

Engage 程繫中大

Faculty of Engineering, The Chinese University of Hong Kong Issue 28, March 2017 English Edition
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OUR INTERNATIONAL BUDDIES

Our Engineering students come from all over the world. Part of what makes The Chinese University of Hong Kong great is the wide variety of backgrounds our students bring to the Faculty. It is truly an international institution located in one of the world's most international cities.



Electronic Engineering

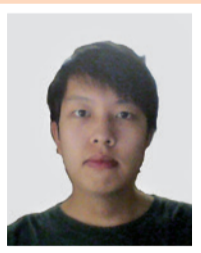


Computer Science
and Engineering

Shivangi SINGH

Computer Engineering, Year 2
From India

I am glad that I am a part of the CUHK family. While engineering has been challenging, I have always strived to find time for extra-curricular activities and make the most of my university life. I'm from CW Chu College, which organizes a lot of events for its students and offers opportunities that allow them to grow and mature as responsible individuals. I was a part of my college basketball team last year, and I joined the rowing team this year. Other than sports, there are opportunities for volunteering and community service. This semester, a couple of my Indian friends and I started an 'Association of Indian Students' which aims to provide a platform for students of Indian ethnicity to network as a community and to promote Indian culture on campus. The university is very supportive of student-run organizations/committees and actively helps with promotion and funding. The career services offered by the university have been extremely helpful for finding internships and the career guidance talks organized by them are very beneficial. I am very thankful of the many opportunities that I have been given and am proud to be a part of CUHK.



WON Dong Jae

Computer Science, Year 3
From Korea

Academically, CUHK's CSE Department is known for having extremely heavy workloads. Although the first year was easy, I soon found this rumor to be true after proceeding to the second year. I found myself buried in piles of homework and bounded by strict deadlines. There were many times when I was sleep-deprived and mentally-exhausted, especially when lots of classes coincidentally have close deadlines.

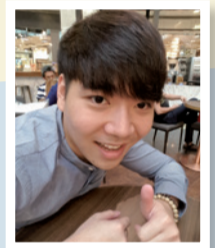
Despite all of this, I am grateful for this experience. Not only have I gained crucial time management skills and technical knowledge, but I have also managed to adapt to the environment of CUHK.

Honestly speaking, when I first came to CUHK, I discovered that local students spoke Cantonese most of the time, which made it difficult to mingle with the local students. However, thanks to the CSE curriculum, I successfully managed to overcome this language barrier.

Overall, college life for me is fairly quiet, academically-focused, and free. I am not a very proactive person in terms of college activities (which I am fully aware that CUHK has an abundance of), so I wouldn't call my college life a "blast". If anything, the biggest barrier for me is language. However, I still enjoy college life and am content with my life in CUHK.

PARK Doyoung

Biomedical Engineering, Year 4
From Korea



CUHK campus is filled with attractive green nature. The professors are also very willing to pass their knowledge to me. All the courses are well arranged with theories, experiments and projects. The course arrangements have helped me fully understand and absorb what I have learnt in the course. As an international student, I was concerned about the language the most, but after attending the first lecture, I immediately knew that my worry was indeed unnecessary. All the lectures are conducted in English. Local students are very friendly as well. They approach me first and ask if I need any help too. Hence, I have made a lot of local friends and been hanging out with them frequently. Professors are always eager to answer students' questions and to clear their doubts. I can definitely say that studying in CUHK is one of the best choices in my life.

ANDONOV Dimitar Metodiev

Electronic Engineering, Year 5
From Bulgaria



My major is Electronic Engineering. It provides practical experience by integrating course work and project assignments. Every summer the Engineering Faculty organizes Summers Research Internship Programs for undergraduate students. This experience helps developing research skills and enhances creativity. I also joined the one-year work-study internship. I worked in Science Park for one year and experienced the lifestyle as an intern in a semiconductor company. This helped me to develop my FYP topic and inspired me for my future career.

In my last year, I would like to apply for the exchange summer research program.

The professors are professional and the tutors are knowledgeable and willing to educate. I am quite satisfied with this academic environment; therefore I am applying for MPhil in Analog Design in my department.

I believe that if you are interested in Engineering and have the passion for it. The EE department would definitely help you develop your talent!



