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/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.

KEI, Yat Long

Financial Technology under ELITE Stream

As a local citizen living in Hong Kong, the international financial centre, bringing the latest technology to the financial service industry is one of my biggest interests. Therefore, I am grateful to enter the CUHK Fintech program, which lets us explore a wide range of knowledge, such as investment science, Fintech regulation policy, and machine learning. Besides the theoretical knowledge learned in lectures, I also obtained hands-on technical experience in project-based courses. Moreover, the fruitful experience of participating in the ELITE stream let us explore more in the research field with the additional challenging coursework. Through various extra-curricular activities, not only can we build connections with people in different areas but also sharpen our leadership and teamwork skills.

WOO, Pui Yung Anna

Mathematics and Information Engineering under ELITE Stream

The program equipped me not only with solid engineering knowledge but also with problem-solving skills and abilities to generate innovative solutions. The ELITE stream also played an important role in my education. The ELITE courses were challenging and stimulating; e.g., some required me to learn a topic of my choice and give a presentation on it. Furthermore, I met many brilliant ELITE classmates. We exchanged ideas and also taught and motivated each other. Besides, I was provided with various experimental learning opportunities, e.g., research internships and a summit. I am super grateful to the program and the faculty for their support and education.

Undergraduate Summer Research Internship

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

International Exchange

The University has student exchange programmes with 280 world-renowned partner institutions in more than 35 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 him 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.

NGUYEN Hoang Son

Artificial Intelligence: Systems and Technologies

Recipient of Charles K. Kao Research Exchange Scholarship

In 2023, I participated in a summer internship at School of Electrical Engineering and Computer Science at Oregon State University, Corvallis, U.S.A. The internship was inspiring for me as a young researcher, during which I was introduced to new research directions in data science and matrix factorizations. The experience of working on these interesting problems gave me new pointers on what future career path to pursue. However, the loveliest part of the trip was spending time with the welcoming people of Corvallis. I will always remember the trip to Silver Falls State Park with other OSU students, or late-night BBQ under the stars with my lab mates, or a daytrip to an Oregon beach to have a look at Pacific Ocean from the other side for the first time in my life. The trip reminds me of how vast both the academic world and the actual world are, and that there is a lot more out there waiting for my future self to see.

GLOBEX Summer Programme@PKU

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

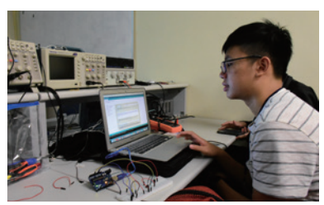
MA Daliang

Financial Technology

The program's commitment to fostering cross-cultural understanding, academic excellence, and experiential learning is commendable. I am confident that the insights gained and the skills honed during this program will be invaluable in my future endeavors and contribute positively to the advancement of intelligent manufacturing and data science. As I reflect on this journey, I am filled with gratitude for the opportunity to be a part of the GLOBEX Program, and I look forward to applying the knowledge and experiences gained in making a meaningful impact in the world of intelligent manufacturing.

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 nurtures 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 Progamme

To assist students in fostering their future career development, the Faculty has initiated the Placement and Internship Progamme (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 a 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 provide students with valuable working experience.

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

List of selected companies participating in the PIP

- ASMPT Technology Hong Kong Limited
- China Mobile International Limited
- CITIC Telecom International CPC Limited
- CLP Holdings Limited
- Computer And Technologies Holdings Limited
- Deloitte Touche Tohmatsu
- GP Electronics (HK) Limited
- HKT Services Limited
- Hong Kong Air Cargo Terminals Limited (Hactl)
- Hong Kong Aircraft Engineering Co. Ltd. (HAECO)
- Hong Kong Applied Science and Technology Research Institute (ASTRI)
- Hong Kong Deposit Protection Board
- Hong Kong Disneyland
- Hong Kong Monetary Authority
- Huawei Technologies Co., Ltd.
- IBM
- Jane Street Group, LLC
- JPMorgan
- Microsoft Corporation
- Morgan Stanley
- MTR Corporation Limited
- PwC
- TENCENT
- The Hong Kong Jockey Club
- The Hong Kong and Shanghai Banking Corporation Limited
- The Hongkong Electric Co. Limited
- The Jardine Engineering Corporation Limited
- VTech Telecommunications Limited

For more information, please visit the website of PIP: https://pip.erg.cuhk.edu.hk

Undergraduate Programmes

Starting from the 2022 entry, the Faculty of Engineering has adopted 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 following undergraduate programmes through the JUPAS and non-JUPAS admission routes.

- 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)
- Mechanical and Automation Engineering (JS4408)
- Systems Engineering and Engineering Management (JS4458)

Six Interdisciplinary Programmes

- Aerospace Science and Earth Informatics & X Double Major Programme (JS4750)
- Computational Data Science (JS4416)
- Learning Design and Technology (JS4386)
- Materials Science and Engineering (JS4470)
- Mathematics and Information Engineering (JS4733)
- Interdisciplinary Data Analytics & X Double Major Programme (JS4760)

Artificial Intelligence: Systems and Technologies

Introduction

Artificial Intelligence (AI) is an emerging engineering discipline that focuses on technological innovations that enable 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 across multiple disciplines, such as finance, medicine, manufacturing, robotics, multimedia, telecommunications, computational linguistics, etc. Yet there are still 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 this technology incurs.

> *Predicting the future isn't magic, it's artificial intelligence.*
>
> *– Dave Waters*

Programme Features

The AIST programme aims to equip students with the skills needed to design and implement AI systems and technologies that can analyse, reason, and infer knowledge from big data, supported by a rigorous foundation of mathematics, basic sciences, data structures, statistics, algorithms, distributed computing, etc. These skills enable students to develop cutting-edge AI solutions that are of practical use to academia, industry, and society.

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

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

Career Prospects

As there is now a shortage of AI specialists both locally and globally, with the support of a pool of top-tier AI talent and sophisticated scientific research facilities, our programme aims to train talented AI engineers and scientists for the following industries: biomedical engineering/science, information and computing technologies, manufacturing and robotics, and intelligent multimedia processing for Internet companies.

(852) 3943 4269
ug-admiss@cse.cuhk.edu.hk
www.cse.cuhk.edu.hk/aist

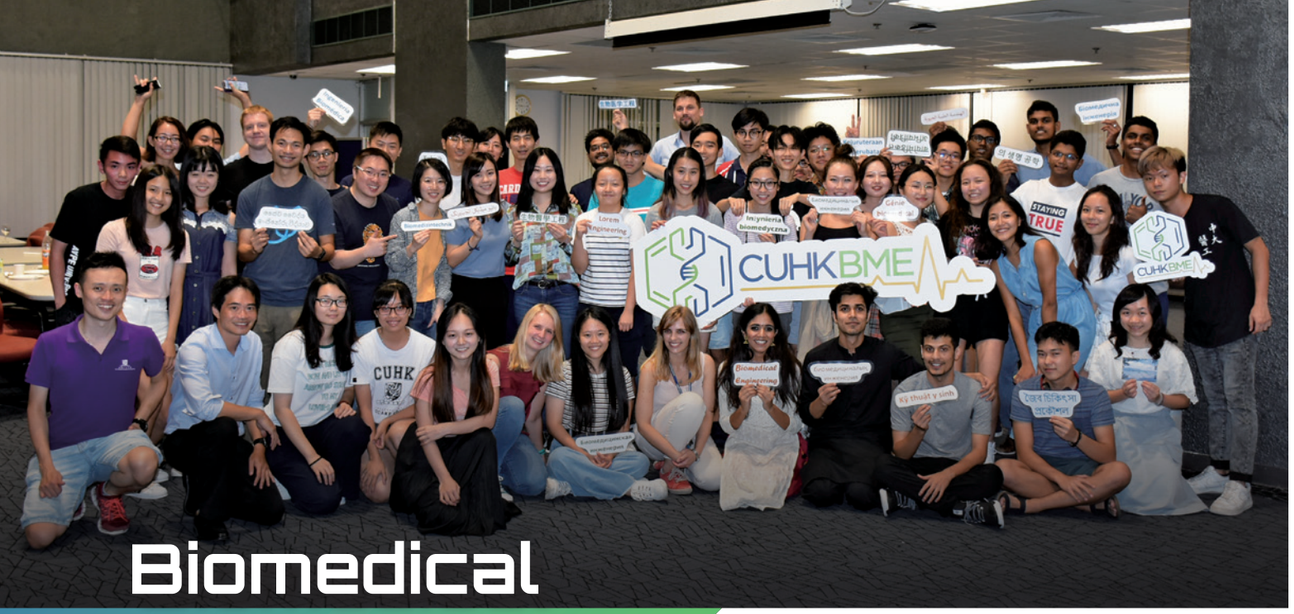
CHIU Long Him

2023 BEng (Artificial Intelligence: Systems and Technologies) graduate

Start-Up Founder

During my enriching journey at CUHK, I have created cherished memories and embraced numerous opportunities that have profoundly shaped me. As a member of the pioneering batch of the AIST program, my fellow classmates and I encountered uncertainties, yet we discovered abundant pathways for personal and academic growth. The close-knit community within our major fostered strong bonds with classmates and underclassmen, enabling us to forge lasting connections.

