

# IN FOCUS



# MAPPING THE FUTURE

HKUST ENGINEERING  
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An aerial photograph of the HKUST campus, showing various buildings and a large circular courtyard. A semi-transparent 3D architectural model of the same campus is overlaid on the image, with some buildings rendered in a light grey color to show their structure. A red circular graphic is positioned in the lower-left quadrant, containing the text "The Captivating World of 3D Computer Vision".

The Captivating  
World of 3D  
Computer Vision

# Dean's Message



I am delighted that this issue of *In Focus* highlights the achievements and views of several of our female engineering faculty, showing the extensive opportunities that exist for women who enter the profession and engineering academia today. One of the key factors that I see in evolving more of a balance between the genders in engineering is for high-flying young women to have role models to alter the still all-too-common perception that engineering is a man's world.

We need to attract more female students to all the different fields that engineering comprises by letting them know the significance of engineers in tackling the grand challenges – ranging from sustainable development to renewable energy, healthcare delivery systems to electronic device breakthroughs. With more women involved, greater diversity in approach and perspective can be brought to the task of finding solutions to these multifaceted and vital issues. It is also important to recognize how deeply engineers can impact at community level through the practical nature of their work and the problem-solving mindset with which they address social change and advancement.

I believe that working together with high schools is one valuable way to make sure female students are aware of the openings that await them in the technological arena. Indeed, by working with teachers and giving hands-on experience of projects to students, I feel we can make more young people – girls and boys – aware of the excitement in the engineering world and the impact they could have by pursuing engineering as a career.

To students who have already made such a choice and graduated from the School of Engineering, I would like to say: "Keep connected!" HKUST is now heading into its 24th year and alumni at the School of Engineering, the University's largest, total around 20,000.

Our alumni span the world in a multitude of roles covering a huge spectrum of fields. They have worked for world-leading technology companies, such as Google

and Microsoft. They have started up their own globally renowned businesses, such as DJI, a drone technology leader. They build and improve infrastructure, and are employed in industry and finance. They serve as faculty members and researchers in top universities around the globe. They are sought by the Hong Kong government. And take many other meaningful roles.

We see our alumni as an essential part of our School of Engineering family and their experience and advice have a key role to play in nurturing future generations of HKUST engineers who will positively change the world. There are many ways in which our alumni can provide support. It may be to spread the word about the School and our achievements. Or to assist in a recruitment exercise in their part of the world. Or to serve as a mentor to current students, providing encouragement, input on courses and field work, and insights into the working world.

In line with this, the School as a whole will be placing emphasis on keeping our alumni in touch through activities, news, campus gatherings and get-togethers in different parts of the world. Working as a School, not only individual departments and programs, we will be seeking to provide larger events that draw alumni together from across departments and years. We will be strengthening the feeling of a SENG community involving all those with connections to the School – past, present and potential students – and enhancing bonds between faculty members, students and the School.

With our emphasis on gender diversity and the fortifying of our alumni as a community, 2015 is shaping up to be an invigorating and memorable year for the School of Engineering. I look forward to building the further connections that can take us forward in our quest.

**Prof Khaled Ben Letaief**

*Dean of Engineering*

# SENG Faculty Look to the Future at World Economic Forum

**S**chool of Engineering (SENG) faculty members and their innovative research drew global attention at the prestigious World Economic Forum annual conference in Davos, Switzerland, in January.

Led by HKUST President Prof Tony Chan, four of the School's academics hosted an IdeasLab, a unique Forum format in which the world's leading minds present ideas to change lives for the better. HKUST was the only university from Asia to be part of the IdeasLab series at this year's

conference. The six other universities were Oxford, Harvard, MIT, Stanford, UC Berkeley and Carnegie Mellon.

At the HKUST IdeasLab, the SENG academics shared their insights on the integration of the physical and cyber worlds and the impact on society. Dean of Engineering Prof Khaled Ben Letaief discussed the game-changing effect of 5G technology and Head of Computer Science and Engineering and New Bright Professor of Engineering Prof Qiang Yang looked at the new environment

being ushered in by big data and artificial intelligence. Human-machine communications expert Prof Pascale Fung, Electronic and Computer Engineering, spoke on the development of empathetic robots and Prof Pedro Sander, Computer Science and Engineering, examined advances in capturing and rendering images to provide a more detailed visual record of the world.

Prof Fung also co-hosted a lively dinner discussion on "Evolution of Human Knowledge in the 21st Century", where politicians, business leaders, artists and writers debated how machines could be taught language and arts appreciation.

Among the 2,500 global leaders attending the World Economic Forum were China's Premier Li Keqiang and US Secretary of State John Kerry, Alibaba's Jack Ma and Microsoft's Bill Gates.



## Rankings Add to HKUST's Global Presence

**T**he School of Engineering received further recognition of its world-class standing when HKUST was ranked first in Greater China and 21st globally in the *Times Higher Education World University Rankings of Top 100 Universities for Engineering and Technology 2014-15*. It marks the fourth year in a row that HKUST has garnered the No. 1 spot in engineering and technology in Greater China. The rankings are based on teaching, research, citations, industry income and international outlook.

Dean of Engineering Prof Khaled Ben Letaief said he was delighted with the result, which was a testament to the School's strong belief in academic

excellence and the global impact of its distinguished faculty and graduates. "We will continue to bring together the best researchers across disciplines," he said, "to accelerate the transformation of discoveries into innovative technologies and solutions."

In the QS World University Rankings by Faculty 2014 – Engineering and Technology, released earlier, HKUST was ranked No. 15, its highest position yet in these tables. It jumped four places from No. 19 in 2013, and was placed No. 1 in Hong Kong for the fifth straight year.

The University's graduates also continued to show the strength of their appeal to employers. In the high-profile annual

**Times Higher Education  
World University Rankings  
of Top 100 Universities for  
Engineering and Technology  
2014-15**

**No. 21\***

**QS World University  
Rankings by Faculty  
2014  
– Engineering and  
Technology**

**No. 15^**

\* No. 1 in Greater China  
^ No. 1 in Hong Kong

**Global Employability  
University Survey and  
Ranking 2014**

**No. 16\***

Global Employability University Survey and Ranking, HKUST rose to No. 16 in the world, up two places from the previous year. The University remained No. 1 in Greater China. The survey is conducted by Emerging, a French human resources consultancy, and Trendence, a leading German research institute. It covered 4,500 recruiters and executives from 20 countries and regions, including the US, Europe, and Asia, with over half from the leading 1,000 companies.

# Mapping the Way

Visualizing locations and finding the way to a new destination are set to become simpler, thanks to the discoveries of Prof Long Quan



**N**avigating the world around us used to entail paper charts and maps, and the skill to interpret the system of signs and symbols that stood in for the real objects and features of the landscape. Not any more with the arrival of 3D mapping that visualizes the real-world route to your destination.

Behind the opening salvos of simplifying travel for you and me lies an array of complex and lengthy research carried out over the past 30 years. It has taken this time and some of the world's leading minds in computer vision to make such a development possible. Beyond, a host of significant uses now beckon.

Among the global pioneers is Prof Long Quan, Computer Science and Engineering, who has devoted his entire academic career to the advancement of computer vision and 3D reconstruction from images through his own innovative contributions to these scientific areas and the mentoring of next-generation research stars.

"This is the future," said Prof Quan, Founding Director of the HKUST Center for Visual Computing and Image Science. "Your mobile phone will show you 3D images and it will be very convenient for moving around. Think of all the other uses for such maps too. Search and rescue teams would know the exact terrain they faced before they set out. The military could use 3D maps to guide missiles.

"When I started, this was a relatively new field. But we already saw the potential for applications."

For Prof Quan, once a child artist who swapped paint brushes for computer vision, visual images are a fundamental element of life that speak to us directly. He has lived in this world of 3D reconstruction from the time of his graduate studies in France in the mid-1980s, which began with his Master's at Université Henri Poincaré and was followed by a doctorate at the Institut National Polytechnique de Lorraine (INPL) (now both part of the University of Lorraine). The two institutions were leading establishments with laboratories affiliated with CNRS (the French National Center for Scientific Research) and INRIA (the French Institute for Research in Computer Science and Automation). Prof Quan was a member of one of the earliest cohorts of Mainland students to receive a scholarship from the Ministry of Education to study overseas, following his graduation from Northern Jiaotong University (now Beijing Jiaotong University) in 1984.

After earning his PhD in 1989, Prof Quan launched his academic career at INRIA Grenoble, France's key public research institute focused on computational sciences, and contributed significantly to the development of modern 3D computer vision in the 1990s through his outstanding series of 3D reconstruction algorithms including the six-point algorithm and projective reconstruction from multiple views. He joined HKUST in 2001, where he remains fascinated by the potential of the area and expects to stay so in the decades ahead.



# Ahead in 3D

## A Visionary Career

Prof Long Quan's pathway to pioneering insights:

- BS in Telecommunication, Northern Jiaotong University, Beijing, 1984
- MS (D.E.A.) in Computer Science, Université Henri Poincaré-CNRS-INRIA, France, 1986
- PhD in Computer Science, INPL-CNRS-INRIA, France, 1989
- CNRS Researcher at INRIA, France, 1990-2001
- Associate Professor, Computer Science, HKUST, 2001-05
- Professor, Computer Science and Engineering, HKUST, 2005-now

Recent advances include reconstruction algorithms and systems, developed together with his research team, to address the challenge of missing detail that arises with present mapping technology. Current techniques use unmanned aerial vehicles and ground-level cars to collect image data, with areas that escape attention needing to be filled in manually. Through Prof Quan's breakthrough, manual inputting can be replaced by automated reconstruction of buildings and landmarks, based on the images collected. This can take the technology to fresh heights of accuracy.

Unsurprisingly, Prof Quan's work has attracted attention from other academics and a wide range of companies, including Google, Nokia, Microsoft, Airbus, Thales, and Mainland China industries. He has over 6,700 citations and an H-index (a recognized measure of productivity and citation impact) of 43, according to Google Scholar. In addition, he has served as an editor and chair in all major computer vision journals and conferences respectively, and in 2011 was a General Chair of the IEEE International Conference on Computer Vision, the premier biennial event in this field globally. "I have been very fortunate to be able to contribute to computer vision and serve this young and dynamic community," he said.

