Discover IE, Discover Your Future!
INFORMATION ENGINEERING
Principles, Technologies, Networks, and Applications

- Internet Architecture & Protocols
- Smartgrids, Green Communications
- Internet of Things
- Data Science & Machine Learning
- Computer Vision & Deep Learning
- Big Data Systems & Applications
- Multimedia Processing
- Online Social Networks
- Cyber Security
- Network Economics
- Applied Cryptography
- Optical Networks
- Information & Software Engineering
- Wireless Communication Systems
- Network Software Design & Programming
- Information Theory & Network Coding

Information
- Data, Voice, Image, Video, Multimedia
  - Transmission
  - Networking
  - Processing

Engineering
- Understand the principles (fundamental)
- Solve problems (scientific and systematic)
- Create new technologies (innovative)

To train engineering leaders who can manage and create new information technologies for all disciplines.
Programme Features

The mission of the Information Engineering Department is to nurture and educate engineering leaders of the Information World of today and tomorrow. We offer an all-round engineering education that focuses on:

- Sound engineering knowledge and creativity;
- Solid experience with innovative technologies;
- Good soft skills (communication, interpersonal, and business);
- Broad vision and exposure.

The Information Engineering Programme is accredited by the Hong Kong Institute of Engineers (HKIE).

Streams of Specialization

Students may choose to develop their engineering specialities in one or more of the following streams:

- **Communications** - Digital Communications, Signal Processing, Optical Communications, Wireless Communications, Telecommunication Switching and Network Systems, Emerging Technologies in Information Engineering, ....
- **Enrichment** - Multimedia Coding and Processing, Stochastic Processes, Channel Coding and Modulation, Simulation and Statistical Analysis, Information Theory, Network Coding, Design & Analysis of Algorithms, ....

Internship, Work Study, Overseas Exchange

Students can acquire work experience by taking short-term or 7-15 month long paid internship in reputable companies in Hong Kong, or gain international exposure by going for a short term or year long overseas exchange. We offer overseas exchange scholarships to students with good academic results.

Pre-final year students can also participate in a Work Study Program on a voluntary basis. Each participant is required to spend about a year in a selected local company as a full-time employee and continue his/her final year of study after the internship.

Participating companies include HSBC, PCCW, SmartTone Telecommunications Ltd., MTR Corporation Ltd., CLP Power Hong Kong Ltd. and CLP Holdings Ltd., Hewlett-Packard (HP), Fujitsu PC Asia, IBM China/Hong Kong Ltd., Lenovo Group Ltd., Morgan Stanley, JP Morgan Chase, Thomson Reuters, The Hong Kong Jockey Club, Octopus Cards Ltd., Hong Kong Monetary Authority, and Office of the Government Chief Information Officer, etc.

Further Studies

The Information Engineering Department undertakes world-leading research and offers top quality Ph.D., M.Phil., M.Sc., and B.Eng programmes. Our graduates have been awarded full scholarships to enter Ph.D. programmes of top universities all over the world (e.g., MIT, UC Berkeley, Stanford, Caltech, UCLA, CMU, UIUC, Oxford and Cambridge, etc.)

Double-Degree Options

In collaboration with the Faculty of Business Administration, the Information Engineering Department is also offering the Double-Degree Programme in Information Engineering and Business Administration. Please refer to http://www.erg.cuhk.edu.hk/erg/ergbba for detailed information about the double-degree option.
With solid IT knowledge, strong problem solving skills, and good communication abilities, our graduates have very promising careers. We have about 100 graduates every year that go for a diversified set of careers. Most of them start as engineering professionals, while others go to business or other disciplines. More than 10% of our fresh graduates continue for full-time studies.

Our Professors

Our Professors are dedicated educators and world-class researchers who obtained their Ph.D. degrees from top universities like MIT, Berkeley, Harvard, Columbia, Stanford, as well as CUHK. Many of them have extensive industrial experience with leading institutions world-wide before joining the department. They are authors of seminal and award-winning publications, holding key patents for innovations in various fields. They maintain strong ties with the local industries and actively contribute to the international research communities. Most importantly, our professors love to interact with students and inspire them to become top-notch researchers, engineers, and leaders.