Thanks to the invaluable connections and knowledge I have gained at CUHK, I have been able to apply my academic expertise in AIST to successfully launch and operate my own startup with some CSE friends I met in the programme. This university has played a pivotal role in shaping my career path and creating opportunities for personal growth. The resources provided by CUHK, especially the PI Centre and EPIN, have contributed significantly in our achievements. With support from CUHK, we have been able to transform our aspirations into reality. I will be forever grateful for the transformative experience and lifelong connections I have gained during my time at CUHK.



Biomedical Engineering

Introduction

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 extensive collaboration with Faculty of Medicine. Students not only benefit from an education conducted 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.

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 sales, clinical engineering, regulatory affairs and entrepreneurship in technology. Graduates are also well equipped to pursue advanced study in engineering and biomedical sciences. Some graduates also pursue careers in business, law and medicine.

Programme Features

The programme's specialty areas are:

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

(852) 3943 1935
bmeinfo@cuhk.edu.hk
www.bme.cuhk.edu.hk

"Technology and innovation are transforming our health. Biomedical Engineers are enabling the transformation."

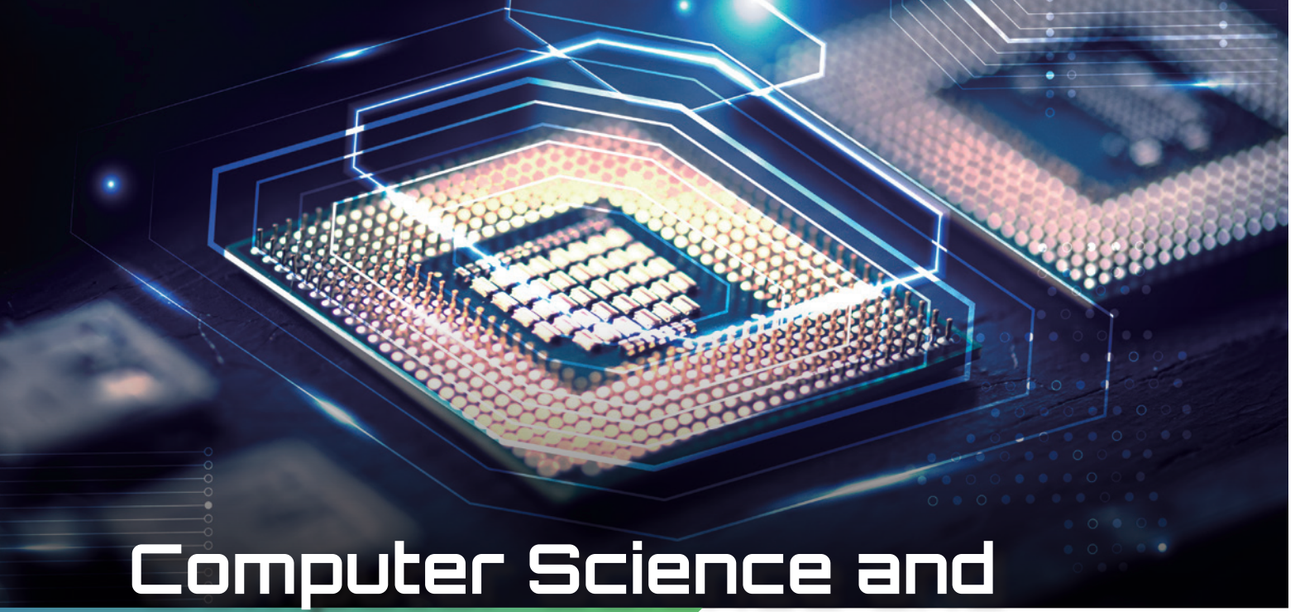
Wong Cheuk Yiu, Callie

2023 BEng (Biomedical Engineering) graduate

Currently pursuing PhD at
the University of Edinburgh

I graduated from CUHK BME in 2023, and now I am pursuing a PhD at the University of Edinburgh. I gained a lot from my four years at CUHK. I am glad to have had excellent support from BME professors, that allowed me to gain undergraduate research experiences, to engage in different research projects, and of course, I am thankful for the guidance I received for my PhD applications. My interest in research started with me being a summer research student in Professor Duan's Lab via the undergraduate summer research internship by the Faculty of Engineering, and I am now on the other side of the world working on my own PhD project.

I found the BME lectures to be fun and exciting. I chose to specialise in the Molecular, Cell and Tissue Engineering stream, and enjoyed the lecture time with my peers. I particularly enjoyed the hands-on BME laboratory courses, which were very popular among BME students. We got the chance to perform experiments inside the lab to have a grasp of the work behind the scientific theories discussed during lectures and we were encouraged to think beyond the lecture notes.



Computer Science and Engineering

Introduction

Starting from 2022-23, students can now be directly admitted to the Department of Computer Science and Engineering through the “department-based” programme Computer Science and Engineering (BCSE). Upon completing the first year of studies, BCSE 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.

Programme Features

The Computer Engineering (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. It is accredited by the Hong Kong Institution of Engineers (HKIE). 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 CENG 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.**

The Computer Science (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.

Career Prospects

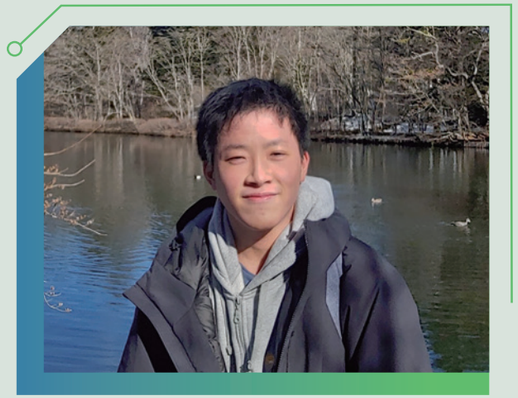
Over the years, the Department of Computer Science and Engineering has built up a large alumni network in the computer industry of Hong Kong. Many of our graduates have taken up important positions in various organizations and companies, such as the HKSAR Government, The Hongkong and Shanghai Banking 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.

(852) 3943 4269
ug-admiss@cse.cuhk.edu.hk
CENG: https://www.cse.cuhk.edu.hk/admission/cengn/
CSCI: https://www.cse.cuhk.edu.hk/admission/cscin/

> *Those who can imagine anything, can create the impossible.*
>
> *– Alan Turing*

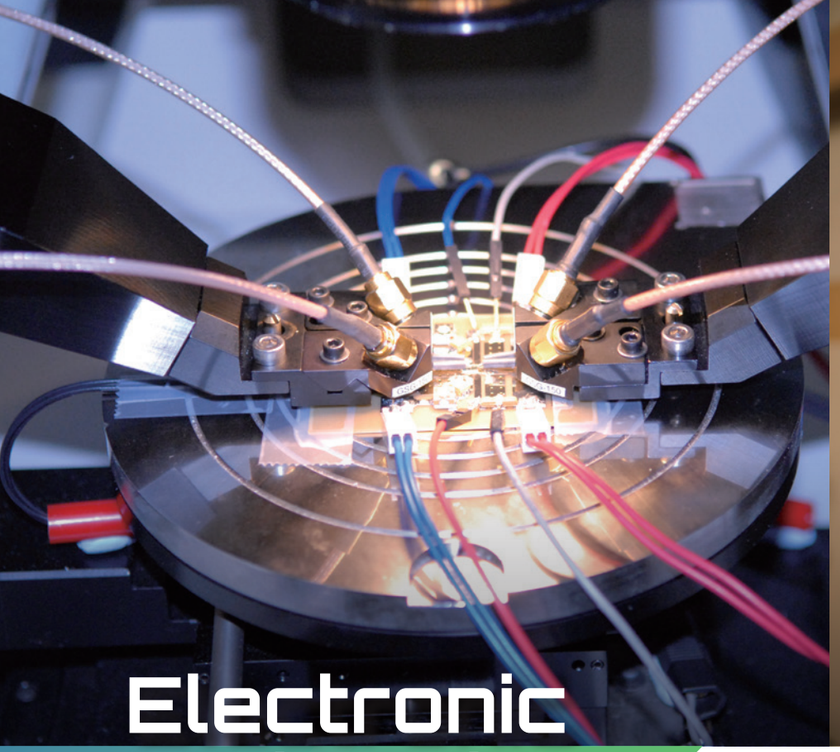
YUEN Lok Kan Ethen

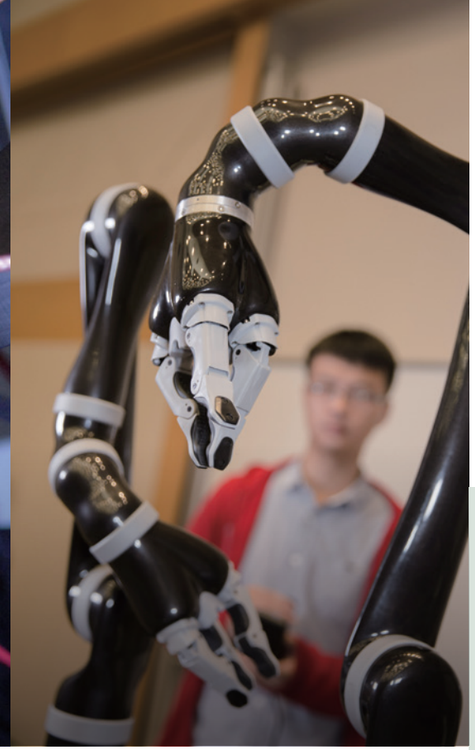
2024 BSc (Computer Science) graduate,
Software Engineer, Nex Team Inc.