Prof Quan believes his on-going enthusiasm is driven by intellectual curiosity and a desire to see the knowledge he uncovers put to use. Along with applications, such uses encompass teaching and sharing his

expertise and passion for discovery with students. He is a devoted educator and has twice been elected a HKUST Best Ten Lecturer in an independent student-organized poll. He is also a dedicated supervisor of graduate students, including Peter Sturm, the first awardee of the Best French PhD Dissertation of the Year in Computer Science (Le Prix de Thèse SPECIF 1998, now known as Le Prix de Thèse Gilles Kahn) and Maxime Lhuillier, who received the ICPR Piero Zamperoni Best Student Paper Award in 2000. His graduate students now hold faculty positions in world-renowned institutions and universities, such as CNRS, INRIA, Peking University, National University of Singapore, and Princeton University.

Prof Quan is now driving advances through the further development of algorithms and systems for 3D mapping. Such work has attracted a constant stream of six-figure funding under various Hong Kong Research Grants Council schemes and from industry grants. Several patents have been awarded and others are pending. In addition, a related HKUST start-up has been launched. The search is continuous for ways to advance through greater accuracy, higher resolution, and faster speed, he noted.

One key project is to map the whole of Hong Kong in 3D. "This is our dream," Prof Quan said. "We have started to undertake the work. However, data capture is expensive. I am now applying for funding through different channels to enable us to reach our goal." Such a survey would assist various industries, including logistics and navigation companies. Urban planners could also benefit.

"Computer vision is different from other computer science areas as you see concrete objects, not only abstract numbers," Prof Quan said. "To me, the fascination of the 3D shape is endless. Its construction, which involves both visual artistic form and geometry, is of constant interest. We still have a great deal to explore in terms of applications but we are moving forward."





# Ms & Mr Young Engineers

School of Engineering undergraduates have increasing opportunities to take part in enriching learning experiences apart from their studies, including internships at major companies and organizations and research exchanges with top global universities. Here, students and alumni discuss their beyond-the-classroom experiences



United Nations intern

**Samantha  
Wing Man Kong**

*BEng, Chemical and Environmental  
Engineering (2014)*

*UN Headquarters, New York, Summer 2014*

#### How did you feel about your time at the United Nations (UN)?

I spent most of my three-month internship at the UN Headquarters in New York City. It proved one of the most remarkable experiences I have had in my life and has deepened my passion for international relations.

#### Was it difficult to gain the internship?

I was chosen as one of 10 representatives from all over the world, following two rounds of interviews. Here, I must also add a big thank you to HKUST Sustainability Unit, which oversees the University's commitment to environmental stewardship and sponsored my internship.

#### What did you do there?

I worked as a Youth Representative for an NGO, which focuses on promoting environmental health and literacy. I was mainly responsible for attending and summarizing daily briefings held in the UN, covering areas such as sustainable development, technology, energy, peace and security. I participated in certain high-level meetings, for example, the drafting of Sustainable Development Goals with Member States, as well as seminars and briefings held by UN bodies and agencies, including the General Assembly and Security Council.

#### Who did you meet?

In addition to duties at the UN, we were given the chance to interact with diplomats on global issues. This offered first-hand interaction with decision-makers on developmental issues and practitioners of diplomacy. I also met Dr Margaret Chan, the Director-General of the World Health Organization, who previously served as Director of Health in the Hong Kong government. We briefly discussed the Ebola issue.

#### What did you gain from your time there?

I slowly built a clear understanding on various world issues and their relationship to my own interests. Meetings on the environment and sustainability were valuable resources to enrich my knowledge, which in turn inspired me to seek my current post as a Graduate Environmental Engineer at an international consultancy. In September, I will pursue a Master's in Architecture, specializing in environmental design.



Corporate intern

## Helen Yifang Liu

Industrial Engineering and Engineering Management (2015)  
Goldman Sachs Investment Bank,  
Hong Kong, Summer 2014

### Why did you want to go on a company internship?

I felt it was necessary to get hands-on experience in a particular industry before entering it. I thought it would help me to know whether I liked the field and whether my background was the right fit or not. More importantly, internship seemed to be an important stepping stone for joining larger companies.

### How did you choose/were chosen to join this company?

I wanted to apply to Goldman Sachs because it is a major company and a fresh industry for an engineering student like me. The company chose me because of my engineering background, which could add more diversity to a finance firm.

### What was your first day like?

The first day was orientation. We had to meet all the other interns and listen to company executives talk about the corporate culture, rules, and so forth. This helped to integrate the interns into the company.

### What did you feel was the main benefit of the internship?

Getting to know an industry other than engineering. I found out how people deal with pop-up issues – problem-solving in an international company – as well as some of the dos and don'ts in a large firm. I was also able to meet great peers and mentors.

### How do you think it will help you in your future career?

I believe it will really add value to my personal development and networking. I learned a large amount about the finance industry, which I felt would make it easier to enter such a field when I graduated.

### What did you learn about yourself as a result of the internship?

I realized that my problem-solving skills built up during my undergraduate studies were not bad! And I could probably go further in this area.



## HKUST-Harvard Undergraduate Summer Exchange Research Program Micky Chi Yee Chan

Computer Engineering Program (2015)  
HKUST and Harvard, Summer 2014

### Why did you apply to join the pilot HKUST-Harvard program?

I believed it was a great opportunity for me to learn about cutting-edge technology and make new friends. I feel fortunate to have been selected with so many smart students in the School. I am not great at getting good grades but I love working on group projects. I like research because I get to explore some of the latest technologies. This program, which let me work in a multicultural team, really appealed to me.

### How many people could join the program and how long did it last?

A total of eight students, four from each university, spent one month at HKUST and one month at Harvard.

### What did the research involve?

The project centered on visible light communication and there were two project themes, one on door locking

and one on mining. I worked on the latter. In Hong Kong, we mainly learned about the design process and did some brainstorming. At Harvard, we worked on a prototype, undertaking testing and debugging.

### Did the project go smoothly?

Not always! We quite often got stuck on technical problems. When this happened, we would have a cup of coffee, discuss, and start over. I really enjoyed this learning process and the teamwork involved.

### Did you have time for social activities?

In Hong Kong, we took our US teammates to see the sights. In Boston, at the weekends, we explored the city. We even took a four-hour bus ride to New York, where we visited the Brooklyn Bridge, China Town, Statue of Liberty, and other places.

### What did you gain from the program?

I learned a great deal from the Harvard students, in particular, their passion. Over those two months, I realized how enthusiastic they were and not afraid to try new things. Although most of the US students came from mechanical engineering, the project was more focused on electronic engineering. I saw how they devoted a lot of time to research, learning about circuits, and testing. They failed many times, but didn't give up and, in the end, we accomplished two amazing projects.

### What will you remember most?

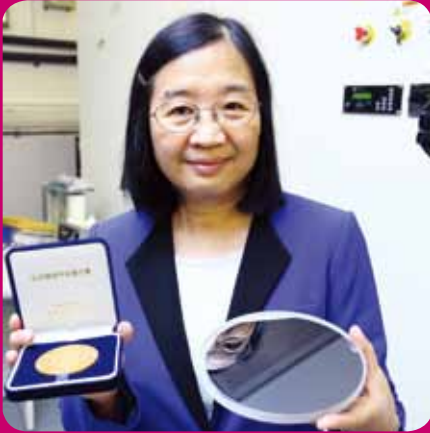
Achieving great things is not about how smart you are. It is about not giving up.



## Prof Kei May Lau

### Chair Professor, Electronic and Computer Engineering

- Fellow of the Institute of Electrical and Electronics Engineers
- HKUST Women in Science and Engineering Scholarship Group Chairman
- Research interests: high frequency, high speed and photonic devices; light-emitting diodes and lasers



I attended Pui Ching Middle School here in Hong Kong and then went to college in the United States where I majored in physics for my Bachelor and Master's at the University of Minnesota. For my PhD, I switched to Rice University in Houston and electrical engineering.

I chose to move into engineering because I enjoy experimental research and making things work. I also felt that engineering had broader career prospects and

my earlier studies in physics actually prepared me to be a better engineer. Making the connection between quantum mechanics and semiconductor physics can lead to the invention of novel electronic devices that become new products for our daily lives. Material and semiconductor physics are applied to produce integrated circuits, which are the heart and brain of mobile phones, computers, and most other electronic gadgets today.

I find all my engineering research satisfying in terms of the challenges it presents. As the saying goes, one can always build a better mousetrap. Take my work on light-emitting diodes (LEDs). In the early days, most people believed LEDs could only be used for displays and indicators and were not good enough or cost-effective for illumination. I was one of those who took up this quest. Now, after years of research and refinement, LEDs will definitely be our dominant lighting source for many years to come.

But perhaps the most satisfying aspect of my career so far has been to nurture successful engineering students. Sometimes students ask why we teach what we teach, with all the “useless” theories and complicated math involved. I try to explain our approach with the proverb: give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime. What we are actually providing are the basic tools and training to think from an analytical point of view so students can solve engineering problems throughout their career.

With technology changing so fast, we cannot just teach facts of current technology because, in a few years, things will no longer be the same. But if you know the fundamentals, you will know how to design new products that fit into the future technology. You can look for better ways of doing things and make innovative contributions. This is what ENGINEERING is all about!

I also believe that women and men are equally competent and equally adept at problem solving, and both can become good engineers. Therefore, female students should not be discouraged from entering the engineering field. Indeed, in some senses, girls are more creative, and creativity is essential in engineering design.

# We Engine

## Prof Pascale Fung

### Professor, Electronic and Computer Engineering

- Fellow of the Institute of Electrical and Electronics Engineers
- Chairperson and Co-founder, iVo Technologies
- Research interests: building machines that can communicate and empathize with humans



I was born in Shanghai to professional artist parents. They expected me to follow in their footsteps. However, I was also curious in many other subjects. When I was seven, I read a science fiction book that described a future world, where robots talk to you and you could shop at home via computers. I was fascinated and wanted to see such a world develop as quickly as possible.