**Information
Engineering**

Kairat ESHBOLOTOV

**Mathematics and Information Engineering, Year 3
From Kyrgyzstan**

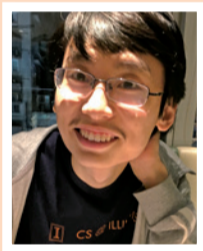


Being an international student at CUHK has given me quite a number of privileges in academics and social life. I have many friends now in and out of class who are always, yes seriously always, willing to help.

Having an opportunity to learn more about Hong Kong culture is an honor for me since I have heard about this place since my childhood. Yes, many people from my country know how special Hong Kong is, and now I am lucky to let the local people know about Kyrgyzstan!

Since childhood I have been interested in mathematics, which has later opened a wide door for me into the immense world of engineering and technology. I am always excited when I see some new cool things. It makes me wonder "wow, how is that even possible!". My inner desire to combine my interests in one academic program has been fulfilled when I heard about the Information Engineering department of CUHK. It indeed has anything I ever wanted in engineering: Big Data, Software Engineering, Cyber Security, a plenty of amazing hardware courses, you name it!

I absolutely love meeting new people at university, and the best part is exchanging ideas and thus expanding our horizons. Let's hang out sometimes!



SONG Jianhan

**Information Engineering, Year 4
From Heilongjiang, China**

I would strongly recommend students showing interests in mathematics and technology to consider CUHK's IE department, where I have enjoyed an amazing journey that I might have little chance to experience in my home country. Here, I have improved

my academic ability and technical skills through a series of content-rich courses on a wide range of topics, from very theoretical signal analysis to application-oriented software development. No matter you aspire to continue an academic career or to fulfil yourself in the industry after graduation, you will find a proper path of study to empower yourself with IE. Here we have a team of outstanding and talented professors who have gained their fame in corresponding fields and always provide assistance, which will give a strong boost for your study and future career.

Furthermore, IE department encourages students to widen the horizons and provides plenty of opportunities beyond textbook studies. In my junior year, I was honored to participate in an exchange program to UIUC, America, where I had a precious experience to work with researchers in this top-5 university worldwide in information science. After that, I had another chance to work as a full-time developer in a local company in work study program. Now, gaining the rich experiences, I am confident to embrace the future after graduation and I will never regret my decision to choose IE in CUHK.

SEEM Systems Engineering and Engineering Management

Jovanus ARLO

**Systems Engineering and Engineering Management, Year 2
From Indonesia**



Time flies much faster than I thought, and now I'm almost half way through my university life.

During the earlier days, I felt insecure, maybe because of studying abroad or maybe because of the competition that occurred. On the other hand, I'm pretty glad to realize that I'm studying in a good university, which provides me a good level of competition, wish that after graduated I'm not stunned with the real "nasty" world (more competitive). After one semester, I'm so grateful that those insecure feelings were gone. Adaptation and communication are so important in that transition, from being afraid and lonely, to enjoy my daily life in HK as a student. I also learned how to make a decision (such as: setting my own priorities, declaring major, etc.), no matter good or bad ones, as long as we keep learning from mistakes that we made. That's what I've experienced as an international student in Hong Kong.



**Mechanical and
Automation Engineering**

JULIPALAS Evelyn

**Mechanical and Automation Engineering, Year 4
From Indonesia**



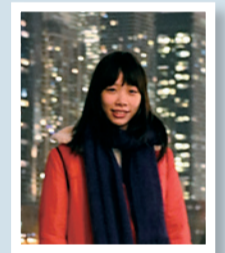
I am Evelyn Julipalas, a final-year undergraduate student from the MAE Department. CUHK has first caught my attention for not only being one of the top universities in Hong Kong, but also of its academic contribution in engineering. I have always had interests towards the automotive industry and machineries since I was young. This is the reason why I chose MAE as my major. On top of that, the MAE Department in CUHK allows me to step out of my comfort zone and learn as many things as possible with the help of a group of highly qualified professors. Not to mention the teaching assistants and the lab technicians that are always there to give us a helping hand.