Studying Computer Science at CUHK has been an incredible journey filled with challenges. Most of my time at CUHK was spent on the CUHK ICPC Programming Team, operated under the CSE Department. Throughout the years, we spent hours every day discussing algorithms and practicing our skills through contests. Thanks to the Department's support, we could travel and compete with world-class Asian programmers. I’m proud of our team’s achievements, including winning Gold Awards at multiple regionals and the continental final. It shows that Hong Kong can nurture talents whose abilities are on par with the best in the world.

What I liked about the Computer Science curriculum is the emphasis on theoretical knowledge, taught through courses like Data Structures, Formal Languages and Automata Theory, and Principles of Programming Languages. The importance of these courses is often overlooked by many as they seem too abstract and impractical. However, they have been fundamental in building my understanding of how computers work. I think that is what differentiates studying Computer Science from solely trying to land a job as a Software Engineer.





Electronic Engineering

Introduction

The Department of Electronic Engineering was established in 1970 by the late Professor 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 instil in them the desire to pursue knowledge and take electronic engineering into the future. This includes hardware, software, and design aspects of electronics as the core, ranging from materials, devices and circuits to systems and their applications for the betterment of humanity. The department's Bachelor of Engineering (BEng) honours degree is accredited by The Hong Kong Institution of Engineers (HKIE).

Programme Features

The Electronic Engineering (EE) department's programme provides a broad and foundational engineering training course for modern society and generates rewarding career opportunities. The courses in the EE programme are designed to develop 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 of the Department of Electronic Engineering 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

Programme graduates pursue successful careers in a wide range of high-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.

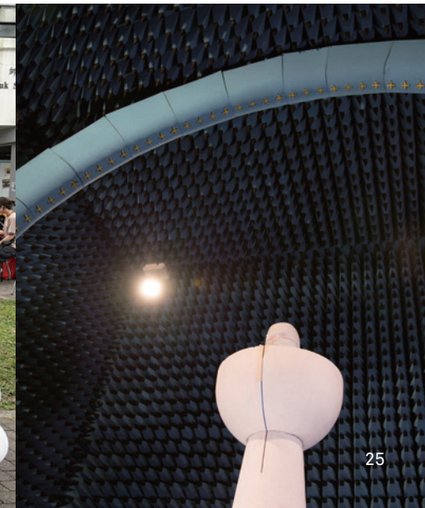
(852) 3943 8486
eeugadm@ee.cuhk.edu.hk
www.ee.cuhk.edu.hk

DENG Piao

2023 BEng (Electronic Engineering) graduate
Master student, Stanford University

During my undergraduate studies, I was fortunate to obtain an opportunity to participate in a research project on using millimeter wave radars to sense the water level in the drainage system, under the supervision of a world renowned professor. In this project, I got the chance to familiarize myself with the operation principle and signal processing algorithm of the Frequency Modulated Continuous Wave radar technology, as well as valuable hands-on experience with programming the millimeter wave radar and designing the peripheral circuits for the radar to operate. The comprehensive education I received from CUHK EE facilitated me with a solid foundation to carry out the research and design of the software as well as the hardware required for the project.

In the future, I wish to contribute to the development of hardware accelerators and hardware-software co-design to create more efficient and higher-performance computers.



Energy and Environmental Engineering

Introduction

The Energy and Environmental Engineering (EEEN) 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 in attaining viable solutions.

> ***Art without engineering is dreaming. Engineering without art is calculating.***
>
> *– Steven K. Robert, author of Computing Across America*

> ***At EEEN, we do both art and engineering.***

Programme Features

Interdisciplinary by design, the programme strongly leverages the relevant expertise and capabilities offered by CUHK as a comprehensive university. In addition to a fundamental education in energy principles, technologies and systems, the programme features a number of required and core elective courses co-designed with the Earth and Environmental Sciences Programme and the School of Architecture, and a host of elective courses from other Programmes including the Department of Geography and Resource Management, for a broader and more in-depth grounding in 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 aspiring professionals. Students are able to participate in and benefit from the many campus and community projects and research topics offered by the university-based institutes as well as units on environmental studies and sustainable development. They 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 afford them strong career prospects. Students are 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 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 also pursue postgraduate studies in their specialized areas of interest in Hong Kong or overseas.

(852) 3943 7026
dept@mae.cuhk.edu.hk
www.mae.cuhk.edu.hk

HO Ka Chun, Gordon

2022 BEng (Energy and Environmental Engineering) Graduate

Senior Project Engineer, CLP Holdings Limited

Climate change and the energy crisis are the most pressing concerns of our times, but the ongoing development of new technologies gives us hope to combat them. Combining different facets of the energy and environmental industry, the EEEN programme offers a professional pathway to the sustainability field. I decided to study EEEN because of the tremendous opportunities and market needs for talents in the field. With cross-multidisciplinary courses, internships, competitions, and career-sharing sessions, I have gained not only textbook knowledge but also in-depth industry insights. The hands-on experiences in architecture, mechanical, and electronic design have equipped me to contribute to energy transition in Hong Kong after joining CLP Holdings Limited as a Graduate Trainee.

CHAN Hoi Fung, Ronaldo

2024 BEng (Energy and Environmental Engineering) Graduate

CEO & CTO,
ReHarmony Limited

My learning experience at CUHK has been transformative, providing not just technical knowledge but also the opportunity to engage deeply in cutting-edge research. The EEEN programme stands out for its emphasis on sustainability and innovation, which aligns perfectly with my passion for addressing real-world environmental challenges. During my undergraduate journey, I joined a research group focused on radiative cooling technology. This hands-on experience allowed me to bridge theory with practice, ultimately inspiring me to co-found ReHarmony Limited with my professor to bring this groundbreaking technology to market. Our goal is to help reduce electricity consumption and contribute to a more sustainable future through this innovation.

Financial Technology

> ***"The major winners will be financial services companies that embrace technology."***
>
> *– Alexander Peh, PayPal and Braintree.*

Introduction

Financial Technology (FinTech) is an emerging engineering discipline that focuses on applying technological innovations to financial practices. Leveraging cutting-edge developments in engineering – in particular information technology and data sciences – FinTech represents an unprecedented opportunity to revolutionize the nature of traditional financial service industry at all levels. Examples of FinTech developments include virtual banks, crowdfunding, digital currencies, and robo-advisory services – with many more applications constantly developing.

Programme Features

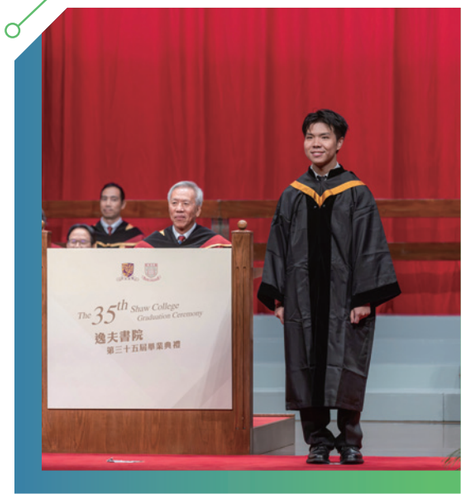
The purpose of the FinTech programme is to educate and equip students with the essential knowledge and capabilities they need to apply technological innovations to financial services, and to nurture leadership and entrepreneurship for the next generation of financial talents in support of Hong Kong's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

This programme is built upon a strong collaboration between the Faculty of Engineering and the Faculties of Business Administration, Law, and Social Science. It offers multi-disciplinary training to equip students with both a solid technological education in engineering innovations and a comprehensive understanding of the business and legal environment for FinTech. New course offerings, including Financial Infrastructures, E-Payment Systems and Cryptocurrency Technologies, Internet Finance, and Financial Informatics, bring state-of-the-art developments in the field to our undergraduate education programme 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 theory to real-world cases. In addition, the programme offers a double-major programme in FinTech-IBBA with the Faculty of Business, a dual-degree programme in Finance and FinTech with Shanghai Jiao Tong University, as well as a dual-degree programme in Financial Math and FinTech with Peking University.

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, and related fields. Employers of the recent graduates include HSBC, BOCHK, Goldman Sachs, and Deloitte. Recent internship placements include DBS, Haitong Securities, Hang Seng, HSBC, HKMA, and Zhong An Insurance.

(852) 3943 8313
dept@se.cuhk.edu.hk
www.fintech.se.cuhk.edu.hk



WANG Jia Hao

- Year of graduation: 2024
- Recent significant awards:
  1. HSBC Greater Bay Area (Hong Kong) Scholarship 2023/24, Greater Bay Area Young Talents Association
  2. Dream Scholarship 2023/24, Shaw College Student Exemplary Awards 2022/23
- Current job position:
  Associate Technology Consultant at IBM

Engineering is a challenging yet intriguing subject. For example, the ELITE Stream exemplifies how additional coursework and extra-curricular activities can unlock your potential. Professors in the SEEM department are always ready to assist with career guidance and academic support. The Financial Technology program offers flexible major electives, spanning computer science to financial analysis, providing exposure to both technology and finance industries. 'Life is about moments.' I cherish those unforgettable moments like studying abroad, co-founding the FinTech Club, and meeting lifelong peers. These moments have paved my path to success, preparing me to become a technical consultant upon graduation.