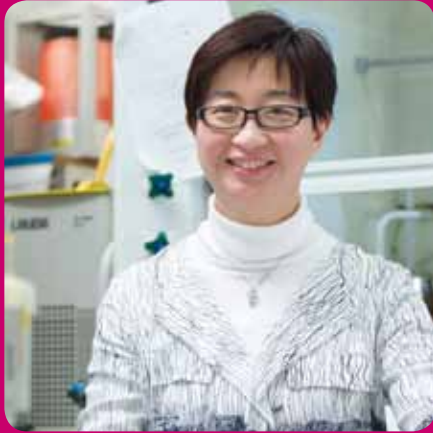
After we moved to Hong Kong, I watched sci-fi movies on television and was captivated by the universal translator in *Star Trek*, where anyone can speak any language into it and it will be translated into any other language. I also read in *Ming Pao* newspaper about Bell Labs in the US, where scientists had invented cool technologies such as the transistor



## Prof Ying Chau

### Associate Professor, Chemical and Biomolecular Engineering

- PhD in Chemical Engineering, MIT
- Biochemical Engineer, Merck Research Labs, US
- Research interests: biomedical engineering; drug delivery; cancer targeting; tissue engineering



**A**s an undergraduate, I studied agricultural and biological engineering at Cornell University, with the coursework spanning life science and engineering subjects. After graduation, I went to work at the world-famous Merck Research Laboratories as a biochemical engineer. During my time there, I learned how to apply engineering skills to drug delivery and vaccine manufacturing, and I saw the demand for bioengineering research in the pharmaceutical industry. I then

decided to take my Master's (University of Pennsylvania) and PhD (Massachusetts Institute of Technology).

I had been encouraged to become an engineer by my father, who was a practicing electronic engineer. He emphasized the importance of quantitative thinking and problem-solving skills and he felt that engineering provided such training. He was also visionary because he could see the promise of engineering applications in life science and biotechnology in the future and suggested I pursued my major in this area.

I joined the Department of Chemical and Biomolecular Engineering in the School of Engineering in 2006. As I am from Hong Kong, I decided to return to the city when offered the opportunity. Currently, my two main areas of research are drug delivery for the treatment of eye diseases and the research of nano materials for building the next generation of therapeutic carriers. I really find my research intellectually interesting. At

the same time, such work can benefit people's lives. Both motivate me to keep finding out more.

In teaching, I have initiated a project called Student Innovation for Global Health Technology (SIGHT). SIGHT provides a platform for students from different disciplines (not only engineering) to take part in projects with social impact. Based on the framework of design thinking, students brainstorm, prototype, and implement practical solutions for low-resource settings. Our first projects were carried out in Cambodia. I found this trip very meaningful as students had the chance to put their ideas into practice and clearly found it a transformational experience.

I like to think that I and women faculty in general serve as role models for women students. If female students are interested in engineering, they should go ahead to join the field. I enjoy the freedom of doing what I enjoy (SIGHT, conducting research), and also my interaction with different people, such as my research team, students, and scientists from all over the world. However, the most rewarding aspect to me is mentoring – transferring knowledge and values to students, and witnessing their growth during the most transformative years of their lives.

# ering

## Three women faculty members explain what they find most rewarding about their careers

and the Unix operating system. I thought I would like to go there.

So I went to university in the US and chose to major in electrical engineering. In college I realized that I preferred software to hardware. For my final year project, I worked on computer vision, an area in artificial intelligence. I also finished an undergraduate humanities thesis on French movies. All of which led me to study in an engineering school in Paris later on. There I had my first encounter with speech recognition in a lab.

I worked on speech recognition systems for the French language, and on Japanese when I lived in Japan. I learned to speak French, Japanese and also taught machines to recognize these languages.

Afterward, I moved back to the US and worked for a US-DARPA contractor company (the same company that built the first part of ARPANET, the beginning of our Internet today). We built the world's first real-time continuous English speech recognition system.

When I was doing my PhD, my thesis advisor told me about machine translation. There was a group at Bell Labs and a group at IBM research labs pioneering a way to build machine translation by enabling the system to learn from a huge amount of human translation samples. I did part of my thesis work at Bell Labs. So, yes, I finally got to build the gadget I saw in *Star Trek* when I was little.

Computers that can talk to you and allow you to shop from home are part of real life now. However, we still have a long way to go before we have machines that can understand your intent, your emotion and the context perfectly. Every year we make progress in research and bring the future a little closer.

When I went to the US to study my ambition was to work at Bell Labs. However, in 1994, I visited HKUST and was fascinated by the vision of a "startup" university that was going to break the mold. So, when I got my PhD, I decided that it would be more fun to join HKUST than stay at Bell Labs. At HKUST in 1998, we built the world's first multilingual voice browser in eight languages.

To be continued on P.14 ▶

# HKUST Brings Home Two Awards

## From First 'Oscars' of Higher Education Innovation

**A** School of Engineering professor and his team secured two awards at the inaugural Wharton-QS Stars Awards 2014: Reimagine Education, an event that drew more than 425 universities and enterprises from over 40 countries. The contest was organized by The Wharton SEI Center for Advanced Studies in Management, University of Pennsylvania, and Quacquarelli Symonds (QS), publisher of the QS World University Rankings, in December to recognize and share higher education innovations worldwide, enhance learning and nurture employability.

A team led by Prof Ting Chuen Pong, Senior Advisor to the Executive Vice-President and Provost (Teaching Innovation and e-Learning) and Computer Science and Engineering, came second in the hybrid learning category for their Hong Kong Virtual University Program (HKVU), which was established with initial funding from University Grants Committee's Restructuring and Collaboration Fund. The initiative creates a virtual campus for students around the world to study courses offered by universities in Hong Kong.

HKVU enables students to take classes unavailable in their home institution and builds a bridge for students transitioning from secondary school to tertiary education. It also offers lifelong learning opportunities and useful feedback for educators. Courses are delivered through blended learning, which integrates face-to-face teaching with online media and gives students flexibility to learn according to their own timetable.

The hybrid learning category winner was the University of Utah, with HKUST sharing the runner-up position with Delft University of Technology and finishing ahead of Harvard University, which came in third.

In addition, HKUST won the natural sciences subject award



for its Chemists Online program under HKVU. The enterprising program gives secondary school students exposure to university-level education through seminars and lab sessions. Over 8,000 students from 140 secondary schools in Hong Kong and Macau have benefited from the project.

"I was delighted that we were able to gain such recognition in the face of strong competition from around the world," said Prof Pong, who became Director of the School of Engineering's pioneering Center for Engineering Education Innovation in January. "These awards show that HKUST is not only committed to innovative education but among the global leaders in its approach and development of such teaching and learning."

The overall contest winners were National Taiwan University and University of Colorado Boulder. Entries were judged by 25 international experts in education and business.

*Further details of Hong Kong Virtual University Program at <http://hkvu.ust.hk>*

## Leading the Way at E<sup>2</sup>I

**P**rof Ting Chuen Pong, Computer Science and Engineering, has taken up the post of Director of the Center for Engineering Education Innovation (E<sup>2</sup>I), following the retirement of Prof Neil Mickleborough, Civil and Environmental Engineering. "Prof Mickleborough provided outstanding leadership during his tenure, taking over after the untimely passing of Founding Director Prof Edmond Ko in 2012 and building on Prof Ko's legacy to establish the Center as an influential global leader in engineering education and an important contributor to student advising at the School," Dean of Engineering Prof Khaled Ben Letaief said. Prof Pong said he was looking forward to the challenge of advancing E<sup>2</sup>I further.



# Aluminum Composite Discovery

## Opens Up Potential for Greener Construction

**A**n innovative aluminum composite has been discovered by a HKUST research team led by Prof Yui Bun Chan, Civil and Environmental Engineering, with support from leading global aluminum producer UC RUSAL. The material, known as fiber reinforced aluminum, is stronger than current aluminum, and less expensive and lighter than steel. Fiber reinforced aluminum has a wide range of potential applications, especially in the construction industry where it can serve as an alternative to steel and cement. It can also be applied to electronic products, automobiles, and aircraft.



Fiber reinforced aluminum is a mixture of carbon fiber and aluminum and the search for a way to merge the two materials has taxed top minds for a long time. Prof Chan's team secured the key breakthrough by using nanotechnology to alter the composition of carbon fiber, enabling it to integrate with other substances, such as aluminum. The research is now undergoing its final phase and is expected to be completed in 2015.

Prof Chan pointed out that, in current construction projects, aluminum is largely restricted to use in window frames due to its soft texture. However, the new carbon-fiber aluminum could be used to produce a greener, cheaper and lighter building envelope. "If used together with a phase-change material (PCM), fiber reinforced aluminum creates a smart building envelope system, which will effectively reduce indoor temperature fluctuation and halve labor costs and construction time compared to conventional systems built mainly from steel and cement," Prof Chan said.

The research is part of a five-year cooperation program between HKUST and UC RUSAL that seeks to foster joint scientific research to address environmental issues and links between young scientists in Russia and Hong Kong.

# Entrepreneurship and Design Minors

## Add to Study Options

**T**wo additional Minor Programs were launched during 2014, enhancing the scope of School of Engineering study options for undergraduates.

The School is now jointly offering a Minor in Entrepreneurship with HKUST Business School for undergraduates, with two-thirds of students from business and the other third from engineering. Prof Po Chi Wu, Founding Director of the Entrepreneurship Minor Program, said he was delighted with the strong level of interest and quality of students who had applied.

In addition, a new Minor in Design was also launched by the Department of Industrial Engineering and Logistics Management. Among its required courses is the enterprising four-week Design Thinking course held together with China Academy of Art over the summer, during which students work together in teams to create an original product from scratch.

Minors already available from the School of Engineering include aeronautical engineering, bioengineering, engineering management and law, and environmental sustainability and management. Students can also take minors offered by other HKUST Schools.



# Faculty Honors, Awards & Achievements

Dean of Engineering and Chair Professor of Electronic and Computer Engineering **Prof Khaled Ben Letaief** and **Prof Jun Zhang**, Electronic and Computer Engineering, and their team won the Best Paper Award in the 2014 IEEE International Symposium on Personal, Indoor, and Mobile Radio Communications (PIMRC). The paper focused on “Joint Data Assignment and Beamforming for Backhaul Limited Caching Networks” and was co-authored by PhD student Xi Peng and research associate Dr Juei Chin Shen. Prof Zhang also received the 2014 EURASIP Best Paper Award for his co-authored paper on “Mode Switching for the Multi-Antenna Broadcast Channel Based on Delay and Channel Quantization”.



