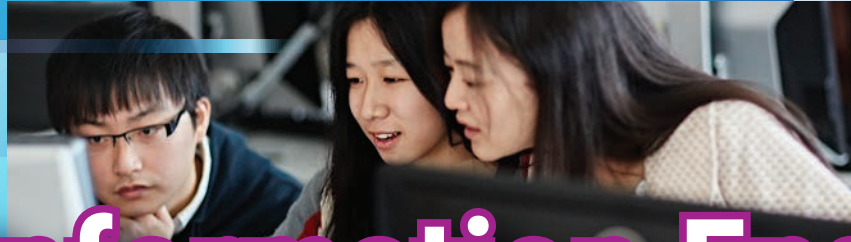




香港中文大學
The Chinese University of Hong Kong



信息工程

Information Engineering

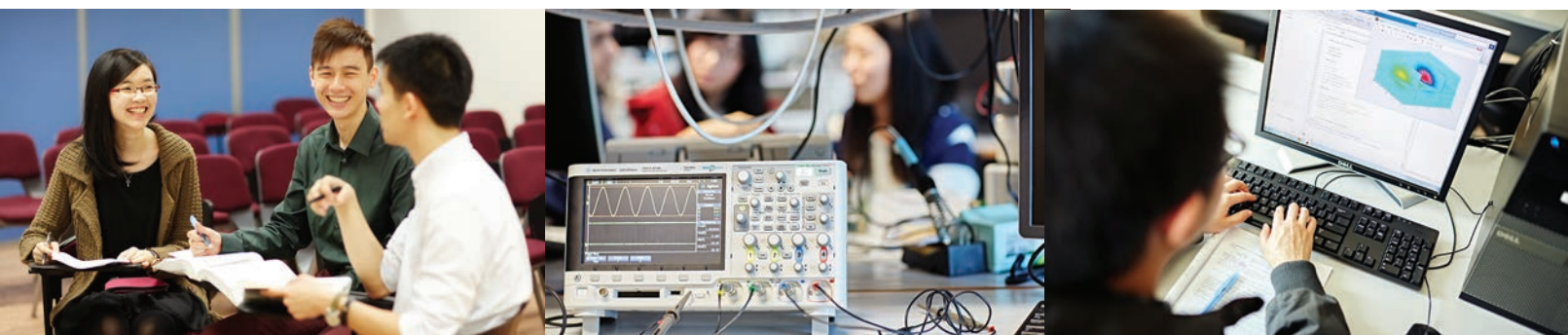
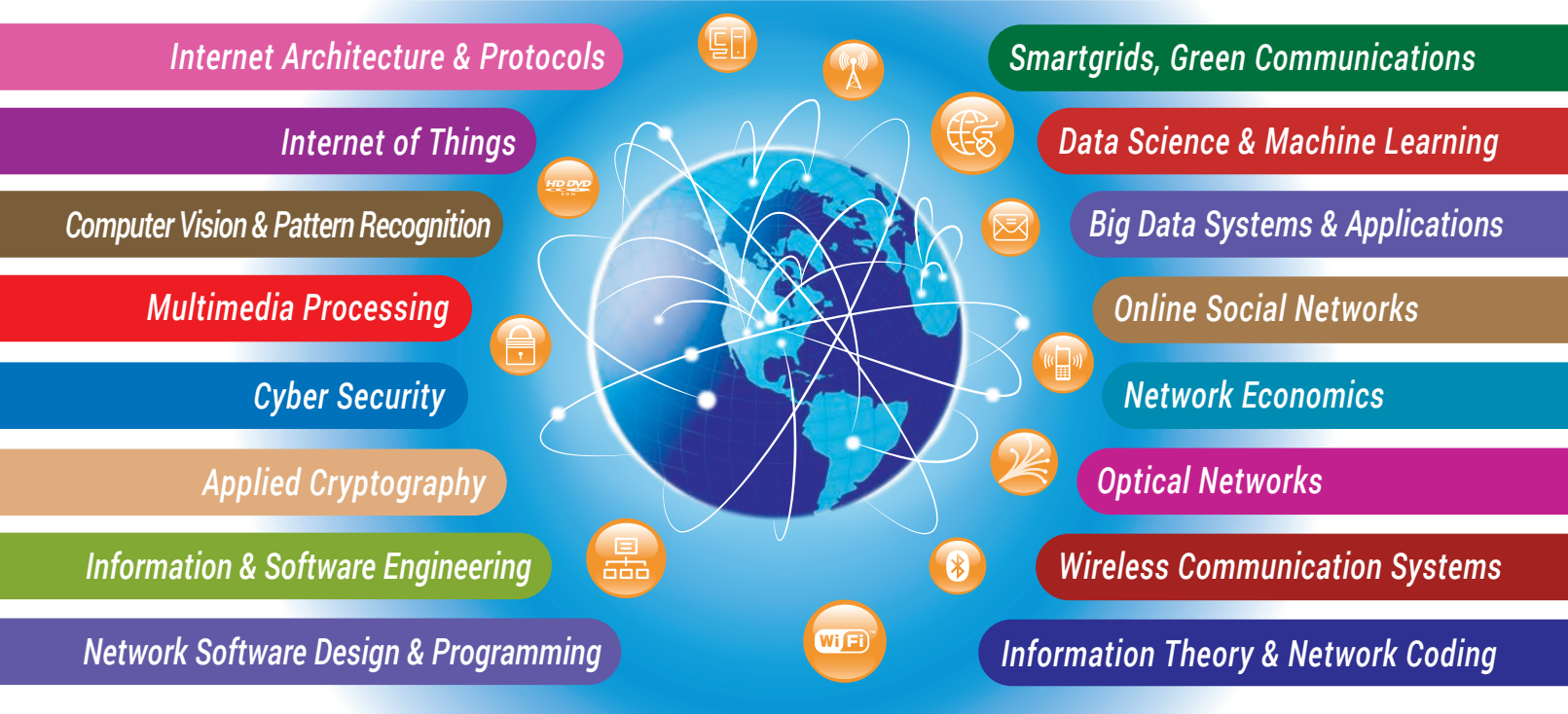