Employment Statistics

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2017 IE Graduate Employment Survey in March, 2018
Job Nature of Graduates

- Software Design & Development: 27.30%
- Service Science & Solution Architect: 13.30%
- Project Management: 9.40%
- Information Security & Assurance: 8.80%
- Data Science & Network Engineering: 8.10%
- IT Consulting: 7.80%
- Telecommunication: 5.60%
- Technical Sales & Marketing: 5.50%
- Hardware Development: 3.20%
- Teaching: 2.60%
- Others: 8.40%
HUANG Cen
2018 IERG Graduate; Currently a Master student at Yale University

It’s always been a hard choice for undergraduates to choose their majors even after one-year freshman experience, especially for those who keep inquisitive and explorative minds towards software, hardware and all kinds of engineering problems. Fortunately, by combining CS and EE knowledge together, Information Engineering (IERG) helps me build a solid foundation of mathematics, programming skills as well as hardware infrastructures.

Based on a framework of mathematical courses on topics like calculus, linear algebra and probability theory, I further acquired a good command of programming tools, data structures and algorithms and were able to handle larger quantity of data in a more efficient and practical manner. IE curriculum also prepared us for deeper dive into a wide range of knowledge regarding coding theory, communication systems and deep learning, which made it possible for me to convey research with diverse scientific areas in practice. For instance, thanks to the industrial collaboration arrangement for my Final Year Project, I completed a 3-month internship at the SenseTime Group Ltd and applied deep neural networks (DNN) into computer vision problems. Meanwhile, we also cooperated with PhDs from different departments and exchanged our ideas actively, which also boosted my interest in postgraduate studying overseas. As a Master’s student in Statistics and Data Science programme at Yale University, I look forward to further broadening my knowledge and contributing to the society.

WONG Wai Nga Krista
2017 IERG Graduate; Currently an Assistant Project Manager at AppTech

The years studying in CUHK for me are well-rounded. I have met a lot of friends coming from many places around the world. The professors here are enthusiastic in teaching, they are patient while guiding us to think. Most importantly, the wide range of courses offered in the Information Engineering programme are all well-structured.

I had studied courses in algorithms, object-oriented programming, and web security. The course “Web Programming and Security” is the one I like most. The content is comprehensive, covering different aspects of web security including both the frontend and backend. The assignment was about building our own e-commerce website and securing it. This experience is so important to my current employment, as it has helped me to understand some real-world problems, and I already put the knowledge learnt into use. In my FYP, I had the opportunities to contribute my knowledge to implement an app to help people with communication disorder to improve their social participation. CUHK IE for me is an altogether monumental experience. I am sure all these valuable experiences will contribute to my personal growth and future career development.

NG Ka Lok
2018 MIEG Graduate; Currently a MPhil student in Information Engineering at CUHK

The most valuable part of this program is that it exposes me to the frontier of knowledge. During my study, I joined two summer research programs in CUHK and Oak Ridge National Lab, where I worked with leading experts in different areas and cooperated with students from all over the world. Besides the research experiences, I got to know more about different latest technologies like the Internet of Things (IoT) and Blockchain in the courses. Dealing with the latest technologies is challenging, but the mathematical training provided by this program helps me a lot, from understanding the principles behind the techniques to finding out efficient ways to tackle problems. If you want to join this program, I would like to remind you that this program is challenging and can be exhausting. You will need to not only fight with the maths but also engage in implementation. But if you stay till the end, your effort will come with fruitful reward.

YUAN Jiyao
2018 MIEG Graduate; Currently a Master student at Stanford University

The MIEG programme emphasizes the combination between mathematical theories and engineering projects. It provides us with rich choices of courses in different fields, including mathematics, electrical engineering and computer science.

The most memorable experience for me is the summer research at Stanford. Thanks to the Faculty of Engineering, I got the chance to do research overseas with the funding provided by Professor Charles K. Kao Research Exchange Scholarship. The ten-week research helped me deeply understand the topic investigated. I also learnt a lot from other people on how to approach difficult research problems. Besides significant academic gains, I also obtained a precious opportunity to experience the culture abroad, which expanded my international horizons.

If you are still unsure on whether you should join this programme, I would say that if you really want to learn as many things as possible and meet high-quality friends, go for it! Be prepared to handle different challenges you will face during the next several years. Wish you a fruitful academic journey!
Please refer to the brochure of the Faculty of Engineering or visit the website at http://www.erg.cuhk.edu.hk for admission details.

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