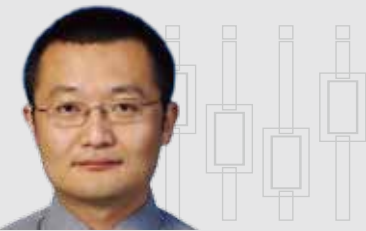
**Prof Mansun Chan**, Electronic and Computer Engineering, and his team in Shenzhen received a Second Class Award in the Natural Science Category of the 2013 Shenzhen Science and Technology Awards for their “Study of Double Gate FinFET Device Physics, Modeling and Circuit Applications”.



**Prof Furong Gao**, Chemical and Biomolecular Engineering, received a National Natural Science Foundation of China key project award for his study on “High Performance Control of Batch Process”.



**Prof Ho Yin Mak**, Industrial Engineering and Logistics Management, was awarded the 2014 INFORMS Energy, Natural Resources, and the Environment (ENRE) Young Researcher Prize.



**Prof Lei Chen**, Computer Science and Engineering, has been elected to the Very Large Data Base Endowment Inc (VLDB Endowment) Board of Trustees. The 21 trustees are elected among internationally distinguished researchers and professionals in the field.



**Prof J S Kuang**, Civil and Environmental Engineering, was honored with the Telford Premium 2014 from the Institution of Civil Engineers UK for the best paper on engineering and computational mechanics. In addition, he won the Best Paper Award at the International Conference on Advances in Civil and Structural Engineering. Prof Kuang has been elected a council member of the Institution of Structural Engineers, one of the most prestigious civil engineering professional bodies in the world.



**Prof Minhua Shao**, Chemical and Biomolecular Engineering, received the Energy Technology Division Supramaniam Srinivasan Young Investigator Award from the Electrochemical Society. He received the accolade “for his accomplishments in the synthesis and characterization of novel electrocatalysts and materials for electrochemical energy technologies” in the United States. He joined HKUST in 2014.



**Prof Vladimir Chigrinov**, Electronic and Computer Engineering, won the Gold Medal and Best Award in the Invention & Innovation Awards 2014 at the Malaysia Technology Expo 2014. His co-authored paper explored “Environmental Friendly, Non-Hazardous, Biocomposite Mixtures for Future Generation Plastic Displays”. The paper also won the Green Technology Award from the Japan Intellectual Property Association at the Expo.



**Prof Ricky Shi Wei Lee**, Mechanical and Aerospace Engineering, together with his research team, won an Outstanding Paper Award for “Development of an Integrated Real-Time Scanning System with Uni-Photodetector for LED Reliability Tests” at the 15th International Conference on Electronic Packaging Technology in Chengdu. His co-authors were Dr Jeffery Lo of HKUST and Grace Zhang of HKUST LED-FPD Technology R&D Center at Foshan.



**Prof Richard So**, Industrial Engineering and Logistics Management, has been elected a Fellow of the International Ergonomics Association (IEA), the first member from Hong Kong to achieve the honor. IEA Fellowship has been accorded to less than 100 recipients since 1960. Prof So has also been elected co-editor-in-chief for *Displays*, an international journal. He is the first Chinese person to hold the prestigious title.

# LED Packaging Expert Shines at Calvin W Rice Lecture

**P**rof Ricky Shi Wei Lee, Mechanical and Aerospace Engineering and Director of the Center for Advanced Microsystems Packaging, delivered the 2014 Calvin W Rice Lecture in November 2014, becoming the first Hong Kong academic to be accorded the honor.

Prof Lee received the accolade from the American Society of Mechanical Engineers (ASME) in recognition of his contribution to the mechanical engineering community across the world. Prof Lee is a global expert on electronic and light-emitting diode (LED) packaging. He gave the lecture at the annual ASME International Mechanical Engineering Congress and Exposition Conference (IMECE) in Montreal, Canada. The theme of his talk was “A New Silk Road: Evolution and Migration of Electronic and Photonic Packaging Technologies from the West to the East”.

“I was very happy to have this opportunity to speak to such a prestigious group of engineers and proud to be able to highlight the leading work being carried out at the School and HKUST,” Prof Lee said. “The occasion was particularly special because I am the first one from Hong Kong to receive this ASME society level award and I felt so honored to have the privilege to represent HKUST at such an occasion.”

Prof Lee launched his academic career after earning a PhD in Aeronautical and Astronautical Engineering from Purdue University in 1992. He joined HKUST in 1993. His research in recent years has involved leading a team to investigate how to achieve high throughput and low-cost manufacturing using advanced LED wafer-level packaging technologies.

As Director of the HKUST LED-FPD Technology R&D Center at Foshan, he also hopes to foster HKUST-developed LED packaging



and manufacturing technologies for the solid-state lighting industry in Foshan and neighboring areas for development and commercialization to enhance the region’s competitiveness.

The Calvin W Rice Lecture Award was established in 1934. Prof Lee was only the second Greater China recipient of the award, following Prof Wei Yang, former President of Zhejiang University.

The School of Engineering academic gained further recognition when he received the 2014 IEEE CPMT David Feldman Outstanding Contribution Award for his sustained leadership and service to the Components, Packaging and Manufacturing Technology (CPMT) Society in a range of areas. Prof Lee served as 2012-13 IEEE CPMT Society President.

## Optical Society Honors ‘Father of OLED’

**P**rof Ching W Tang, IAS Bank of East Asia Professor and Chair Professor of Electronic and Computer Engineering, Chemistry and Physics, received the 2014 Nick Holonyak Jr Award from the Optical Society (OSA), a US-based global organization recognized as the leading professional association in optics and photonics. The award is presented to an individual who has made significant contributions to optics based on semiconductor-based optical devices and materials, including basic science and technological applications. Following Prof Tang’s breakthrough research in the 1980s, he became known as the father of organic light-emitting diodes (OLED), now a significant industry with applications related to television screens and mobile phone displays, among others. In 2011, he became the first Chinese Wolf Prize Laureate in Chemistry.



# Freeing the Earth

*Prof Irene Lo has become the first Hong Kong member of the European Academy of Sciences and Arts, elected for the impact of her research and practical advances in solving environmental challenges. She talks to In Focus about her work in decontamination and outlook on engineering*

**W**hen Prof Irene Lo heard the news that she had been elected an Academician in the Technical and Environmental Sciences branch of the European Academy of Sciences and Arts, her initial reaction was: “Not me?!” The Civil and Environmental Engineering professor was equally surprised and delighted to find she had become the first Hong Kong scholar to receive the honor from the august body, which comprises over 1,500 top scientists, researchers, philosophers and artists from Europe, Asia and the US, and includes 29 Nobel Laureates.

However, Prof Lo has certainly earned her place among the Academy’s members after more than two decades of high achievement and technological innovation at the School of Engineering. Her focus over this time has been clean-up solutions to the major environmental problem of contaminated soil, sediment and water, and her influence has been global in both academic and professional engineering worlds.

“I see a problem in reality. Then I look for the root cause and how to solve it,” Prof Lo explained. “I start with work in the laboratory and gradually move to a full site test of the technology. Publications are important but not my ultimate goal. For every piece of research I do, I must think of the application. The most exciting part is when you see the technology actually working. There is a real sense of discovery.”

Prof Lo was one of the early exponents of environmental engineering as it expanded from sanitary engineering (mainly issues related to water and wastewater) into a wide-ranging university discipline in the 1980s. She was attracted by the scope of the subject, which involved integration of physics, chemistry and biology – all subjects she was good at and enjoyed from her time at Shau Kei Wan Government Secondary School in Hong Kong onward. Environmental engineering’s potential to improve the quality of people’s lives was another significant draw.

Joining HKUST in 1992 as a junior faculty member, Prof Lo has gone on to bring fresh dimensions to research and applications for water, soil, and solid waste pollution control. During sabbatical leave in 1999 at the Technical University of Denmark, she had the opportunity to collaborate with Prof Peter Kjeldsen, another leading figure in groundwater and soil remediation, and seek ways to bring their scientific findings related to permeable reactive barrier technology to fruition in the outside world. “It worked in the lab but we needed to show people it worked in the field to have real impact,” she said.



## Firmly Grounded Achievement

MS and PhD, University of Texas at Austin, 1990 and 1992

Fellow of the Hong Kong Institution of Engineers (HKIE), 2009

Fellow of the American Society of Civil Engineers (ASCE), 2009

*Research interests:* include remediation technology for contaminated soils and sludge; solidification/stabilization of contaminated marine mud/sediment/

soils for beneficial reuse; bioremediation of sediment for odor suppression and organic biodegradation; chemical reduction of chlorinated hydrocarbons and reducible inorganic compounds by permeable reactive barriers; nanomaterials for water and industrial wastewater treatment; life cycle environmental assessment of materials

*Professional awards:* include ASCE James Croes Medal, 2004 (first Chinese principal

investigator to win since 1912); ASCE Samuel Arnold Greeley Award, 2007; ASCE Wesley W Horner Award, 2009; ASCE EWRI Best Practice-Oriented Paper Award, 2012; Research Excellence Award, School of Engineering, HKUST, 2013

*Teaching awards:* include Michael G Gale Medal for Distinguished Teaching, HKUST, 2006; Distinguished Teaching Award, School of Engineering, HKUST, 2007

This they managed to do when they partnered with the Danish Environmental Protection Agency in tackling groundwater that had become polluted by chlorinated hydrocarbons at the Vapokon site on Fuen Island in Denmark. In Hong Kong, Prof Lo received Research Grants Council funding to assist the project mainly on the support of a PhD student to work in Denmark and conduct preliminary test and site monitoring work.

The resulting full-scale fieldwork brought an immense amount of useful data for understanding the mechanism involved in

Department. The second trialed a soil/sediment washing technology for a joint study conducted by the Hong Kong and Shenzhen governments. “Every site is unique, depending on the pollutant and the nature of the soil, so you have to use different technologies to deal with it,” she noted. Currently, she is working with a private company over an environmentally friendly technology to clean up marine mud and reuse it on site.

