SENG
SCHOOL OF ENGINEERING

IN FOCUS

HKUST ENGINEERING

Newsletter No.11 **Fall 2006**

The Hong Kong University of Science and Technology (HKUST) has been ranked No. 17 globally in the newly released *Times Higher Education Supplement (THES)* league table of the world's top 100 universities in technology, reinforcing the University's high standing internationally and reflecting the esteem of its academic peers.

The 2006 *THES* rankings, published in October, see HKUST rise to its highest position in the technology university category of the *THES* surveys so far. In last year's *THES* technology league table, HKUST was ranked No. 23 in the world and in 2004 the University was placed at No. 20 in Engineering and IT. Peer review plays an important role in the *THES* rankings criteria, with data for this year's survey gathered from over 3,700 academics around the world. HKUST also featured in the *THES* league table of the world's top 100 universities in science.

With a history of only 15 years, HKUST is one of the youngest among world-class education institutions. Since admitting its first students in 1991, the University has sought to establish itself as an education powerhouse in its areas of focus. The latest *THES* rankings have affirmed the tremendous effort of all HKUST members and their unwavering commitment in forging the University's path to global excellence.

Rank	Institution
1	Massachusetts Institute of Technology (US)
2	University of California, Berkeley (US)
3	Indian Institutes of Technology (India)
4	Imperial College London (UK)
5	Stanford University (US)
6	Cambridge University (UK)
7	Tokyo University (Japan)
8	National University of Singapore (Singapore)
9	California Institute of Technology (US)
10	Carnegie Mellon University (US)
14	Tsinghua University (China)
17	**The Hong Kong University of Science & Technology (Hong Kong)**
20	Beijing University (China)
67	University of Hong Kong (Hong Kong)
72	Chinese University of Hong Kong (Hong Kong)
85	City University of Hong Kong (Hong Kong)

In August, HKUST also made the Top 100 Global Universities list, released by *Newsweek*. Only three universities in Greater China were named in the *Newsweek* list. HKUST led the way at No. 60 followed by the University of Hong Kong at No. 69 and the Chinese University of Hong Kong at No. 96. These university rankings take into account openness and diversity, as well as distinction in research. HKUST's high scores in both areas reflect the University's core values and strengths.

The HKUST community recognizes these results as a spur to achieve even greater heights and remains focused on its goal of continuous improvement.

WHAT'S INSIDE

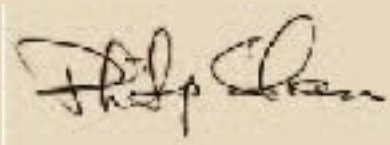
Dean's Message

Research at HKUST does not only entail breakthroughs in laboratories on campus. In our latest issue of ***In Focus***, we highlight examples of School of Engineering academics using the knowledge they acquire from research to assist local institutions and government. Our articles on easing vehicle congestion at land borders between Hong Kong and Mainland China and the pilot test of environmentally friendly lighting on the MTR illustrate just two of the many exciting industry projects in which faculty members are involved.

As HKUST celebrates its 15th anniversary, we are also proud to report on the achievements of our alumni, who have helped to build the University's reputation around the world through their successful contributions to organizations ranging from Google to the Hong Kong government.

In addition, in this issue we are pleased to tell you more about our students, including Chinese digital art software creator Nelson Chu, HKUST grade point average record-breaker Cherie Cheung, and Hong Kong's first IEEE Electron Devices Society Graduate Student Fellow Wu Wen.

Wishing you and your family a happy Christmas and New Year.