Information Engineering

Introduction

The study of Information Engineering (IE) encompasses elements of Computer Science, Electronic Engineering, Data Science, Information Security, Information Theory, Telecommunication Networking, and Artificial Intelligence, and their integration. The gained knowledge and skills will find wide applications in emerging areas such as Artificial Intelligence of Things, Big Data Analytics, B5G/6G, Cloud/Edge Computing, Computer Vision, Cryptocurrency, Industry 4.0, the Metaverse, Smart Cities, and more. The multi-disciplinary nature of our programme is what makes it 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 nurturing and educating engineering leaders for the information world of today and tomorrow. Our professors are dedicated educators and world-class researchers. Many of them had extensive experience with leading research institutions worldwide before joining the department. We have a strong presence in the top-tier venues of the global scientific community, as well as strong connections within the local IT industry in Hong Kong.

Programme Features

IE involves the generation, transmission, networking, processing, analysis, and application of information in engineering systems. Key areas of study include:

- **Cyber security**: applied cryptography, system security, cloud computing security, digital forensics, secure software engineering, web programming and security, blockchains, E-payment systems and cryptocurrency technologies

"Building a Connected, Secure and Smart Society in the Age of Digital Transformation"

- **Artificial Intelligence of Things**: machine learning, reinforcement learning, Internet of Things algorithms, probabilistic models and inference algorithms for machine learning, AI foundation models, systems and applications
- **Big data and multimedia**: multimedia coding, image and video processing, web-scale information analytics, programming big data systems, data science, social media analytics
- **Networked systems and applications**: Internet protocols and systems, building scalable Internet services, Internet of Things systems, mobile networking, network software design and programming, mobile/web application development
- **Telecommunications**: optical networks, wireless communications, analogue and digital circuits, embedded systems, switching systems, teletraffic theory, network coding, information theory, stochastic processes

Students have great flexibility to pursue their own interests and may choose to specialize in one or two of the five Streams of Specialisation - *Big Data: Systems and Applications, Telecommunications, Cyber Security, Networked Systems and Applications, and Information Science Streams.*
The programme is accredited by the Hong Kong Institution of Engineers (HKIE).

IMAROVA, Begimay

2024-25 IERG Graduate

I joined CUHK in 2021 to study Information Engineering. During my studies, I was fortunate to find my closest friends and explore the vibrant city of Hong Kong.

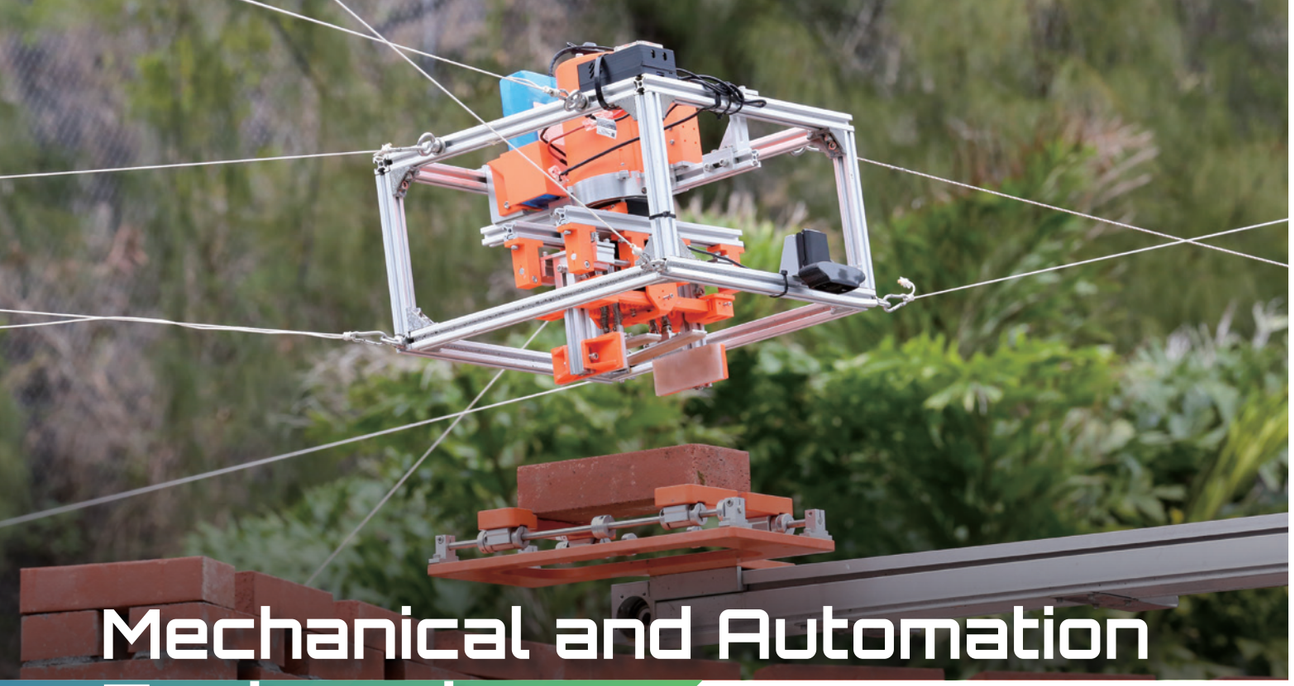
What sets the Information Engineering programme apart is its hands-on labs, where students can apply what they learn in class by building their own projects. This approach provides students with a solid foundation in both hardware and software development.

My final year project, developing a Hearing Aid Android application, became a highlight of my studies. It demonstrated how technology can truly make a difference in people's lives. The project not only enhanced my mobile development skills but also taught me the importance of addressing real accessibility needs through thoughtful engineering.

Career Prospects

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

(852) 3943 8385
dept@ie.cuhk.edu.hk
https://www.ie.cuhk.edu.hk/ierg



Mechanical and Automation Engineering

Introduction

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, materials, thermodynamics, mechanical design, manufacturing processes, mechatronics and robotics.

Programme Features

The curriculum offers a fundamental grounding in the areas of mechanical and automation engineering, including mechanics, 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 future professional. The department also provides summer internships, work-study programmes and international exchange opportunities for its undergraduate students.

Career Prospects

Upon graduation, MAE students find career opportunities as mechanical engineers, production engineers, control engineers, 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.

LEE Ka Ki, Karen

2023 BEng (Mechanical and Automation Engineering) Graduate

Graduate Engineer, Airport Authority Hong Kong

The MAEG programme provides a comprehensive curriculum that integrates mechanical engineering with automation technologies. This approach encourages an interdisciplinary mindset, training me to combine knowledge and skills from diverse fields such as electronics, computer science, and materials science.

A key strength of the programme is the emphasis on hands-on projects and industry training. These practical learning experiences have enhanced my problem-solving abilities and equipped me with the skills needed to tackle real-world engineering challenges.

The programme has prepared me for a graduate job at the Airport Authority. My previous learning on control systems, programmable logic controllers, sensors, and actuators has boosted my understanding of the design, installation, and maintenance of the mission-critical automated systems in the airport.

This blend of theoretical knowledge and practical application has built a solid foundation for my career in engineering.