Studying in CUHK has opened a new window in my life. Students in CUHK are not only bound to books but we are also encouraged to take up extra-curricular activities to improve our interpersonal skills. During my years of studies in CUHK, I have joined activities that are both MAE and non-MAE related such as the GCDC team, the 3D Printing Interest Group, the Dale Carnegie Training and the WS Choir.

Overall, the years that I have spent in CUHK is fruitful. With the support and the opportunities that the Department has given me, friends that I made throughout the years, as well as how CUHK provides the very best resources for our future careers, I would say that studying in the MAE Department is a blessing to me.

YU Clara Aiting

**Energy Engineering, Year 4
From Australia**



I am Clara Yu, a Year-4 student from Energy Engineering. CUHK acts as a great media between knowledge and myself, or between people and me. In university, there are more choices of programmes. Some are specialized in one profession or particular field. I am interested in stepping into different fields, especially environmentally related ones. Therefore, I have chosen an uncommon major: Energy Engineering.

Programmes provided by the Department combine basic theories in mechanical, electrical and chemical industries. In other words, you may learn wide and multi-directional knowledge, which benefits you for pursuing careers as an engineering professional. Professors in classes not only provide theoretical explanations, but also encourage students to develop creativity through group projects. Cooperating in group projects, I have met students coming from different places such as the US and Germany. No matter we were discussing on academic ideas or daily matters, still it was a great experience.

Communication is essential in these decades. CUHK has provided lots of opportunities for me to meet people of different nationalities. Interacting with people from different places, we can know learn different perspectives for ourselves. Gradually, we will be well-equipped for entering society.

SONG Young Jae

**Systems Engineering and Engineering Management, Year 4
From Korea**



My years of study in SEEM have provided me opportunities to take a broad perspective looking at various technologies, from software engineering to project management and state-of-the-art technologies, the curriculum of SEEM has a wide spectrum of topics would expand one's realm of knowledge.

The approach of SEEM to engineering is closet to real-world settings, this is why I appreciate the case studies of several courses that covered critical revelations that any practitioners must be aware of. Guest lectures of practitioners not only furnish us with invaluable insight of the industry, but also provide chances to for social networking.

Meanwhile, the Department promotes an open environment for any foreign student to passionately engage in lectures, projects, research, and even part-time positions. I have always been enjoying opportunities and supports from the department. The achievement I made in the SEEM4680 course could be impossible without the generous support from SEEM and teamwork of my local friends. Hardware needed for research has been funded with no hesitation and my SEEM teammates assisted me with localised market research, pushing the project forward. I genuinely thanks for such trust and partnership I had.



Prof. MA Wing Kin has been elected IEEE Fellow 2017

Prof. Ma Wing Kin from the Department of Electronic Engineering has been elected a Fellow of the Institute of Electrical and Electronics Engineers (IEEE) in 2017 for his contributions to optimization in signal processing and communications.

The IEEE Grade of Fellow is conferred by the IEEE Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. The total number selected in any one year cannot exceed one-tenth of one-percent of the total voting membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement.

Prof. Ma is well recognized for his fundamental contributions to signal processing, communications, and more recently, remote sensing. In his research career he has tackled a number of key problems, such as developing high-performance detection solutions for multi-in multi-out (MIMO) communications; interference management and resource optimization in a complex mobile network; matrix factorization techniques that can be used to separate different parts of tissues in a biomedical image, or to tell which materials a remote sensing picture contains under hyperspectral imaging technology; At the heart of these seemingly different developments is optimization—think of real-life problems such as finance and logistics management, which optimization can solve, and give the best answer, for us. Prof. Ma contributed significantly to the use of optimization in engineering problems, enhancing system performance and providing innovative new solutions. In some cases he contributed to the more mathematical side of optimization by taking insight from applications to solve previously unanswered questions in theory.

PhD student Miss Wenzheng Chi and a HKPFS recipient in EE Department received the Best Student Paper Award

Miss Wenzheng Chi, a PhD student and a HKPFS recipient in the Department of Electronic Engineering, supervised by Professor Max Q.-H. Meng, received the Best Student Paper Award at the 2016 IEEE International Conference on Real-Time Computing and Robotics held in Angkor Wat, Cambodia from June 6 to 10, 2016. The award winning paper is entitled: "A human-friendly robot navigation algorithm using the risk-RRT approach." Congratulations!