Such cutting-edge fieldwork has a useful impact on her teaching, another area to which she devotes much thought and effort

and has brought University commendations. “When I apply my research on site, I use such information in my teaching,” Prof Lo said. “My students benefit a lot as they really see how it can be used. It is not just a concept anymore.”

Prof Lo is keen to see more women become civil and environmental engineers and thinks high school students with an affinity for the three major sciences and a rational mindset will find the areas rewarding. “The word ‘civil’ in civil engineering stands for ‘civilization’”, she pointed out. A greater female presence could also bring new perspectives and vision.

Other changes she is looking forward to include the valuable networking opportunities she

foresees following her election to the Academy, an institution which focuses on developing knowledge, disseminating scientific information, and implementing major multinational projects. She is already noticing a stream of offers to speak at conferences and believes that the international connections that Academy membership can bring will create wider exposure for the School and HKUST.

On her attainment of this standing, she remains modest, seeing the accolade not as personal achievement but simply as heartening evidence of the contribution she has been able to make to society. “My research students congratulated me and said it was a great honor,” she said. “To me, it is international recognition of my work over the past 20 years.”

permeable reactive barrier technology, publications in leading journals, and two major awards from the American Society of Civil Engineers. “The breakthrough was learning how to set up a monitoring system to find out whether the pollutants in groundwater had been removed or not. The data showed they really were reduced. They were being treated and removed on site,” Prof Lo explained. In 2006, the research was extended to groundwater contaminated by chromium, arsenic and other toxic anionic pollutants.

Closer to home, Prof Lo has carried out projects to clean up the Shing Mun River in Sha Tin and the Sham Chun River at the border between Hong Kong and Shenzhen. The first involved a bioremediation technology and was carried out together with the Hong Kong government’s Civil Engineering and Development

### ◀ Continued from P.8

I also had the opportunity to start the Human Language Technology Center with other faculty members. Our center was the first in Greater China to research speech recognition, machine translation and information retrieval. In addition, the center founded a number of startup companies that launched the world’s first Chinese natural language search engine, and the world’s first online translation engine, among others.

I love my job and feel very lucky that I am being paid to realize my childhood dreams. Only engineers can get so many resources to build “toys” on a big scale. My overall goals are to improve people’s lives with our technology. To make such an impact, research is not enough. It is also necessary to develop products and market them.

In 2011, I helped to found the Women Faculty Association at HKUST to enhance and improve diversity in terms

of gender and cultural backgrounds. Other universities in Hong Kong are beginning to do the same this year. There are plenty of women who, given the opportunity, would be interested in engineering. Engineering is a good career for financial independence – a good engineer can always find a job anywhere in the world. Engineering also allows you to innovate, create, and make a direct positive impact on the societies of today and tomorrow.

## In the Spotlight over **Big Data at Tencent Forum**

**D**r Eden Y Woon, Vice-President for Institutional Advancement, and Prof James She, Electronic and Computer Engineering, gave well-received seminars at the 2014 Tencent Forum on “Big Data Connections in the Future” in Beijing. The Forum was organized by the Tencent Research Institute for Internet and Society, in collaboration with Oxford Internet Institute, Oxford University, HKUST NIE Social Media Laboratory, and the Social Management and Big Data Center, Renmin University of China.

Dr Woon discussed big data as one of the University’s key research themes, and the importance of collaborating with enterprises in the Pearl River Delta region, such as Shenzhen-based Tencent. He said it was an honor for HKUST to partner with the innovative company and he looked forward to expanding the relationship further.

Prof She introduced the HKUST NIE Social Media Lab and its latest research results, as well as applications for big data research and new initiatives in the Department of Electronic and Computer Engineering.

Others attending the forum included Prof Luciano Floridi, Director of Research and Professor of Philosophy and Ethics of Information, Oxford Internet Institute; Mr Taosang Tong, President of Social Network Group and Senior Executive Vice President, Tencent; and Prof Liming Wang, Executive Vice President for Research and Graduate Education and Vice Chairman of the University Council, Renmin University of China.



## **Multimedia IT Conference** Visualizes the Future



**T**he Department of Computer Science and Engineering co-organized the 10th International Conference on Multimedia Information Technology and Applications (MITA 2014) at HKUST, together with the Korea Multimedia Society and Yonsei University. MITA encourages the research community in Asia-Pacific and beyond to share knowledge and experience related to new media technologies and applications.

The 2014 conference attracted over 100 researchers from Hong Kong, Portugal, Japan, Vietnam, Indonesia, Uzbekistan, Taiwan, and Korea. Research areas included multimedia systems, multimedia technology in Internet applications, graphical visualization and modeling, multimedia industry applications, bio-medical informatics, green IT applications, among others. At the event, participants presented papers and discussed future research strategies and potential collaborations.

## **CAD'14** Draws International Experts

**N**early 100 Computer-Aided Design (CAD) experts from over 15 countries gathered at HKUST in the summer of 2014 to exchange ideas and discuss the future direction of the industry. The International CAD Conference and Exhibition 2014 (CAD'14) sought to forge greater connections between those in CAD research, education and business. Prof Ajay Joneja, Industrial Engineering and Logistics Management, served as host co-chair of the conference.

At the opening ceremony, Prof Fugee Tsung, Head of Industrial Engineering and Logistics Management, welcomed the delegates to HKUST. The four keynote speakers were Prof Yong Chen, University of Southern California (3D printing/additive manufacturing), Prof Shuming Gao, Zhejiang University (CAD model retrieval), Prof Kunwoo Lee, Seoul National University (digital human modeling), and Prof Jianmin Zheng, Nanyang Technological University (T-splines). Topics in the paper sessions included geometric modeling, sketch-based design and shape editing, computational geometry applications and architectural design, providing further valuable insight into the latest developments in the field.





# Year 1 Students Take Ethical Engineering Pledge

**Y**ear 1 students pledged to be ethical engineers at the Inaugural EngineerRing Ceremony at the School of Engineering's Team Building Camp in August 2014. The event was hosted by the Center for Engineering Education Innovation (E<sup>2</sup>I) together with the School.

Understanding professional and ethical responsibility is an important component of engineering education. For Prof Neil Mickleborough, then Director of E<sup>2</sup>I, learning how ethics shape their career as future engineers at their first official School event would give Year 1s a head start in their education.

Dean of Engineering Prof Khaled Ben Letaief welcomed the Year 1s into the School during the EngineerRing Ceremony. The students then heard from Prof Mickleborough on the importance of ethical behavior and responsibilities as a future engineer.

All of the Year 1s stood together in the HKUST Atrium to take the HKUST-School of Engineering pledge to: "Act honorably, responsibly, ethically, and lawfully as to raise the reputation, and honor the standing of the University and engineering profession, for the benefit of society."



SENG faculty and E<sup>2</sup>I staff members presented a stainless steel ring engraved with "Engineering HKUST" to every student to serve as a reminder of the pledge taken by the wearer to act with integrity and respect during their academic life and career.

The Team Building Camp is the School's official undergraduate induction camp facilitated by E<sup>2</sup>I. The one-day event is designed to help newly admitted students bond with each other, senior students, faculty and staff members.

## Research Postgraduates Test Their Communication Skills

**T**he first SENG RPg Communication Competition for the School's research postgraduates was held in Spring 2014, with then PhD student Peng Wang, Civil and Environmental Engineering, named the champion, PhD student Rashi Bhushan, Civil and Environmental Engineering, awarded the first runner-up place and PhD student Khawar Sarfraz, Electronic and Computer Engineering, securing the second runner-up position.

Contestants used a combination of humor, analogies, and diagrams to illustrate their research, following the Three Minute Thesis (3MT<sup>®</sup>) format, which boosts research postgraduates' capabilities to explain the significance of their studies in a very short space of time. They also demonstrated their ability to articulate thoughts and think on their feet in a non-technical one-on-one debate.

The judging panel consisted of School of Engineering faculty members and communication professionals. The then Associate Dean of Engineering Prof Christopher Chao, on behalf of the judging panel, congratulated contestants for their great performances. He said that the panel was impressed by the logical thinking and effective communication skills demonstrated.





## Energy Efficient App Wins Global Contest

Two third-year Environmental Management and Technology students won Schneider Electric's Go Green in the City 2014 international case study competition, which drew interest from over 12,000 students and participants from nearly 160 countries.

EnerBy duo Keith Jin Deng Chan and Jasmine Man Ki Lee, Division of Environment, beat 11 other teams from around the world in the grand finale in Paris to take the top spot. The pair's winning proposal for an energy solution for cities was to create a mobile application for people to efficiently monitor, analyze and manage their energy consumption. More than 800 two-person teams from over 460 universities worldwide submitted entries.

The final was held over four days in Summer 2014, with contestants taking part in business workshops, networking,

and having the opportunity to meet Schneider Electric staff in their working environment as well as give final presentations of their energy-efficient ideas. Schneider Electric is a global specialist in energy management.

In Keith and Jasmine's "Electricity Foresight Program", smart plugs enable smart metering through a mobile application, helping to raise awareness on the amount of energy that users are consuming and encourage them to adapt behavior. The two students were assisted in the development of the concept by mentoring through regular Skype sessions from Schneider Electric.

"The competition offered us a platform to share our ideas with the world, especially professionals in the energy field," said Jasmine. "I also learnt how to strike a balance between innovation and feasibility. In the beginning, our

idea was 'too innovative'. We were assigned a mentor from Schneider Electric and he advised us to consider the feasibility of our idea. After that, we refined the concept using the multi-disciplinary knowledge we had acquired in our environmental management and technology studies."

She added that the pair had not expected to win, given the global scale of the competition and large number of applicants, but hopes that their story will inspire other HKUST students to participate in such contests.

Since graduation, Keith has enrolled in an Advanced Diploma in Economics at the University of Cambridge. Jasmine has joined Schneider Electric as a management trainee and is based in Shanghai on a one-year assignment at the company's R&D Center.

# Students Soar in National Aircraft Design Competition



**F**ive Mechanical and Aerospace Engineering undergraduates achieved remarkable success against more than 150 other teams by gaining second place in the first and

largest national aircraft design competition organized by the Aviation Industry Corporation of China (AVIC).