Prof Philip Chan
Dean of Engineering

New Academic Appointments

New Faculty Members

- **Prof Qian Liu**
  Assistant Professor, Industrial Engineering and Logistics Management
  PhD – Columbia University
- **Prof Daniel P Palomar**
  Assistant Professor, Electronic and Computer Engineering
  PhD – Technical University of Catalonia, Spain
- **Prof Pedro V Sander**
  Assistant Professor, Computer Science and Engineering
  PhD – Harvard University
- **Prof Weichuan Yu**
  Assistant Professor, Electronic and Computer Engineering
  PhD – University of Kiel, Germany
- **Prof Jie George Yuan**
  Assistant Professor, Electronic and Computer Engineering
  PhD – University of Pennsylvania
- **Prof Xiangru Zhang**
  Assistant Professor, Civil Engineering
  PhD – University of Illinois
- **Prof Xueqing Zhang**
  Assistant Professor, Civil Engineering
  PhD – HKU

New Visiting Faculty Members

- **Prof Wenwu Daniel Lou**
  Assistant Professor, Computer Science and Engineering
  PhD – HKUST
- **Prof Manohar S Madan**
  Associate Professor, Industrial Engineering and Logistics Management
  PhD – The University of Tennessee
- **Prof Wenjing Ye**
  Assistant Professor, Mechanical Engineering
  PhD – Cornell University

New Adjunct Faculty Appointed

- **Prof Yupo Chan**
  Adjunct Professor, Civil Engineering
  PhD – MIT
- **Prof Za Chieh Moh**
  Adjunct Professor, Civil Engineering
  D.Tech – Asian Institute of Technology

Announcements

Name Change for SENG Departments

The Department of Electrical and Electronic Engineering has changed its name to the Department of Electronic and Computer Engineering. The step has been taken to reflect the Department's strategic focus and programs and to be consistent with other universities around the world, especially in North America. In a similar move, the Department of Computer Science has been renamed the Department of Computer Science and Engineering. Both came into effect on 2 May.

HKUST Takes to the Airwaves

HKUST has linked up with RTHK Radio 1 to keep Hong Kong listeners up to date with the latest scientific discoveries in a new series entitled *Popular Science for You*. The informative, hour-long show, launched on 20 August, is broadcast every Sunday at 1pm, with a summary of each episode appearing in a special column in the *Sing Tao Daily* the following Monday. The round-up is also available on the HKUST website.

International Honors & Awards

- Prof Moe MS Cheung, Chair Professor and Head of Civil Engineering, has been elected a Fellow of the Hong Kong Academy of Engineering Sciences. The institution seeks to encourage and maintain excellence throughout the engineering field.

- Prof Mohamed S Ghidaoui, Civil Engineering, has been awarded the prestigious Erskine Fellowship by the University of Canterbury, New Zealand, in recognition of his academic achievements.

- Prof Jun Shang Kuang, Civil Engineering, has been elected a Fellow of the Institution of Structural Engineers in recognition of his contributions to structural engineering and design. Prof Kuang has also been awarded the prestigious ICE T K Hsieh Award for a paper published in the Institution of Civil Engineers' *Journal of Structures and Buildings* in 2005.

- Prof Hoi Sing Kwok, Chair Professor, Electronic and Computer Engineering and Director of the Center for Display Research, has been appointed Dr William M W Mong Professor of Nanotechnology. Prof Kwok is known worldwide for his pioneering research in display technologies, LCDs, and organic light emitting materials.

- Prof Chung-Yee Lee, Chair Professor and Head of Industrial Engineering and Logistics Management, has been appointed Regional Vice-President (Asia) of the Institute of Industrial Engineers.

- Prof Yi-Kuen Lee, Mechanical Engineering, has been invited as a Technical Program Committee Member of the 20th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2007). IEEE MEMS is the world's top conference in MEMS field.

- Prof Fangzhen Lin, Computer Science and Engineering, received the Ray Reiter Best Prize at the 10th International Conference on Principles of Knowledge Representation and Reasoning, held in the UK in June. His winning paper "First-Order Loop Formulas for Normal Logic Programs" was co-authored with Yin Chen, Yisong Wang, and Mingyi Zhang. Prof Lin has also been awarded a Croucher Senior Research Fellowship for his outstanding contributions to artificial intelligence research.

- The 973 project application, "Research on Fundamental Theory and Critical Technologies for Wireless Sensor Network", presented on behalf of Shanghai Jiaotong University by Prof Lionel Ni, Chair Professor and Department Head of Computer Science and Engineering, has been approved by the Ministry of Science and Technology. HKUST is among the four major universities participating in the project. The other three are Shanghai Jiaotong University, the University of Science and Technology of China and Harbin Institute Technology.