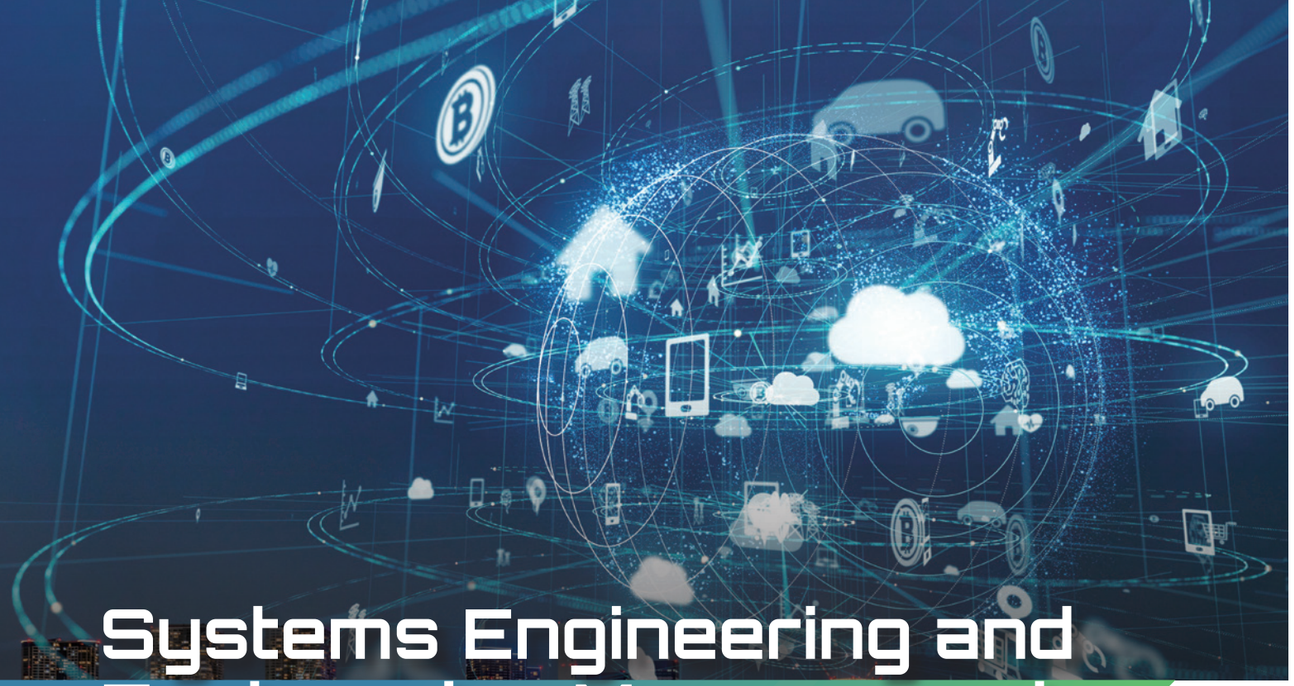
MA Siu To, Herman

2024 BEng (Mechanical and Automation Engineering) Graduate

Graduate Engineer, Cathay Pacific Airways

The thing I loved most about studying MAEG at CUHK was the freedom to choose subjects and shape my own learning path. The wide range of courses helped me build a strong foundation across different fields, which really gave me an edge when applying for graduate roles in various disciplines. I also appreciated how hands-on the programme was—especially in senior-year courses and my final year project. That experience gave me the confidence to handle practical work, which is now a big part of my job as an operational graduate engineer. In a world that's constantly changing, I think the adaptability and flexibility the MAEG programme offers are more valuable than ever.

(852) 3943 8044
dept@mae.cuhk.edu.hk
www.mae.cuhk.edu.hk



Systems Engineering and Engineering Management

> *Not enough of our society is trained how to understand and interpret quantitative information.*
>
> *– Neil DeGrasse Tyson*

Introduction

The Department of Systems Engineering and Engineering Management (SEEM) uses information technologies and mathematical tools, including advanced artificial intelligence (AI) techniques, 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.

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 specialization streams:

- **Business Information Systems** – focuses on the design, analysis and management of effective systems for storing, communicating and extracting information, with a modern emphasis on infusing these systems with AI.
- **Decision Analytics** – equips students with analytical and computational skills such as data analytics models, simulation and optimization methods and latest AI techniques. The students will incorporate such skills in the decision making in a broad class of industries which include logistics and supply chain management, banking, healthcare system, and so on. There are three sub-areas within this specialization stream:
  - **Financial Engineering** – emphasizes on the use of advanced quantitative techniques and information technologies to manage and execute financial 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** – combines interdisciplinary knowledge 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.

(852) 3943 8313
dept@se.cuhk.edu.hk
https://seem.se.cuhk.edu.hk

Ayana MUKANOVA

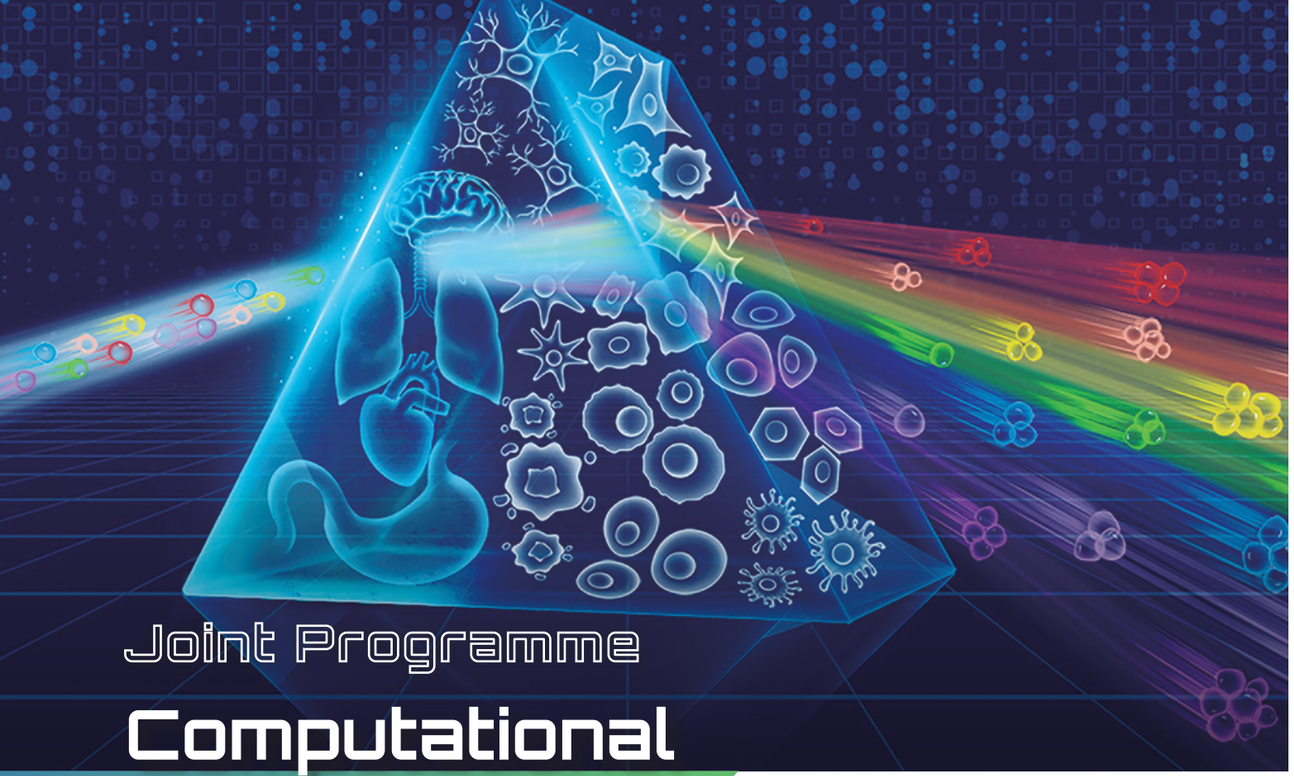
2024 BEng (Systems Engineering and Engineering Management) graduate

Years of study: 2020-2024

Recent significant awards: Asian Future Leaders Scholarship (Cohort of 2023) - Bai Xian Asia Institute

Operating Excellence Graduate Trainee, HSBC (Hong Kong).

Systems Engineering and Engineering Management program at CUHK offers a great variety of courses that are highly practicable and up-to-date on the latest technological and economic trends. Being a SEEM student allowed me to enhance my knowledge in financial engineering, data science, operations research, engineering innovation and entrepreneurship, human-computer interaction, artificial intelligence, and service systems. Graduating from this program, I felt confident to start my career journey in Hong Kong, where all these and more such transferable engineering skills are highly valuable.



Joint Programme

Computational Data Science

Offered by

- **Department of Computer Science and Engineering**
- **Department of Statistics and Data Science**

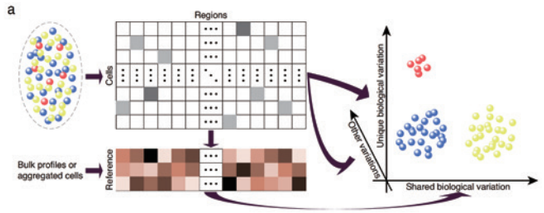
Introduction

The data-driven era creates strong interests and needs of analyzing, storing, distributing, and sharing massive amounts of data using sophisticated data analytics and machine learning algorithms and methodologies, with applications in multiple disciplines including science, social science, finance, public health, medicine, engineering, and telecommunications. Huge job demand of data analysts in both local and global employment markets has been witnessed.

This new programme focuses on in-depth academic training in the domain of computational data science. It aims to equip students with the capabilities of applying both

(1) high-performance parallel and distributed computing for big data manipulation, and
(2) data-driven statistical procedures, methodologies and theories for mining patterns, making predictions, and discovering sciences from large and complex datasets.

Such capabilities enable students to develop cutting-edge massive data analytics and management solutions that are of practical interest to academics, industry, and society.



Programme Features

- Solid inter-disciplinary curriculum;
- "Computer Science/Statistics + X" programme;
- Several specializations (i.e., the X component)

that apply the core knowledge of computational data science to different science, engineering, and medicine disciplines:

(a) Computational Data Science;
(b) Computational Physics;
(c) Computational Medicine;
(d) Computational Social Science

CDAS	
Faculty Package	Programming Linear Algebra Advanced Calculus
Major Foundation	Discrete Mathematics Data Structure Probability Statistics Python R, SAS C++
Required courses	Algorithms & Computer Systems Artificial Intelligence Operating Systems Machine Learning / Data Mining / Statistical Learning Survey Methods / Statistical Computing / Bayesian Learning Statistical Inference / Applied Regression Analysis Nonparametric Statistics / Categorical Data Analysis
Research Practicum	Final Year Project
Stream elective courses	Computational Data Science Computational Physics Computational Medicine Computational Social Science " *Engineering Leadership, Innovation, Technology and Entrepreneurship (ELITE) Stream (Faculty of Engineering)"

Career Prospects

Computational data science is a rapidly evolving interdisciplinary field that is in high demand. Future graduates will be prepared for careers that create order and derive meaning from huge amounts of data. This program prepares graduates for careers that require the deep knowledge and skills of machine learning, database management, and high-performance computing with an adequate statistics background. Future Alumni could work as business intelligence analysts, data mining engineers, data modelers, data scientists, engineers and developers, data warehouse architects and research analysts, etc.