Discover IE,
Discover Your Future!

$$\begin{aligned}
 & \lambda = \frac{h}{m v} \quad m = N \cdot m_0 = \frac{M}{N_A} \quad E = \frac{1}{2} m v^2 \\
 & \lambda = \frac{h}{m v} = \frac{h}{\frac{M}{N_A} v} = \frac{N_A h}{M v} \quad l_t = l_0 (1 + d \Delta t) \quad I = \frac{U_e}{R + R_0} \\
 & f_0 = \frac{1}{2\pi} \sqrt{\frac{g}{L}} \quad \psi(x) = \sqrt{\frac{2}{L}} \sin \frac{n\pi x}{L} \quad E = m c^2 \\
 & \oint \vec{B} \cdot d\vec{l} = \mu_0 \iint \vec{J} \cdot d\vec{S} \quad \vec{E} = \frac{1}{2} \hbar \sqrt{k/m} \quad \beta = \frac{v}{c}
 \end{aligned}$$

INFORMATION ENGINEERING

Principles, Technologies, Networks, and Applications



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.

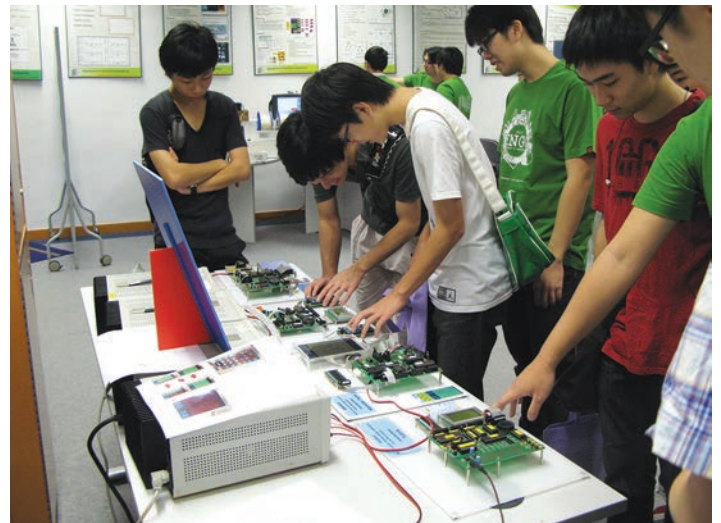
PROGRAMME

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:

* Big Data -	Web-scale Information Analytics, Programming Big Data Systems, Internet of Things, Social Media and Human Information Interaction, Cloud Computing, Machine Learning,
* Internet Engineering -	Networking Protocols and Systems, Network Economics, Network Software Design and Programming, Mobile/Web Applications, Mobile Networking, Building Scalable Internet Services,
* Cyber Security -	Intro to Cyber Security, Applied Cryptography, Web Security & Programming, Secure Software Engineering, Digital Forensics, Security and Privacy in Cyber Systems,
* Communications -	Digital Communications, Signal Processing, Optical Communications, Wireless Communications, Broadband Switching Systems, Lightwave System Technologies,
* 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://www3.erg.cuhk.edu.hk/erg/ergbba> for detailed information about the double-degree option.

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.



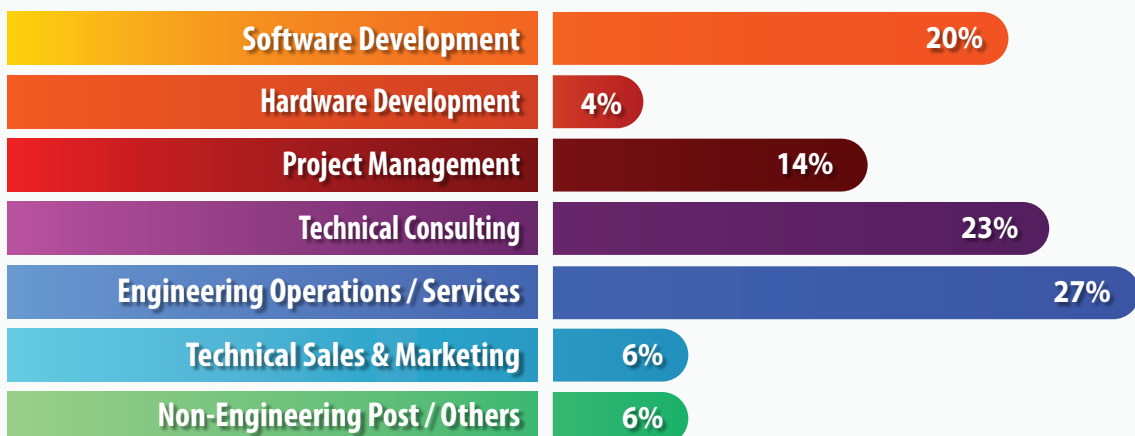
Employment Statistics

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.

2015 IE Graduate Employment Survey in March, 2016



Job Nature



Graduates/Students Sharing



NG Chung Yin Arthur

2015 Graduate ; Currently an Associate at Morgan Stanley



In an era where financial institutions trade with each other at the speed of light and transactions are timed by caesium atoms, engineering expertise in computer networking and information system is undeniably one of the most sought-after profession in the job market.

The IE program is well structured for the rapid changing technology landscape and has a wonderful balance between theory and practice. The department has a whole arsenal of software and hardware equipment readily available to us for our exploration. For instance, students are given the freedom to experiment with a complete setup of networking appliances that would otherwise only exist in a locked-away corporate environment. There is absolutely no better way to facilitate one's learning process and this has given me a tremendous boost in confidence for my current undertaking. I have no doubt my experience in school will continue to be valuable, if not more, to my future challenges.