- Prof Qian Zhang, Computer Science and Engineering, received the Best Paper Award at the Third International Conference on Quality of Service in Heterogeneous Wired/Wireless Networks which took place at the University of Waterloo in Canada in August. Her paper, "Energy Efficient Cooperative Rate Adaptation in IEEE 802.11-based Multi-hop Networks", was co-authored with Kun Wang, Fan Yang, Dapeng Oliver Wu, and Yinlong Xu.

Editorial Appointments

- Prof Chak Keung Chan, Chemical Engineering, has become an Editorial Board Member of *Atmospheric Environment.*

- Prof Fugee Tsung, Industrial Engineering and Logistics Management, has been invited to serve as Associate Editor of *Technometrics,* a flagship journal of the American Society for Quality and the American Statistical Association. Prof Tsung has also been appointed Department Editor, Book & Software Review, *IIE Transactions* on Quality and Reliability Engineering.

Geotechnical Conference Draws Top Minds

The Geotechnical Centrifuge Facility and Department of Civil Engineering were honored to have the opportunity to co-organize the 6th International Conference on Physical Modeling in Geotechnics on campus from 4-6 August.

The Conference, arranged jointly with the Hong Kong Geotechnical Society under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering Technical Committee TC2, is a highly important event for researchers and geotechnical practitioners globally. The conference is held every four years in different international locations and this year's event at HKUST proved to be largest yet, attracting 330 delegates from around the world.

Many prominent geotechnical experts were invited to give keynote lectures, including Prof M Bolton, University of Cambridge, Prof Z Y Chen, academician of Chinese Academy of Sciences and Professor at Tsinghua University, and Prof B Kutter, University of California, Davis. Some 230 technical papers were accepted for presentation.

The gathering provided a useful opportunity for researchers and practitioners to share their experiences and findings. Presentations covered field and laboratory testing (under 1-g and using centrifuge) and numerical simulations on a wide spectrum of topics, such as piled foundations, footings, tunneling, excavations, retaining walls, slopes and off-shore pipelines.

The Conference was opened by Prof Paul Chu, HKUST President, Prof Neil Taylor, Secretary General of the International Society for Soil Mechanics and Geotechnical Engineering, Prof Sarah Springman, TC2 Chairperson, Ir Albert Ho, Geotechnical Division Chairman of the Hong Kong Institution of Engineers, Prof Charles Ng, Conference Chairman, and Ir L M Mak, President of the Hong Kong Geotechnical Society.

Spotlight on **Supply Chain Management**

The INFORMS International Conference Hong Kong 2006 was held successfully at Sheraton Hotel from June 25-28. HKUST's Logistics and Supply Chain Management Institute (LSCMI) acted as a local host of this large-scale event. It is the first event of its kind in Hong Kong, the conference covered all aspects of Operations Research/ Management Science, offering a broad platform for the exchange of ideas.

The large-scale event was supervised by Prof Chung-Yee Lee, Director of LSCMI and General Chair of the Organizing Committee, and organized by Institute for Operations Research and the Management Sciences in conjunction with the Hong Kong Operational Research Society and the Operations Research Society of China. It received an overwhelming response with close to 1,200 presentations given.

Prof Hau Lee of Stanford University delivered a thought-provoking keynote address, entitled "Supply Chains with Conscience: The Social Responsibility Dimension of Supply Chain Management" in which he discussed trends and innovations in supply chain management including advancing supply chain innovations to emerging or under-developed economies and extending business objectives to include social responsibility.

In addition, enlightening plenary talks were provided by Prof Ya-xiang Yuan, current President of the Operations Research Society of China, on "OR Research and Applications in China" and Prof Marshall Fisher from The Wharton School, University of Pennsylvania, on "Strengthening Our Empirical Research Base".

During the event, participants were given insights into Hong Kong including the opportunity to learn more about the city's international container port and air cargo operations, both ranked among world leaders. On the lighter side, there was also a chance to be entertained by a traditional lion dance and Chinese acrobatics.

Speeding Up **Border Crossings**

The checkpoint congestion faced by vehicles at land border crossings between Hong Kong and Mainland China could become history if a new, real-time technology for identifying goods in the supply chain is adopted.