Postgraduate students Lo Po Wen, Li Xintong and Wang Jiankun received the Best Innovation Award

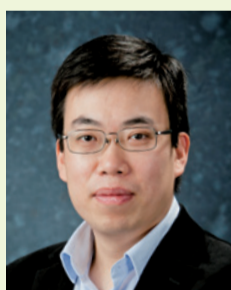


Mr. Lo Po Wen, Mr. Li Xintong and Mr. Wang Jiankun, postgraduate students from Department of Electronic Engineering, supervised by Professor Max Q.-H. Meng, received the Best Innovation Award in the Innovation & Entrepreneurship Competition (Hong Kong, Macau and Taiwan and China regions) on 18 November, 2016. The award winning project is entitled: "Continuous Blood Pressure Monitoring System based on Face Recognition." Congratulations!

Prof. HUANG Jianwei is selected as a Thomson Reuters Highly Cited Researcher (HCR) in Computer Science in 2016

The 2016 HCRs are selected by Thomson Reuters worldwide in 22 broad research fields. The data used in the analysis and selection of the new HCRs came from Essential Science Indicators (ESI), 2004-2014, which accessed a pool of 128,887 Highly Cited Papers. Each of these papers ranked in the top 1% by total citations according to their ESI field assignment and year of publication.

This year, CUHK has two HCRs from all research areas. In the area of Computer Science, there are three HCRs from Hong Kong and 127 HCRs worldwide.

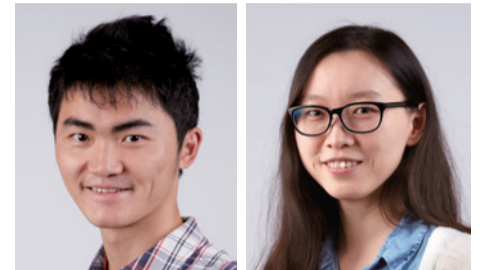


Prof. WONG Wing Shing received the Research Excellence Award 2015-16

Prof. Wong Wing Shing has been awarded the Research Excellence Award 2015-16. A research grant HK\$200,000 will be awarded.

PhD students received awards under the Global Scholarship Programme for Research Excellence 2016-17

PhD students Mr. TAN Yihua (supervised by Prof. Soung C. Liew) and Miss FAN Congmin (supervised by Prof. Angela Y.J. Zhang) have received funding support to undertake a research attachment at leading research universities in 2016-17. Mr. Tan is currently having research visit at MIT while Miss Fan is at Stanford University. We truly hope that they will have fruitful Spring term in 2017!



Faculty of Engineering launches the first-ever FinTech Undergraduate Programme in Hong Kong

Financial Technology (FinTech) is a newly emerging inter-disciplinary field between finance and engineering which has been demonstrating an unprecedented potential to revolutionise the traditional financial service sector. It focuses on employing cutting-edge developments in engineering, particularly information technology and data sciences, in various financial practices to improve service efficiency and increase end-user customers' satisfaction. To meet the foreseeable strong demands for FinTech professionals in coming decades, the Faculty of Engineering of The Chinese University of Hong Kong (CUHK) will launch a new four-year undergraduate programme in Financial Technology in the 2017/18 academic year, the first of its kind in Hong Kong. The first intake targets for 25 students.

The FinTech Programme will closely collaborate with the Hong Kong Monetary Authority (HKMA) and the Hong Kong Applied Science and Technology Research Institute (ASTRI) on this new FinTech programme to organise internships and overseas exchanges for students. It is built upon CUHK Faculty of Engineering's strong collaboration with the Faculties of Business Administration, Law, and Social Science. This multi-disciplinary training will equip students with both solid technological education in engineering innovations and an 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, are expected to bring state-of-the-art developments in the field to the undergraduate education for the first time. Programme details can be found at <http://fintech.se.cuhk.edu.hk>.

The Faculty of Engineering has organised an information session at Yasumoto International Academic Park, CUHK, on January 11, 2017 to introduce the programme details. Professor Chen Nan, the Programme Director, shared the programme mission in the session. He said, "the programme is devoted to nurturing leadership and entrepreneurship for the next generation of financial talents in support of Hong Kong's endeavor to grow as an international FinTech hub." He also remarked that graduates of this programme would be ideally suited for positions that require strong quantitative and technological skills in the financial services industry.