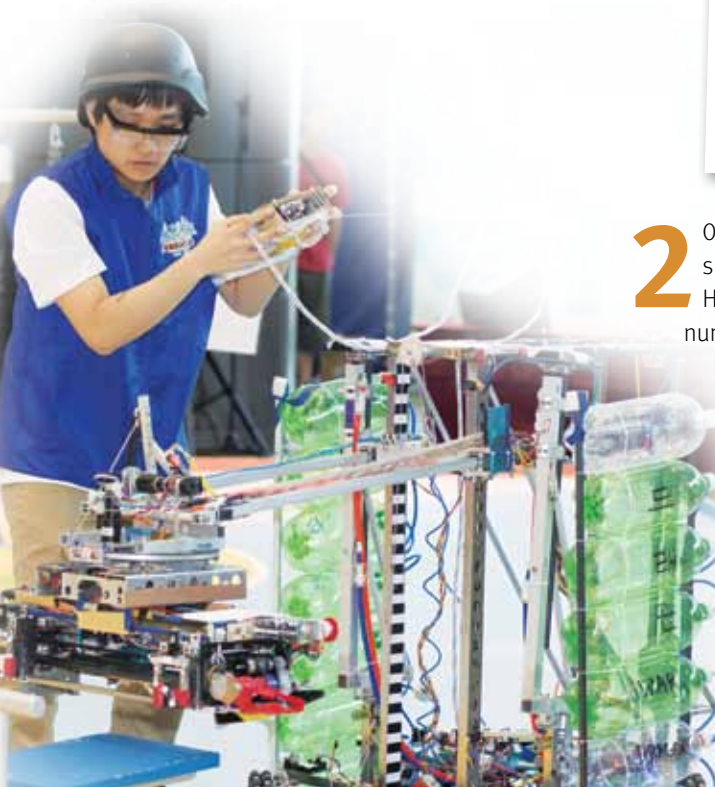
Students Haoran Chen, Chi Cheung Choi, Michelle Jia Ying Lee, Yuyang Xie and Yuanhang Zhu created a two-seater amphibious aircraft, named “Soaring Dragon”. The plane features a pair of hydrofoils that minimize take-off distance on water, a downward folding wing tip that warns pilots of water breaches, and foldable wings for flexible movement and storage on the ground. The students spent a month constructing a 1:10 model for the competition, which has been on display at China Aviation Industry General Aircraft’s (CAIGA) headquarters in Zhuhai.

At the contest, the undergraduate team, competing mainly against postgraduate students and professionals, co-won the first runner-up with a team from a research center under CAIGA and came second to a 10-member team from Beihang University.

Executive Vice-President and Provost Prof Wei Shyy, who is also an accomplished aerospace engineer, said the University was committed to helping young people in Hong Kong fulfil their passion to design and build new flight vehicles. The five students have been interested in aircraft modeling since they were small and are all determined to pursue a career in aerospace engineering. They initiated an Aeronautics Interest Group three years ago and have participated in many international aircraft building contests, including Design/Build/Fly hosted by the American Institute of Aeronautics and Astronautics and Fly Your Ideas by Airbus.

The School of Engineering has been actively pursuing research collaborations and technological exchanges with the aviation industry, and under the joint sponsorship of Hong Kong Innovation and Technology Fund, AVIC has supported multiple projects of the University over the past two years.

# Robotics Team Triumphs Again



**2**014 proved another successful year for the HKUST Robotics Team in numerous contests. HKUST Robocon teams scooped the Champion and Best Artistic Design Award, and the First Runner-Up and Best Engineering Award, in the Robocon 2014 Hong Kong Contest. The HKUST Remotely Operated Vehicle (ROV) team

won the championship in the Explorer Class of the 9th Hong Kong/Asia Regional IET/MATE Underwater Robot Challenge. In the 2014 MATE International ROV Competition in Michigan, US, first-year engineering student Dhesant Nakka received the Engineering Evaluation Most Valuable Presenter (“MVP”) Award. The HKUST Smart Car team also received four awards at the 9th National Undergraduate Students “Freescale Cup” Intelligent Car Competition (South China Region) in Wuhan.

# Student Honors, Awards & Achievements

A team of Mechanical and Aerospace Engineering undergraduates comprising **Ali Ahmer Asif, Mohammed Danish, Nadir Hoshi** and **Ka Wai Tsoi**, won the HKUST President's Cup 2014 for their project "Design and Manufacture a Small Size Multi-Copter". The annual University-wide competition enables undergraduates to be recognized for outstanding achievements in research and innovation and was a clean sweep for the School of Engineering. The Gold Award went to **Ezra Yoanes Setiasabda**, Civil and Environmental Engineering, and the Silver Award to **Ivan Gondoprastowo**, Computer Science and Engineering.

PhD students **Wei Bi** and **Yanjiao Chen**, Computer Science and Engineering, were awarded Google Anita Borg Memorial Scholarships: Hong Kong in 2014. It was the second time that Yanjiao had won this scholarship, which aims to encourage women to excel in computing and technology and become active role models and leaders.



Computer Science and Engineering researchers behind the demo system "gMission: A General Spatial Crowdsourcing Platform" received the Excellent Demonstration Award at the 40th International Conference on Very Large Data Bases (VLDB) 2014 in Hangzhou, China. The team comprised postgraduates **Zhao Chen, Peng Cheng, Rui Fu, Zheng Liu, Leihao Xia, Chen Zhang, Ziyuan Zhao**, postdoctoral fellow **Dr Chen Cao**, and alumnus **Dr Yongxin Tong** and was led by Prof Lei Chen. It was the first time this award went to a team from the Greater China region. There were 200 global submissions and 42 final candidates.

Three papers by Electronic and Computer Engineering students were presented at the renowned IEEE International Solid-State Circuits Conference (ISSCC 2014) in San Francisco.

- One paper, by **Lin Cheng** and **Yonggen Liu** and supervised by Prof Wing-Hung Ki, looked at "A 10/30MHz Wide-Duty-Cycle-Range Buck Converter with DDA-Based Type-III Compensator and Fast Reference-Tracking Responses for DVS Applications".
- The second, by **Yan Lu** and co-supervised by Prof Wing-Hung Ki and Prof Patrick Yue, focused on "A 0.65ns-Response-Time 3.01ps FOM Fully-Integrated Low-Dropout Regulator with Full-Spectrum Power-Supply-Rejection for Wideband Communication Systems". Lu was also one of the recipients of the IEEE Solid-State Circuits Society Predoctoral Achievement Award in recognition of his achievements in integrated circuit design.
- The third paper was by **Jungmoon Kim**, an exchange student from Korea University, and was entitled "A 0.15V-Input Energy-Harvesting Charge Pump with Switching Body Biasing and Adaptive Dead-Time for Efficiency Improvement". The paper was co-supervised by Prof Philip Mok of HKUST and Prof Chulwoo Kim of Korea University.

One Student Research Preview paper was also presented. The paper was authored by **Wai Chiu Ng, Ruoyu Xu** and Prof George Yuan. In addition, Prof Howard Luong and Prof Philip Mok received Fellow Awards at ISSCC 2014 for their research contributions.



PhD candidate **Ping Geng**, Chemical and Biomolecular Engineering, won the Best Poster Award at the 65th Annual Meeting of the International Society of Electrochemistry in Lausanne, Switzerland for her paper "Magnéli  $Ti_4O_7$  Nanotube Arrays as Novel Anodes for Wastewater Treatment".

PhD student **Naiyan Wang**, Computer Science and Engineering, received the prestigious Google PhD Fellowship in Machine Learning. Only four people among an extremely competitive pool of applicants were awarded a Google China PhD Fellowship in 2014.

PhD student **Duruo Huang**, Civil and Environmental Engineering, was selected for a 2014 Liu Huixian Earthquake Engineering Scholarship Award. The competitive awards are granted to 10 graduate students in earthquake engineering enrolled in universities and research institutes in the US, China and Singapore, or member organizations of the Asian-Pacific Network of Centers for Earthquake Engineering Research. Duruo was the first winner from Hong Kong since the scholarships were established in 2010.





MPhil student **Srinath Kumar**, Civil and Environmental Engineering, received an Outstanding Students' Projects Award at the Autodesk Hong Kong Building Information Modeling (BIM) Awards 2014. His winning project focused on "Construction Site Layout Planning Using BIM".

PhD student **Yepang Liu**, Computer Science and Engineering, was awarded the ACM SIGSOFT Distinguished Paper Award at the 36th International Conference on Software Engineering, held in India, for his paper "Characterizing and Detecting Performance Bugs for Smartphone Applications". The work formed part of Yepang's collaboration with alumnus Prof Chang Xu, now at Nanjing University, and Prof Shing Chi Cheung.



Two PhD students from different departments have received Fulbright-RGC Hong Kong Research Scholar Awards for 2014-2015. **Cheng Long**, Computer Science and Engineering, and **Chi Yan Tso**, Mechanical and Aerospace Engineering, undertook research at University of Michigan and the University of California, Berkeley, respectively.



PhD candidate **Ying Khai Teh**, Electronic and Computer Engineering, was a co-winner of the Best Student Paper Award at the IEEE 57th International Midwest Symposium on Circuits and Systems in Texas, US. His paper was titled "A Bipolar Output Voltage Pulse Transformer Boost Converter with Charge Pump Assisted Shunt Regulator for Thermoelectric Energy Harvesting" and co-written with Prof Philip Mok. The other winner was from Texas A&M University.

Undergraduate **Xiong Zeng**, Dual Degree Program in Technology and Management, and his team won the first prize in the 2014 UBS Group Technology Case Study Challenge, Hong Kong.

PhD student **Haofei Wang**, Electronic and Computer Engineering, won the postgraduate section and overall championship at the Institution of Engineering and Technology (IET) Hong Kong Young Professionals Exhibition & Competition 2014. He went on to represent Hong Kong in the 2014 IET Asia Pacific Region "Present Around The World (PATW)" Competition in Malaysia in August.



PhD students **Kandy Kan Kan Yeung** and **Belsy Wai Tung Yuen**, Mechanical and Aerospace Engineering, won the Gold Award at the JEC Outstanding Engineering Project Awards for their project "The Versatile Acoustics Filtration System with the Use of Ultrasound". The awards were organized by Jardine Engineering Corporation.