A variety of non-classroom activities throughout the school year will be arranged. In particular, students are encouraged to participate in project competitions in data analytics or related disciplines, such as supercomputing contests, programming contests, Knowledge Discovery and Data Mining Cup, Microsoft Imagine Cup, etc. Through the competitions, students will learn how to address real-world problems in computational data science. Both the hands-on experience and ranking from the competitions will be a huge plus for students' future job search and career development.

(852) 3943 4269 / (852) 3943 7931
ug-admiss@cse.cuhk.edu.hk / statdept@cuhk.edu.hk
https://www.cdas.cuhk.edu.hk

Joint Programme

Learning Design and Technology

Programme Overview

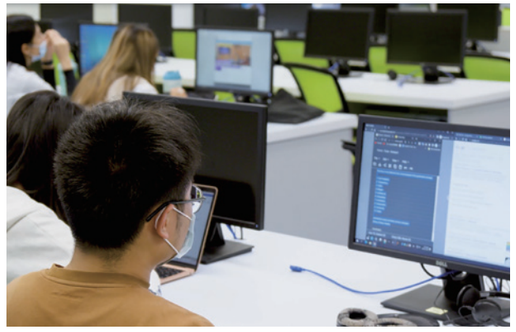
The Bachelor of Science Programme in Learning Design and Technology is a 4-year integrative programme jointly offered by the **Faculties of Education, Engineering and Science**. Its design is based on the latest re-formulation of the science of education in which education is cast as "a metadiscipline or discipline of disciplines" to equip learners with knowledge, competencies, and leadership to facilitate learning and development in and beyond the formal education settings. Graduates of the programme will be equipped with multi-disciplinary knowledge in education, technology, and science with education and learning sciences serving as the unifying threads. Not only will students be provided with internship opportunities to consolidate theory-practice integration, but they will also carry out research projects to synthesize multi-disciplinary knowledge and action-science competencies.

Programme Features

- Integrative, multi-disciplinary programme in education, technology and science
- Theory driven, action-science oriented, and lab-based learning approach
- Integrated STEM education with technology-based and multi-media instruction in multicultural contexts
- Service learning competencies through education and community engagement
- Research in technology, science and transdisciplinary studies in and beyond STEM education
- Articulation with the teacher professional programmes in technology- and/or science-related teaching and other research-based postgraduate programmes in education and/or technology-related disciplines

Career Prospect

Graduates can pursue professional careers in schools, school-sponsoring bodies, government sectors, non-governmental organizations (especially those specializing in solving social problems by means of education), education-related companies and industries in local, regional, and global settings including the Greater Bay Area. They are also equipped to serve in a variety of settings where there is an interface between education and STEM, including industries, businesses, schools, non-governmental organizations, and other new and emerging education-related industries. Additionally, graduates who want to pursue a teaching career can continue their study in the teacher professional programmes to obtain a technology- and/or science-related teaching qualification.



LDTE-related careers:

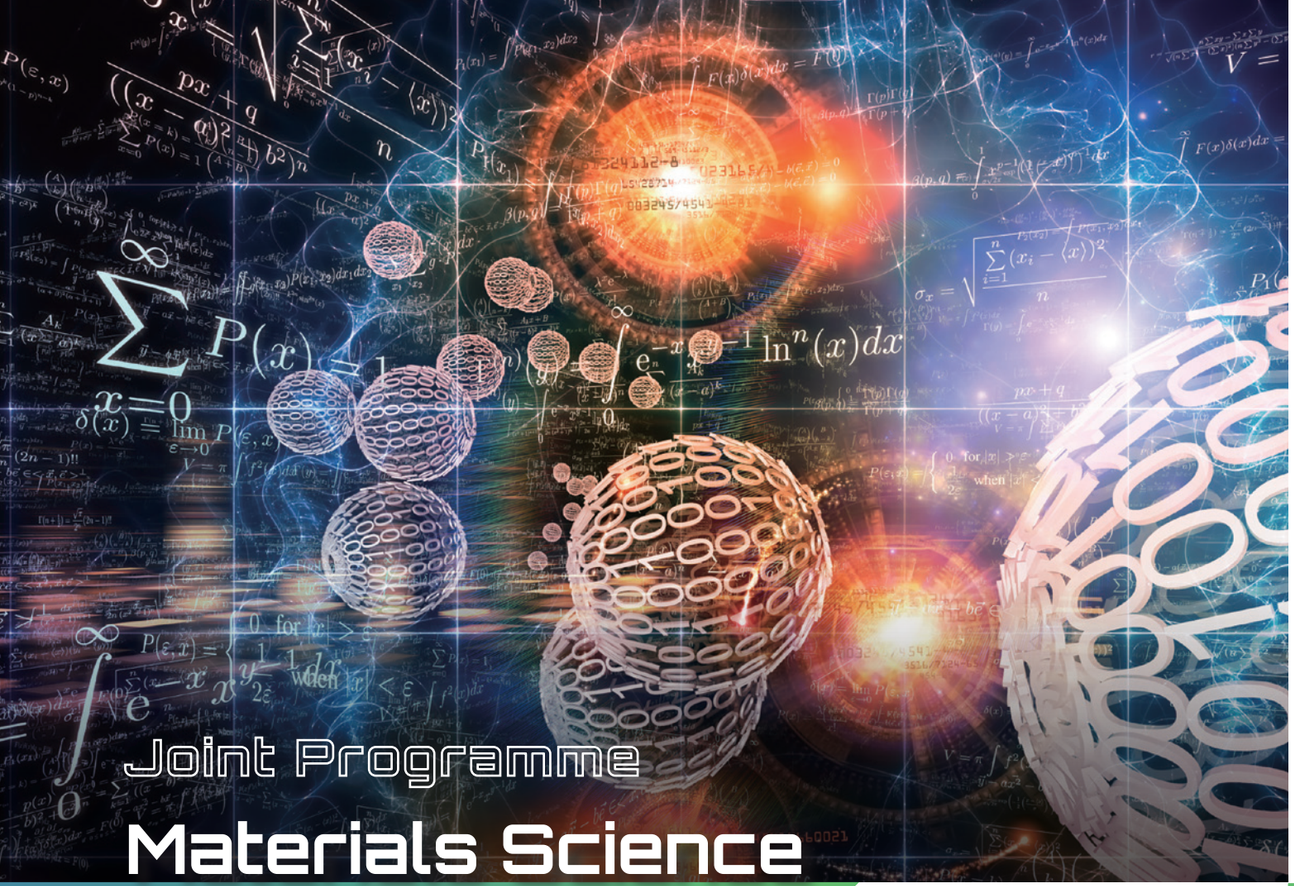
- Learning designers / strategists
- Learning technology specialists
- Multimedia learning specialists
- Technology-supported learning environment designers
- STEM education designers
- Science / technology teachers
- Educational product developers
- E-learning consultants / trainers
- Technology managers / officers
- Educational data analysts
- Education officers / administrators / researchers

MAZAYA, Naura Olif

Learning Design and Technology Student

Studying a multi-disciplinary programme gives me wide and different perspectives from the perspectives of education, science, and technology. I can be taught by professors from various expertise (such as research, academia, and technology) and collaborated with classmates from different backgrounds to gather ideas from different perspectives about how education technology is such a powerful tool for today's world and the future's world. I am most excited because of the wide range of courses that the LDTE programme offers align with my passion and interest. I am ready for many more exciting learning experiences to come during my study years on this vibrant campus!

(852) 3943 6950
ldte@cuhk.edu.hk
www.fed.cuhk.edu.hk/ldte/



Joint Programme
Materials Science and Engineering

Programme highlights

From the Stone Age to the digital age, human progress hinges on materials. Materials science drives innovation in quantum computing, AI, energy storage, and semiconductors. McKinsey & Company reports the global materials industry grew by $2.4 trillion (40%) from 2020 to 2023, underscoring its pivotal role. CUHK's Materials Science and Engineering (MASE) program equips students with cutting-edge knowledge and hands-on expertise, and interdisciplinary expertise. Our graduates will be ready to lead in industries such as advanced manufacturing, renewable energy, AI-driven materials design, and beyond.