In the information session, Mr. Shu-pui Li, Executive Director (Financial Infrastructure) of HKMA, gave a talk on "Development of a Fintech Ecosystem in Hong Kong". He discussed the regulatory and business environment of FinTech in Hong Kong and highlighted the urgent demands for FinTech talents. Dr. Duncan Wong, Vice President of ASTRI, delivered a talk about how blockchain, a new technology, changes the landscape of the financial services industry. Many real-life examples, such as Bitcoin, have caught the attention of many audiences. Professor Anthony So also addressed the admission requirements. The information session has successfully attracted many secondary students, their parents and school teachers to attend. The audience have shown acute interest in the new programme.

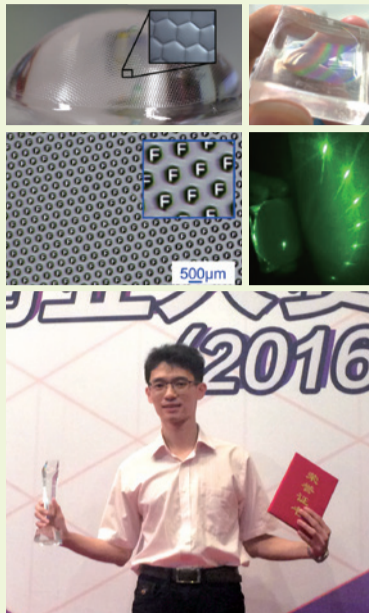
On behalf of the University administration, Professor Michael Hui, Pro-Vice-Chancellor of CUHK, started the information session with a welcoming address. He concluded his speech by a Chinese proverb "a journey of a thousand miles begins with a single step [千里之行·始於足下]." The line expresses the University's full support and, more importantly, high expectation on the new FinTech Programme.



MAE Student received the Best Innovation Award in the Innovation & Entrepreneurship Competition (Hong Kong, Macau and Taiwan and China regions)

Dr. Jianwei Chen from Multiscale Precision Instrumentation Lab, Department of Mechanical and Automation Engineering, supervised by Professor Shih-Chi Chen, received the Best Innovation Award in the Innovation & Entrepreneurship Competition (Hong Kong, Macau and Taiwan and China regions) on 18 November 2016. The award winning project is entitled: "Vacuum nanoimprinting technique for precision optoelectronics products manufacturing".

This research can generate significant impact in the manufacturing industry by presenting a new nanomanufacturing platform for fabricating multi-layer precision structures on nonplanar substrates in a parallel and cost effective way. Based on this technique, two micro-optical systems have been developed: (1) a multi-layer artificial compound eye with multispectral imaging function, which leads to new applications in space and medical imaging; (2) a concave blazed grating-based spectrometer, which can be widely used in material components identification and laser characterization.



From left to right: Ma Liuhaio, and coauthors Ning Hongbo and Wu Junjun

MAE student won the Best Paper Award in 2016 ICAYS

Mr. Ma Liuhaio and coauthors won the best paper award for their paper entitled "Exploration of temperature/H₂O non-uniformity in a premixed laminar flame using tunable laser absorption spectroscopy" at the 2016 International Conference in Aerospace for Young Scientists (ICAYS), Beijing, China, Nov. 12-13, 2016. ICAYS is the international conference on the recent innovations and applications in aerospace. Hundreds of young scientists and researchers from the prestigious universities such as Tsinghua University, Georgia Institute of Technology, Technical University Munich, University of Toronto, and Imperial College London participated in the conference.

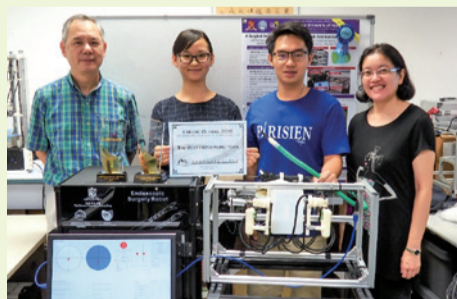
Ma Liuhaio is a Ph.D. student under the advisory of Prof. Ren Wei in Laser Diagnostics and Combustion Laboratory, Department of Mechanical and Automation Engineering. His current research focuses on the application of laser spectroscopy to the quantitative measurement of temperature and species concentrations in the laminar premixed flame.