Ho Ka Man Mandy

2015 Graduate ; Currently an Graduate Engineer at MTR Corporation Limited



IE has a well-structured study programme and distinguished professors that foster the best in engineering talent development. Through participating in various laboratory projects and enjoying the comprehensive engineering education, you will be able to manage or even create the latest technology. I am so grateful that I have selected IE as my undergraduate programme, because it enabled me to become an all-round individual equipped with strong academic foundation, which earnestly paved a splendid start for my future career path. Discover IE, discover your future. Join us and unleash your talent!



GAO Ruohan

2015 Graduate ; Currently a PhD student at the University of Texas at Austin



I chose to major in IE, because the comprehensive coverage of IE allows me to broaden my horizons and try to explore my true research interests. I can get access to a wide range of topics including communication, cyber security, Internet engineering, and big data.

During my stay at CUHK, I benefited a lot from various precious opportunities and resources of all kinds in the IE Department. For example, the summer research program provided me with a chance to experience the life of a Ph.D. student in advance and got a taste of what it is like to do real academic research. I acquired many abilities that have helped me to become a better researcher, such as finding appropriate datasets and baseline algorithms to evaluate a proposed method, composing a professional research paper, and conducting experiments efficiently and with scientific rigor. I have also learnt how to cooperate with other researchers and how to present my ideas and results clearly. Students at IE Department have many choices for every summer. They can also choose to apply for an internship in the industry or take part in an oversea research program in a top university. With all these opportunities and resources, we are allowed to get the best out of our potential.



CURRICULUM

Major Requirement including Faculty Package (75 units)		Wide Range of Elective Courses	
Year 4	Final Year Project I and Final Year Project II <i>plus major electives</i> <i>Specialized</i>	Big Data	Web-scale Information Analytics Programming Big Data Systems · Internet of Things Social Media & Human Info Interaction Image & Video Processing Machine Learning · Cloud Computing
Year 3	Microcontrollers and Embedded Systems, Computer Networks Information & Software Engineering Practice, Principles of Communications Systems, Info Infrastructure Design Lab <i>plus major electives</i> <i>Professional</i>		Internet Engineering
Year 2	Data Structures, Signals & Systems, Engineering Practicum Basic Analog & Digital Circuits, Probability & Statistics for Engineers Complex Numbers, Differential Equations, & Discrete Math for Engineers Technology, Society & Engineering Practice Programming Lab <i>plus major electives</i> <i>Advanced</i>	Cyber Security	Intro to Cyber Security · Applied Cryptography Web Security & Programming · Digital Forensics Secure Software Engineering Security & Privacy in Cyber Systems
Year 1	Faculty Package: Intro to Engineering Design Problem Solving by Programming	Enrichment	Multimedia Coding & Processing Stochastic Processes · Channel Coding & Modulation Simulation and Statistical Analysis Information Theory · Network Coding Design & Analytics of Algorithms
	+ Engineering Physics Calculus for Engineers Linear Algebra & Vector Calculus <i>Fundamental</i>	Communications	Digital Communications · Signal Processing Optical communications · Wireless Communications Broadband Switching Systems Lightwave System Technologies

Plus University Core Requirement, including English Language, Chinese Language, General Education, Physical Education & IT Training.

CAREER PROSPECT

Stage 3	Leadership	Chief Technology Officer	Chief Executive Officer	Entrepreneur
Stage 2	Managerial	Technology Expert	Project Manager	Business Consultant
Stage 1	Professional	Project Engineers - hardware, software, networking System Engineers - systems, security, services Business Engineers - sales, marketing, product management Research / Training / Consulting		
Engineering Positions				Business Education Marketing Government Management Others
				Non-Engineering Positions

CONTACT US

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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