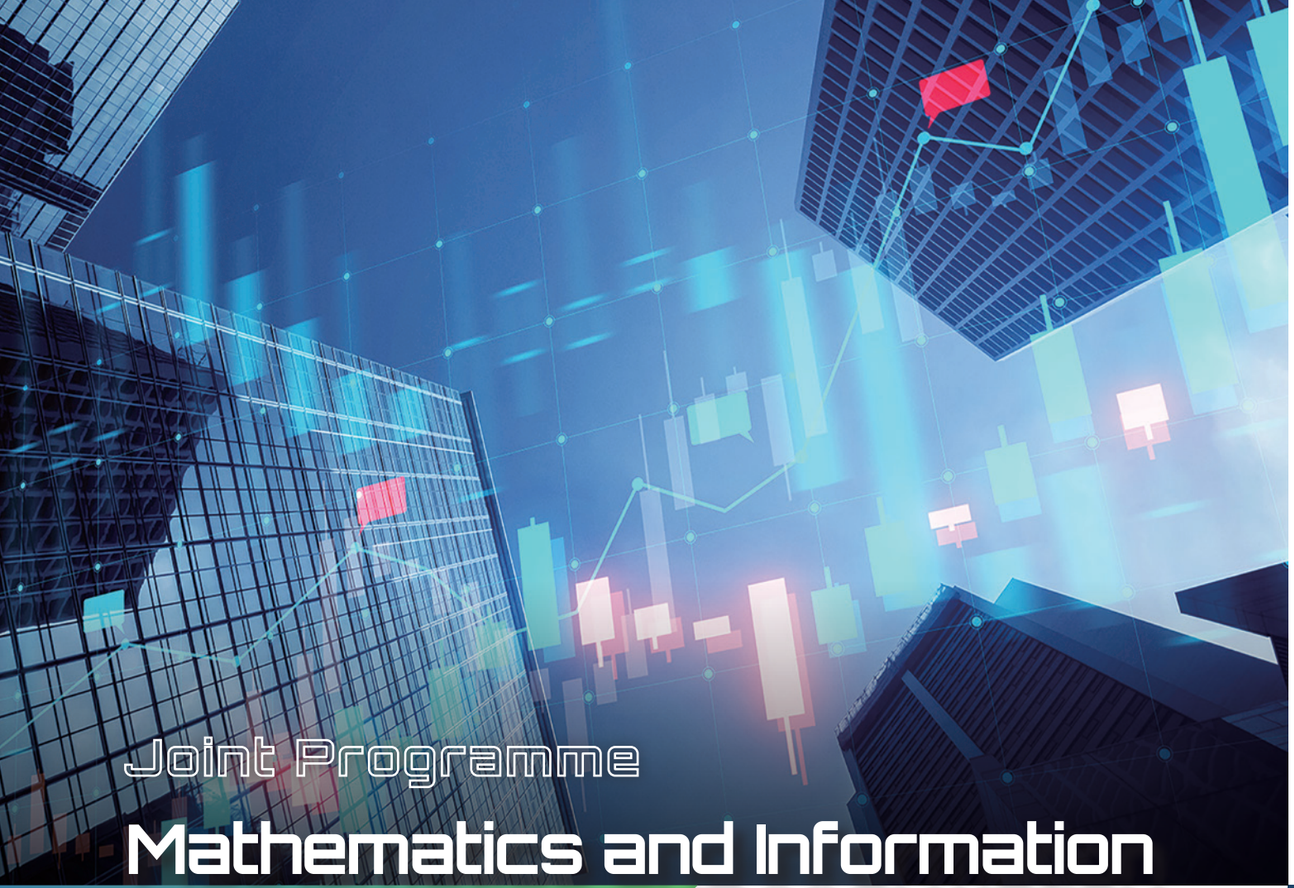
Programme Features

We are hosted by the Faculties of Engineering and Science, with over 30 expert professors and 20+ elective courses from four departments offer a flexible curriculum including biomaterials, nanotechnology, 3D printing, solar energy, and AI-driven materials design. Students will undergo a compulsory internship to ensure career-ready skills. Compulsory internship is a unique feature of our MASE program, with the goal of equipping students with career-ready skills, exposures, and connections. During the final year, students can opt of local or overseas internship, with minimum duration of 8 weeks, up to 12 months work-study program by the faculty. For those adventurous spirits who prefer more immersive experiences, Co-op@CUHK provides a 6-8 month valuable paid work experience overseas, which is the first of its kind in Hong Kong.

Career Prospects

Graduates of the MASE programme will be equipped with career-readiness for industry, academic research, and entrepreneurship. They will gain relevant technical expertise, which may allow them to contribute to in-demand sectors such as advanced manufacturing, microelectronics, and sustainable energy. Within the greater bay area and beyond, the ever-growing technological significance in these sectors are evident through the burgeoning of prominent companies such as Huawei, Xiaomi, BYD, Contemporary Amperex Technology Limited (CATL), Semiconductor Manufacturing International Corporation (SMIC), Suntech Power, Risen Energy, JA Solar, JonKoSolar, SINO IC Technology, Nantong Hualong Microelectronics, Simat Microelectronics Technology, Diantong Wintronic Microelectronics, JCET Group, China Wafer Level CSP, HT-tech, Tongfu Microelectronics, and many more. Aside from industry-relevant skills, the MASE graduates will also be endowed with fundamental knowledge, setting them up for pursuing further studies and become research scientists in universities and research organizations. Furthermore, being at the forefront of innovation in core technologies, the MASE graduates have the advantage to explore business opportunities in areas such as deep-tech start-ups.

(852) 3943 8262
mase@cuhk.edu.hk
https://mase.ee.cuhk.edu.hk/home



Joint Programme

Mathematics and Information Engineering

Introduction

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

Programme Features

The programme places a strong emphasis on research, and the students enjoy a variety of opportunities to take up research work during the summer. Many graduates from this small programme have pursued graduate studies in the top schools worldwide, including MIT, Stanford, Berkeley, Caltech, etc..

Career Prospects

The career prospects of graduates of this programme are very promising thanks to the unique combination of abstract mathematical thinking abilities and solid engineering know-how for tackling problems. Career opportunities are available in a diversity of fields, including but not limited to:

- **Research –** students pursue postgraduate studies in areas related to mathematics, information engineering, or computer science
- **Information analysis –** graduates work in analysing and processing information in quantifiable forms for the finance and banking industries
- **Engineering –** engineering careers related to networking, security, and system management are open to graduates in this field.

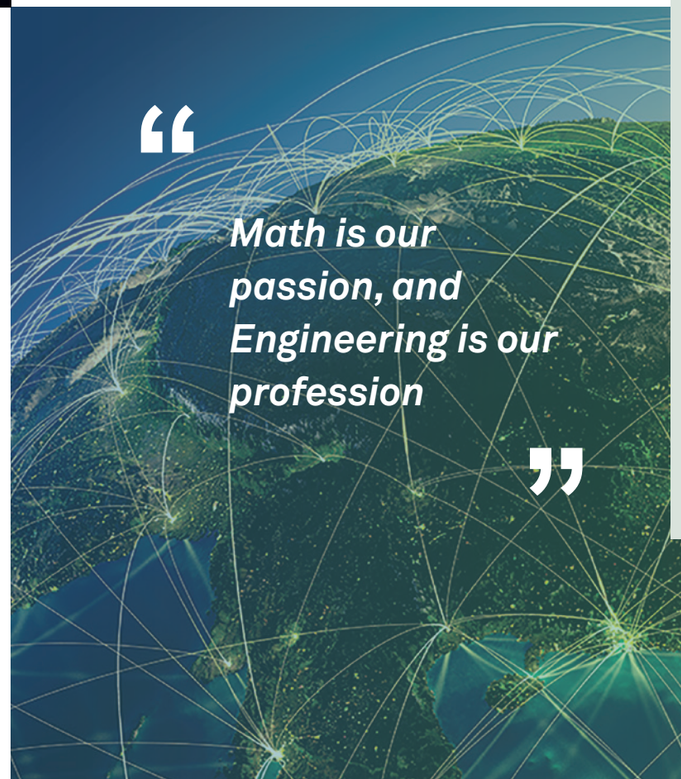
(852) 3943 8385
admin-mieg@ie.cuhk.edu.hk
https://www.ie.cuhk.edu.hk/mieg

WONG Man Hon

2024-25 MIEG Graduate

PhD student in Electrical and Computer Engineering, University of Maryland, College Park

The MIEG program has been invaluable for students passionate about solving engineering problems using mathematical tools. Through this program, I have gained knowledge in areas such as information theory and machine learning, along with essential mathematical skills like optimization, which have significantly supported my research. Additionally, the program's close-knit community has been a major asset. Interacting with classmates, upperclassmen, and supervisors has been incredibly rewarding. Everyone is eager to discuss technical topics and research challenges, which has greatly enhanced my learning and growth as a researcher in a short time.



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 scale 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 completing 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 programme requirements.

Features

- No admission quota
- Students will first complete the Engineering degree before completing 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 pursure 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 IBBA courses if they have fulfilled the relevant academic requirements of the IBBA Minor programme.

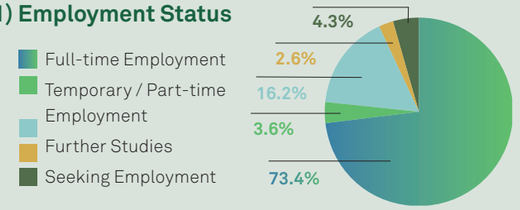
www.erg.cuhk.edu.hk/ergbba

Career Prospects

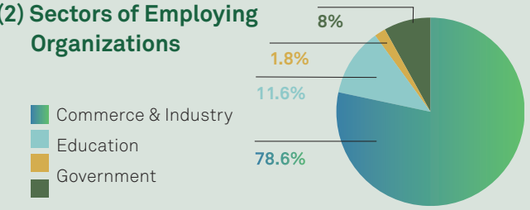
Graduates of the Faculty of Engineering of The Chinese University of Hong Kong have always been prioritized by employers. The multi-disciplinary and multi-talent training offered by the Faculty prepares its students best for a wide magnitude of career choices both in the business and government sectors. Moreover, 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 the teaching and research work in local and overseas prestigious institutions.