In a recent cross-border transportation study, researchers in the Department of Industrial Engineering and Logistics Management found that trucks took on average of 55 minutes to cross from Hong Kong to Shenzhen and 32 minutes from Shenzhen to Hong Kong. On heavy traffic days, vehicles could take many hours to cross due to hold-ups.

Adoption of the Electronic Product Code (EPC) could not only save time and cut inventory costs, but enable manpower to be reduced, and lessen the impact on the environment, according to Prof Lee Chung-yee, Head and Chair Professor of Industrial Engineering and Logistics Management.

The EPC, a unique number that identifies a specific item in the supply chain, works together with a Radio Frequency Identification (RFID) tag, which can remotely store and retrieve data and be attached to products for shipping, enabling real-time automatic identification of goods. The HKUST study showed that document processing and inspection at checkpoints were the prime cause of cross-border flow fluctuations.

Prof Lee said that utilizing the EPC network would also significantly boost Hong Kong's position as a logistics hub, leading to increased business for the city. More than 10 million goods vehicles used land border crossings between Hong Kong and Mainland China in 2005.

The study, completed in July, was funded by the Hong Kong government and private sponsors.

Nano Materials Breakthrough Adds Strength to Bullet-Proof Vests

Researchers from the Departments of Chemical Engineering and Mechanical Engineering have added a new layer of protection to personal security with the development of a new technology that can enhance the ballistic-proof strength of ultra high molecular weight polyethylene fiber. The advance is expected to pave the way for new applications such as more effective bullet-proof vests.

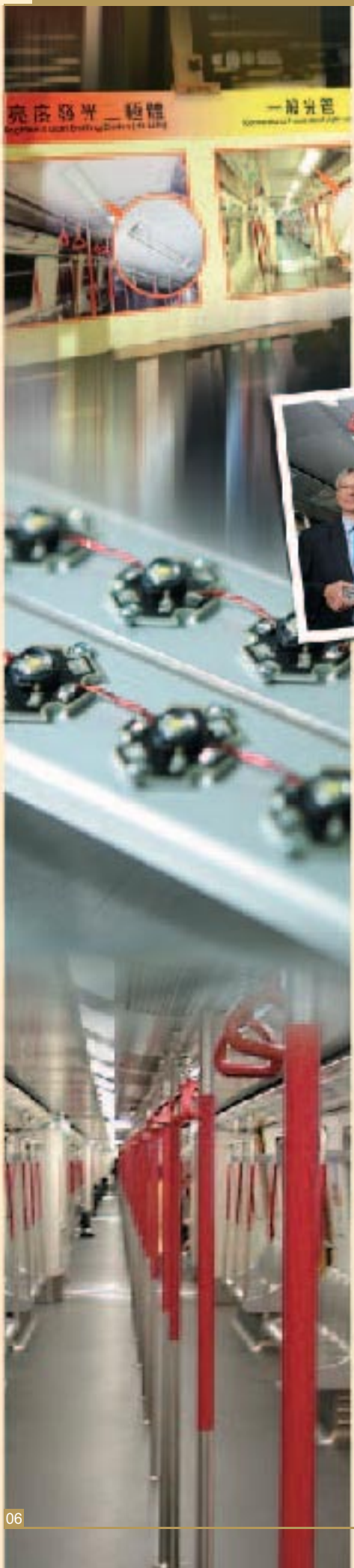
The cutting-edge technology adds carbon nanotubes to pristine high-strength fiber improving the engineering properties of plastic fibers in ballistic-resistant garments and enabling the latter to withstand forces with very high impact, yet remain light. The high ventilating capability of carbon nanotubes also means the garments can be made more comfortable for wearers.

Prof Ping Gao, Department of Chemical Engineering, said the technology can effectively align nanotubes along the length of polymer fibers so the tensile strength of nanocomposite fiber becomes up to eight times stronger than steel.

Prof Tong-Xi Yu, Chair Professor and Head of Mechanical Engineering, further explained: "Materials with higher ductility are usually softer. The stiffer the materials, the less ductile they are. Our technology creates fibers that are both stiff and ductile – the ideal material for energy absorption."