CUHK Team won the Engineering Medical Innovation Global Competition (EMedic Global 2016)

CUHK team formed by students from Department of Mechanical and Automation Engineering (Mr. Lau Ka Chun and Miss Leung Yun Yee Esther) and Department of Surgery won the Gold Award, Technical Challenge Award and the Best Hong Kong Team at the Engineering Medical Innovation Global Competition (EMedic Global 2016) for the project of "Surgical Robotic System for Endoscopic Submucosal Dissection".

Flexible endoscopy has emerged as a technique not only to inspect gastrointestinal (GI) disorders but also to provide therapeutic management to early GI cancers and other digestive diseases. Surgical procedures can be performed by introducing flexible tools through the working channel of an endoscope to reach the site of interest without the need for creating an opening in the patients' body, greatly reducing the pain associated with opening procedures and speeding up the subsequent recovery. However, the lack of maneuverability of endoscopic platforms and tools makes complex surgical procedures, such as dissection and suturing, technically challenging to perform. In view of this challenge, the project is aimed at developing a high maneuverability two-arm

endoscopic surgical robotic system for digestive diseases. The goal is to enable surgeons to perform sophisticated surgical procedures with high accuracy and elevated surgical safety and success rate. Presently, they have fabricated two robot arms of 3.8mm diameter each with a total of 9 degree of freedoms capable of conducting simple surgical procedures such as tissue retraction. Other types of gripper, electrocautery knife and injector can also be selectively installed to serve different surgical needs.



From left to right: Prof. Yam Yeung (supervisor), Mr. Lau Ka Chun, Miss Leung Yun Yee Esther and Prof. Poon Chung Yan Carmen (supervisor)

INNOVATION AND TECHNOLOGY STUDENT CLUB



With a view to prepare Hong Kong for upcoming challenges, the Faculty of Engineering, The Chinese University of Hong Kong (CUHK) sets up an "Innovation and Technology Student Club" (ITSC) jointly with Innovation and Technology Commission (ITC). Our vision is to nurture young talents to become future technology elites who will contribute to the development of Hong Kong. Since in 2009, we have recruited over 1,700 secondary students with interests in science and engineering.

The ITSC has staged a booth in Inno Carnival 2016, and event organized by ITC, HKSAR in Hong Kong Science Park. We had designed a DIY 3D printing corner where visitors could experience the entire process of 3D printing from drawing, slicing to printing with the support of CUHK 3D PIG (Printing Interest Group). The ITSC organizing committee has also designed a "Circuit Puzzle Game", which have attracted much visitors to challenge their IQ and win the creative prizes, including a grand prize of 3D vertical printing pen, VR google cardboard, 3D Hologram display card, and ITSC 3D Signal Lamp (Halloween special edition).



From 29 to 31 Dec 2016, with theme "Biomedical Engineering: "Give me a 'helping hand'". Winter camp was held in CUHK Campus and Wu Kwai Sha YMCA. In the camp, participants learnt in depth of 3D printing because ITSC assigned few 3D printers to their dormitory for them to print freely during the whole camp. They also learnt how to install a 3D printed prosthetic. As the camp ended at the last day of 2016, we had a party with exchanging meaningful gift which must be related to our theme.



The participants had a fun time with Prof. Aaron Ho, who served as the judge in the camp

Prof. KF Wong, Director, ITSC presented the prizes the winners



Mike (founder of Hong Kong Maker Group) shared with us about the society's need on 3D printed prosthetics.

ITSC is planning more new science and engineering activities for Easter and Summer 2017. Action now to apply ITSC membership and also "Like" us in facebook to receive ITSC latest news.

You may view more of our activities on our Facebook website and YouTube channel as below: www.itsc.org.hk, www.facebook.com/ITSC.HK and www.youtube.com/CUHKcintec.

If you are a secondary student, you are welcome to join our activities by applying to become a member through www.itsc.org.hk/chi/membership.html online. By joining our membership program, most activities will be free of charge.

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