Environmental Engineering PhD student **Simon Zhen Zhang**, supervised by Prof Irene Lo, received the Best Paper Award at the 2014 International Conference on Soil and Groundwater Environment in Seoul, Korea. More than 300 experts and researchers in soil and groundwater from 15 countries attended the conference.

# Ford Conservation Research Grants Sustained



was then matched by HKUST for a total fund of HK\$1 million. Twenty-three projects were funded for 2013-14.

“The first year of this program was a resounding success, and really underscored our belief that together with HKUST, we have created an exciting research grants program that drives creativity, innovation and potentially industry-shaping research,” said Mr David Westerman, Managing Director, Asia Pacific Emerging Markets, Ford Motor Company. “We can’t wait to see the results of the research projects funded this year.”

The first year of the partnership concluded with the grantees spending four days at Ford’s Asia Pacific headquarters in Shanghai and Research and Engineering Center in Nanjing in late Spring 2014.

**T**he success of the inaugural year of collaboration under the Ford-HKUST Conservation and Environmental Research Grants program has led to continued funding for 2014-15, with another 19 projects supported and results from these latest projects due to be reported in May.

The program is a unique partnership to promote environmental sustainability and nurture talent by supporting School of Engineering Master of Science students in their research on environmental and conservation science and conservation engineering. Ford donated HK\$500,000 for the graduate research grants, which

## HKIE-MI Contest Triumph

A team of Industrial Engineering and Logistics Management undergraduates received the first prize in the HKIE-MI Student Project Competition 2013/14. It was the second consecutive year for HKUST students to triumph in the prestigious competition, organized by the Manufacturing and Industrial Division of the Hong Kong Institution of Engineers (HKIE-MI). The team comprised Jeffrey Chun Hei Chan, Adam Kin Lok Cheung, Raphael Ming Him Chui and Quentin Ting Kwan Tsui.



## ECE Industry Day

ECE Final Year Project Industry Day 2014 helped Electronic and Computer Engineering (ECE) students and industry connect by showcasing the project work and ideas of graduating members of the department. Both demo and poster sessions were held and close to 200 students, faculty members and company representatives attended. Judging the top three projects in the demos were panels comprising representatives from Analog Devices, ASM Pacific Technology, ASTRI, Guangdong Hiway Integrated Circuit Technology (HK), RS Components, Synopsys (Beijing), Micom Tech, Texas Instruments, The Hong Kong Electronics Industry Council/Protronic (Far East), Hong Kong Electronics & Technologies Association/Cell Technology Limited, Advanced Card

Systems, and ViXS Systems HK. The gold award was won by Wing Hong Chan for his “Wearable Gesture Input Device” project.

## Talking Points

### Science Toy Challenge

The Science Toy Design Competition, organized by the Department of Industrial Engineering and Logistics Management, gave HKUST students the opportunity to create an educational toy that would be produced and marketed by NSI International Inc, a leading designer and manufacturer of educational toys in the US. The gold award went to undergraduate Kai Ho Lau, Mechanical and Aerospace Engineering, for his “Key and Lock” toy.



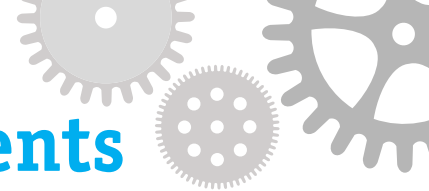
### Shadow a CEO Winner

MSc student Yue Ma, Electronic and Computer Engineering, was chosen from a competitive field to join the *Classified Post’s* “Shadow a CEO” Program, spending several days witnessing the daily work of Ir Joseph Choi, Managing Director of Hsin Chong Construction Company Ltd. The experience provided valuable insight and tips on management skills in real-life work situations.

### Committee Chair for Construction Productivity

Prof Christopher Leung, Head of Civil and Environmental Engineering, was appointed Founding Chair of the Committee on Productivity and Research by the Hong Kong Construction Industry Council. The Committee will benchmark or set standards for processes involved in a construction project, recommend strategies to enhance industry productivity and competitiveness, and co-ordinate construction research and development to assist practical application of research results.





# Partnership with RS Components

## to Foster Future Engineers

**H**KUST has become the first university partner in Greater China for RS Components (RS), the trading brand of Electrocomponents plc, the world's leading high service distributor of electronics and maintenance products. The partnership will support and promote innovation among engineering students in Hong Kong, as part of the RS University Partner Programme to foster the next generation of engineers.

The three-year collaboration will forge a close working relationship between RS and HKUST, in particular the Electronic and Computer Engineering Department. It will include RS-hosted workshops and the provision of professional teaching materials to lecturers to enhance the engineering

curriculum. To help students gain real-world experience, internship opportunities and exchange programs to tour the manufacturing production lines of electronic components will also be offered by RS. Other joint activities will include circuit design workshops, industrial projects, and design contests.

Prof Ross Murch, Head of Electronic and Computer Engineering, said the partnership was an exciting step to advance student learning. "This means that engineering students will be armed with both the theoretical and practical know-how to enrich their capabilities in the engineering field."

Mr Eric Lee, Head of Technical Marketing, Asia Pacific, RS, added: "Through this collaboration, we hope to inspire and nurture engineering talents and plant the seed for future innovations in Hong Kong. HKUST is a perfect fit as our education partner, with values aligned with our mission of empowering current and future generations of engineers, as well as supporting them to bring their ideas to life."

The RS partnership was initiated with HKUST in 2011 when the company generously sponsored components used by the HKUST Robotics Team.



# Keeping Up to Date with Each Other

## Dual Degree in Technology and Management

**O**ver 160 current students and alumni celebrated the 10th Anniversary of the Dual Degree Program in Technology and Management in Spring 2014. They were warmly welcomed by Dual Degree Program Co-directors Prof Chi Ming Chan and Prof James Thong.



### IELM

**I**ndustrial Engineering and Logistics Management alumni reunions in the Mainland saw IELM graduates meet informally in Shanghai in May 2014, with a similar gathering held in Beijing in July 2014. On both occasions, participants caught up with each other, learnt about the latest School news and strengthened ties with fellow alumni.



# Donation Funds CBME Scholarships

The Department of Chemical and Biomolecular Engineering (CBME) has established the Chan Tak Kei & Wong Kwai Ying Scholarship scheme following a generous donation from alumna Dr Joan Chan, BEng 1998, MPhil 2001, Chemical Engineering, HKUST; PhD 2009, University of Delaware. The scholarships, named for Dr Chan's parents, seek to encourage student research activities in the Department. They will be awarded annually in four categories: undergraduate research; sponsorship for undergraduate participation in a design competition or paper presentation; sponsorship for

undergraduate industrial training; and best postgraduate student. Two students, Sandra Hei Tung Lin and Carolina Garcia Henriquez, have already benefited from awards under the undergraduate research category of the scheme.

A special scholarship establishment ceremony was held in December 2014 to recognize Dr Chan's support and the achievements of the first awardees. Participants at the event included Dean of Engineering Prof Khaled Ben Letaief, CBME Department Head Prof Guohua Chen, Dr Chan and her parents.



## Mentoring the Next Generation

Fruitful mentorship schemes related to the Departments of Computer Science and Engineering and Industrial Engineering and Logistics Management were organized during 2014.

The Computer Science and Engineering Alumni Association started its first one-year mentorship program in Spring 2014. Most of the mentors in the initial scheme were Computer Science and Engineering graduates, or from other related programs, and were working in a range of roles from consultant to entrepreneur, online marketing manager to software developer. The mentees were Computer Science or Computer Engineering Program students, recent graduates, and first-year students interested in pursuing related studies. Over 30 mentors, more than 70 mentees, and around 10 faculty members joined the opening event.



The success of the Computer Science and Engineering scheme has led to a similar program being offered again this Spring. It will run until January 2016.



Meanwhile, the Industrial Engineering and Logistics Management Mentorship Program 2013-14 attracted 23 alumni and industry executives to be mentors to over 80 students for a period of six months. Mentors worked in logistics and transportation, IT, operation management, and finance, among others, with each mentee carefully matched with a mentor working in the field that they were most interested in. The program was jointly organized by the Department and the IELM Students' Society.



# Should You Fail, Learn from This Think Creatively and Be Optimistic

*Dr Mohamed Lebbai, 1997 MSc in Industrial Engineering and Engineering Management, 2002 PhD in Mechanical Engineering, shared his pathway to a successful career as an engineer during his recent visit to HKUST to celebrate his son's graduation*

**F**or Dr Mohamed Lebbai, the key to being a successful professional engineer is adaptability and an understanding of what society needs. “It is very different today from how it used to be,” he noted. “Society does not wait for students anymore. It is the students who must rely on society.”

Now working for Philips Lumileds in Malaysia, with two patents under his belt, Dr Lebbai often finds himself in the position of interviewing and selecting graduates to join the company. He says he looks for optimistic people, who seek to learn what the company expects of them rather than only being concerned with what they can get from the company.

However, he also respects and understands his young employees who are honest in telling him if the job is not what they expected a few months into work. If he sees value in them, he tries to fit them into positions where they can further develop their skills and talents.

“Every young engineer has dreams,” he said. “The key is to understand that others will also have expectations of them.”

Dr Lebbai, who originally comes from India, knows this from personal experience. As a young electronics engineering graduate, he initially found it

hard to find a job in Hong Kong as he did not speak Cantonese and had no previous work experience, which were the first two questions asked by potential employers. He was also the first person from his hometown Kayalpattinam, a small village in South India, to come to Hong Kong with a professional qualification and had no other support network.

When Dr Lebbai finally got a job in an electronics company in Tsuen Wan, the work was not initially at the level he expected. However, he didn't quit due to advice from his father, advice that he now sees as among the best in his life. First, he should not expect to be at a senior, decision-making level as a fresh recruit, and even though the job was now unsatisfying, it was likely to improve. Second, he should use the opportunity to learn Cantonese to increase his value as an employee. Third, even if he quit, there was no guarantee that he would find a better job.

So he chose to stay – and ended up working at the company for 13 years in departments such as production, quality control, research and development. This fueled his interest in industrial engineering and engineering management, which brought him to study at HKUST.