Job Statistics of Full-time Engineering Graduates 2024

(1) Employment Status



(2) Sectors of Employing Organizations



(3) 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	49.6%
IT: Information Systems Administration & Management	
IT: Multimedia & Digital Entertainment	
IT: Software Design & Development	
IT: System Solution & Services	
IT: Telecommunications	
Teaching: Primary / Secondary / Tertiary/ Teaching Assistant / Teaching: Others	9.9%
Banking / Finance / Middle Office / Business Consultant/ Insurance / Wealth Management	8.3%
Mechanical Engineering	6.2%
Medical Devices & Instrumentation / Medical & Health Services	4.2%
Administration / Management	4.0%
Scientific / Research Work	3.7%
Sales / Marketing	1.7%
Architecture / Surveying / Construction	1.4%
Industrial Engineering & Product Design / Manufacture	1.4%
Environmental Services	1.4%
Accounting / Auditing	1.1%
Others	1.1%
Customer Service	0.8%
Disciplined Service	0.8%
Hotel Management / Tourism / Catering Services	0.8%
Logistics / Shipping	0.6%
Art / Design	0.6%
Human Resources Management / Training	0.6%
Retail Management	0.6%
Social Work / Community Work	0.3%
Purchasing / Trading	0.3%
Advertising	0.3%
Property Development / Management	0.3%

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 queueing 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 (https://admission.cuhk.edu.hk/application/jupas/admission/) for further information.

Non-JUPAS (Local) Admission

Local applicants holding other qualifications can apply through the non-JUPAS admission scheme. These qualifications include Associate Degree/Higher Diploma, HKALE, 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.

https://admission.cuhk.edu.hk/application/non-jupas/overview/

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 qualifications. Applications will be considered on a case-by-case basis. Please refer to the website of Office of Admissions and Financial Aid for further information.

https://admission.cuhk.edu.hk/application/overseas-other-qualifications-non-local-international-team/requirements/

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 23 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 the senior year places are generally expected to complete their undergraduate studies in two years. For the 2025-26 entry, nine engineering programmes offer senior year places. They are namely, 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 section of Mainland China Students (https://admission.cuhk.edu.hk/sc/application/mainland-gaokao/overview/) for details.

Admission Scholarships

The Office of Admissions and Financial Aid, colleges, academic and administrative departments altogether offer a multiple of scholarships each year. These scholarships provide not only recognition and encouragement to outstanding students, but also financial support to needy students. The Faculty offers various entrance scholarships to newly admitted students with excellent entrance results in public exams. For the 2024-25 entry, over 50 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 2024-25 entry is listed for reference. Scholarship information of 2025-26 entry will be announced through the Office of Admissions and Financial Aid) admission.cuhk.edu.hk	
Achievements (Marks in any best 5 subjects)	Scholarships by the Faculty	Achievements	Scholarships by the University
35 marks	(i) Cash award of $60,000 (renewable)	Level 5** in 7 or more subjects	(i) Full Tuition (renewable) (ii) One-off Study Allowance and Exchange Scholarship of HK$410,000 for local and/ or overseas learning activities
33-34 marks	(i) Half Tuition (renewable); AND (ii) Cash award of $32,000 (renewable)	Level 5** in 6 subjects	(i) Full Tuition (renewable) (ii) One-off Study Allowance and Exchange Scholarship of HK$310,000 for local and/ or overseas learning activities
30-32 marks	(i) Half Tuition (one-off); AND (ii) Cash award of $32,000 (one-off)	Level 5** in 5 subjects	(i) Full Tuition (renewable) (ii) One-off Study Allowance of HK$170,000 for local and/ or overseas learning activities (iii) One-off amount of HK$30,000 for an outgoing exchange or overseas learning activity
		Level 5** in 4 subjects	(i) Full Tuition (renewable) (ii) One-off amount of HK$10,000 for an outgoing exchange or overseas learning activity
		Level 5** in 3 subjects	(i) Scholarship of HK$42,100 (one-off) (ii) One-off amount of HK$10,000 for an outgoing exchange or overseas learning activity
		Level 5** in 2 subjects	(i) Scholarship of HK$12,000 (one-off) (ii) One-off amount of HK$10,000 for an outgoing exchange or overseas learning activity
		Level 5** in 1 subject	(i) Scholarship of HK$8,000 (one-off)

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

Calculation of Marks (for Admission Scholarship)

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

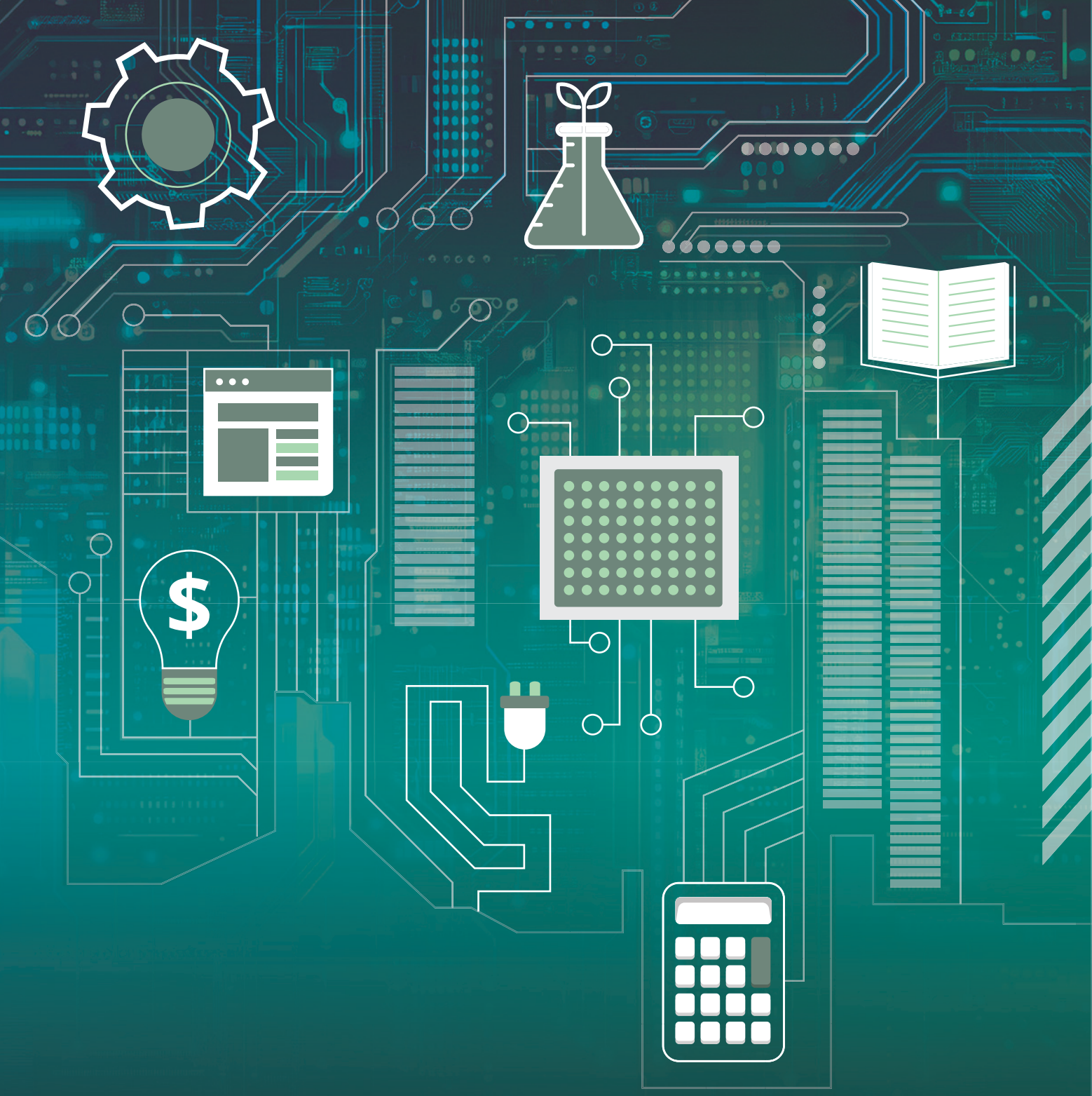
Remarks: Mathematics Extended Module 1 or 2 can be counted only as one subject for scholarship considerations.

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, and IB diploma.

For Sub-degree holders

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



FACULTY OF ENGINEERING

Room 606, Ho Sin-Hang Engineering Building,
The Chinese University of Hong Kong,
Shatin, N.T., Hong Kong

(852) 3943 8446
info@erg.cuhk.edu.hk
www.erg.cuhk.edu.hk

www.facebook.com/cuhkengineering
www.instagram.com/cuhkengineering