Dr Lebbai was also keen to stress the importance of being on good terms with both bosses and professors, as their contacts and experience provide opportunities that would otherwise be out of reach for young students. “The relationship with a supervisor is more important than that with a boyfriend or girlfriend!” he said. “Professors are the bridge between academia and the professional world.”

He believes optimism to be the greatest asset an engineer can have. He has often been in a situation where customer expectations are rising, but the required results are seemingly impossible to achieve. “In this scenario, remember two things,” he said. “The first is that there is almost always an alternative way if you just think outside the box. The second is, even if you do fail, treat it as a learning experience and never repeat it.” With these core beliefs – that no matter what the circumstances are, creativity and learning are always possible – he finds enthusiasm for his work to be continually recharged.

Recently, Dr Lebbai returned to HKUST, close to 20 years after he first arrived, to watch his son graduate from HKUST Business School. “This place is very different from how I remember it,” Dr Lebbai said. “But it feels good to be back.”



香港科技大學

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

工學院 SCHOOL OF ENGINEERING

22<sup>nd</sup> Congregation 第二十二屆  
學位授典禮



# Leading Innovation in World of Unmanned Aerial Vehicles

**E**lectronic and Computer Engineering alumnus Mr Frank Wang, BEng (2006), MPhil (2011), has been named one of the Top 10 Innovators in China by *Forbes* magazine China edition and one of his company's products selected as a Top 10 Gadget for 2014 by *TIME* magazine. Frank started to design unmanned aerial vehicles while studying at HKUST. He founded DJI Innovations in 2006, which has gone on to become a world leader in developing and manufacturing high-performance, reliable, and easy-to-use small unmanned aerial systems (UAS) for commercial and recreational use. DJI now has over 1,500 employees and is among the largest businesses of its kind in its market. The *TIME* accolade was for the company's Phantom 2 Vision+ flying camera.

In a 2014 lecture at HKUST, more than 140 School of Engineering faculty, students and staff attended a presentation by DJI staff member and

Electronic and Computer Engineering alumnus Mr Mingyu Wang, BEng (2009), MPhil (2012). Mingyu explained the technologies inside the unmanned aerial vehicles they have developed and provided a live demo of recent products.

who have successfully started their own companies based on the knowledge and ideas gained from course projects, participation in Robocon robotics contests, and final year projects.



Prof Zexiang Li who mentored Frank and Mingyu while at HKUST, also gave an overview of entrepreneurship opportunities in the electronic and computer engineering area at the presentation and introduced students

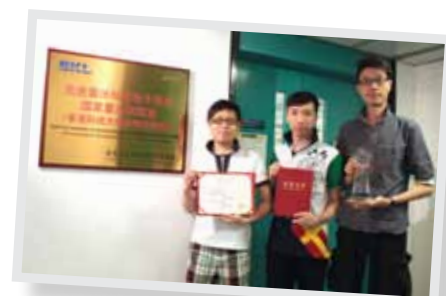
## Alumni Honors, Awards & Achievements

**Samantha Wing Man Kong**, 2014 BEng in Chemical and Environmental Engineering, was named among Hong Kong's top 10 young people in the Outstanding Youth Commendation Scheme, a city-wide honor presented by the HKSAR Home Affairs Bureau and Commission on Youth.



The accolade recognizes notable achievements in personal development, leadership and social service. Samantha also received the Social Service Award. A further winner from HKUST was Phoebe Cheuk Lam Lam, School of Science, who was selected as a top 10 outstanding youth.

PhD graduate and research associate **Dr Michael Lee** and PhD students **Ken Tseng** and **Leo Ho**, Electronic and Computer Engineering, have co-founded Bistable Technology Limited to develop an electronic shelf label product fabricated at the HKUST State Key Laboratory on Advanced Displays and Optoelectronics Technologies. The team also won second place at the 2014 Inno-China Entrepreneurship Competition for their bistable display project.



PhD graduate **Dr Pingzhong Tang**, 2010 Computer Science, received a 1,000 Talented Youth Award, one of the most prestigious honors for young scientists in China. Dr Tang's research is on artificial intelligence and game theory. He is currently a faculty member of Tsinghua University.

# New Appointments

## Concurrent



### Prof Charles Ng

Appointed Associate Vice-President (Research and Graduate Studies)  
Chair Professor, Civil and Environmental Engineering



### Prof Jingshen Wu

Appointed Acting Director of HKUST Fok Ying Tung Research Institute  
Executive Dean of Xi'an Jiaotong University-HKUST Joint School of Sustainable Development  
Professor, Mechanical and Aerospace Engineering



## Administrative

### Prof Qiang Yang

Appointed Head of Department of Computer Science and Engineering  
Chair Professor, Computer Science and Engineering  
New Bright Professor of Engineering

## Faculty Members

### Prof Olivier Bauchau

Professor, Mechanical and Aerospace Engineering  
PhD – Massachusetts Institute of Technology

### Prof Ying-Ju Chen

Associate Professor, Industrial Engineering and Logistics Management  
PhD – New York University

### Prof Richard Lakerveld

Assistant Professor, Chemical and Biomolecular Engineering  
PhD – Delft University of Technology

### Prof Larry Li

Assistant Professor, Mechanical and Aerospace Engineering  
PhD – University of Cambridge

### Prof Xuan Qiu

Lecturer, Industrial Engineering and Logistics Management  
PhD – The University of Hong Kong

### Prof Shaojie Shen

Assistant Professor, Electronic and Computer Engineering  
PhD – Philadelphia University

### Prof Fei Sun

Assistant Professor, Chemical and Biomolecular Engineering  
PhD – The University of Chicago

### Prof Michael Sung

Senior Lecturer, Electronic and Computer Engineering  
PhD – Massachusetts Institute of Technology

### Prof Kun Xu

Chair Professor, Mechanical and Aerospace Engineering  
PhD – Columbia University

### Prof Xin Zhang

Chair Professor, Mechanical and Aerospace Engineering  
PhD – University of Cambridge

## Research Faculty

### Prof Xiaopeng Fan

Research Assistant Professor, Electronic and Computer Engineering  
PhD – The Hong Kong University of Science and Technology

### Prof Lu Fang

Research Assistant Professor, Electronic and Computer Engineering  
PhD – The Hong Kong University of Science and Technology

### Prof Tian Fang

Research Assistant Professor, Computer Science and Engineering  
PhD – The Hong Kong University of Science and Technology

### Prof Abhishek Srivastava

Research Assistant Professor, Electronic and Computer Engineering  
PhD – University of Lucknow

### Prof Ka Wai Wong

Research Assistant Professor, Chemical and Biomolecular Engineering  
PhD – The Chinese University of Hong Kong

### Prof Lining Zhang

Research Assistant Professor, Electronic and Computer Engineering  
PhD – The Hong Kong University of Science and Technology

### Prof Xinbo Zou

Research Assistant Professor, Electronic and Computer Engineering  
PhD – The Hong Kong University of Science and Technology

## Adjunct Faculty

### Prof Chi Chiu Chan

Professor, Civil and Environmental Engineering

### Prof Gene Cheung

Associate Professor, Electronic and Computer Engineering  
PhD – University of California, Berkeley

## Visiting Faculty

### Prof Wei Chen

Assistant Professor, Electronic and Computer Engineering  
PhD – University of California, Berkeley

### Prof Evelyn Hu

Professor, Electronic and Computer Engineering  
PhD – Columbia University

### Prof Shu Yang

Assistant Professor, Electronic and Computer Engineering  
PhD – The Hong Kong University of Science and Technology

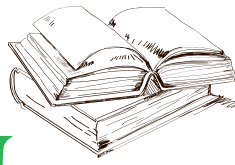
### Prof Chao Zhou

Assistant Professor, Civil and Environmental Engineering  
PhD – The Hong Kong University of Science and Technology

### Prof Shiping Zhu

Professor, Chemical and Biomolecular Engineering  
PhD – McMaster University

# Reaching for a Google 'Moonshot'



Computer Engineering, and his team for their idea to improve battery technology for electric vehicles (EVs) and reduce the world's carbon footprint. The project, "Mass-Volume Graphene Production Using Waste Carbon Emission Harvesting to Enable EV Battery Technologies", was selected from a field of 14 groups, comprising 40 students, academics and external parties, and a shortlist of five entries. Prof Sung was recently appointed SENG's Director of the Center for Industry Engagement and Internship.

**A** contest linked to Google's high-flying Solve For X think tank project has been organized at HKUST to encourage far-sighted ideas that can be transformed into real products and technologies with wide-reaching impact, with the winning entry becoming Hong Kong and Mainland China's first project accepted on to the Solve For X innovation platform.

Solve for X is a global initiative designed and promoted by Google to encourage game-changing "moonshots" – radical solutions that may currently appear to be science fiction yet can practically be put into action through breakthrough technology to assist with problems or issues affecting millions of people. The

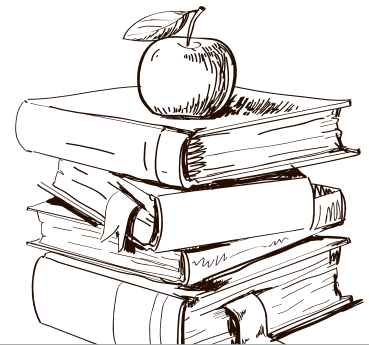
collaboration with HKUST brought this exciting platform to the University campus, giving participants the opportunity to discuss pioneering technical innovation and integrate the expertise of faculty and students. It also fostered the internationalization of research in line with both organizations' outlook.

To get the competition underway, the School of Engineering (SENG) arranged an introduction and question-and-answer session by Google representatives for potential entrants in Summer 2014, with over 200 people from all Schools attending.

The winning proposal was provided by Prof Michael Sung, Electronic and



SENG arranged an award ceremony for the winning team and those submitting the shortlisted proposals on 18 March to honor their achievements.



## Don't be the Missing Link...

Alumni relationships are invaluable assets to the School and alumni. To foster the growth of our alumni network, please keep us informed of your recent news and send us your updated contact information via email to [seng@ust.hk](mailto:seng@ust.hk).

**Stay connected and keep in touch!**



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