The new materials could be utilized in both engineering and our daily lives, according to postdoctoral researcher Dr Shilun Ruan, who fabricated and characterized the materials during his PhD studies at HKUST. Examples of uses range from replacing durable steel to producing tennis racket threads with strong elasticity and strings for musical instruments.

Prof Gao also noted that the breakthrough could help the Hong Kong plastics industry, which has become more aware of the market potential of engineering plastics, enhance its competitiveness.



Bright Future for **MTR Travelers**

Some MTR passengers may have found reading on their journey more illuminating, after the MTR Corporation started to install High Brightness Light Emitting Diodes (HB-LEDs) array modules for saloon lighting in one of its train carriages on the Tsuen Wan Line in mid October. Whiter and brighter light giving sharper definition to printed words is just one of the advantages provided by this new form of indoor lighting. Energy efficiency, longer service life and greater environmental friendliness are among other benefits provided. This new technology is being adapted for use by the MTR in a joint project with HKUST. Such an application is among the pioneers in large scale solid state lighting (SSL) around the world.

Recent tests by HKUST show that the newly developed HB-LED array modules consume 30% less electricity than traditional fluorescent light tubes used in households. In MTR carriages, the saving is around 20% given the energy-saving arrangements already in place. In addition, HB-LEDs are 'cold light' sources, which generate no heat radiation, resulting in further saving on air-conditioning cost. HB-LEDs typically last up to 100,000 hours, which offer 10+ years of service life in MTR trains. This is at least six times longer than the existing fluorescent light tubes, leading to lower replacement costs and less waste.

HKUST project leader Professor Ricky Lee, Department of Mechanical Engineering, said that each newly developed lighting module consists of 56 HB-LEDs, with the light intensity generated being equivalent to the original 30W fluorescent light tube. He also indicated the biggest challenges in this project have been to optimize electrical power consumption and optical output, and to generate an acceptable uniform light field, subject to several existing constraints. Through extensive testing and analysis, HKUST's R&D team designed and fabricated HB-LEDs array modules that could generate sufficient light intensity, using the original power supply, and fit into the limited space inside the train's existing lighting bay. The mounting and pitch of components and the arrangement of driving circuits have been optimised for a uniform light field, minimal electrical power consumption and best thermal management.

"The Corporation is the first public transport operator in Hong Kong to try out HB-LEDs as indoor lighting," said Mr Wilfred Lau, Head of Operations of the MTR Corporation. "The company is very pleased to work with HKUST on this project." The current pilot run is set for 12 months during which period the MTR will monitor the durability and efficiency of this new lighting technology. The Corporation will then decide whether to replace all in-train lighting with HB-LEDs and also consider this SSL technology for its station lighting and advertising panels. According to the rail operator, there are more than 25,400 fluorescent lights on the MTR's 106 trains, while there are an average 1,300 lights in each of the 50 stations. In addition to opening up a huge potential market in this region, this "HB-LEDs array modules for SSL" project also reflects HKUST is playing a key role in the development of Hong Kong by forging partnerships with business and industry.

Artificial Intelligence Boosts Bid to **Standardize Traditional Chinese Medicine**

While Traditional Chinese Medicine (TCM) has been gaining popularity in recent years, difficulties in standardizing diagnoses have held back wider acceptance as an alternative form of healthcare. Now a major HKUST research breakthrough, led by Prof Nevin L. Zhang of the Computer Science and Engineering Department, is helping to advance TCM standardization in an area that has previously proved hard to push forward, despite extensive studies over the past 50 years.

Utilizing machine-learning techniques, HKUST researchers have developed a methodology for establishing an objective and quantitative standard for syndrome differentiation. The methodology, Hierarchical Latent Class (HLC) models, is a form of cluster analysis. The latter can reveal patterns in real-world data and be used to establish standards for TCM diagnosis.

TCM practitioners' diagnostic ability depends largely on an individual's accumulated experiences and it is not uncommon for different practitioners to provide different diagnoses for the same patient. With TCM theories originated from experiences ancient Chinese doctors had with scattered patient cases, the most natural way to modernize TCM is therefore to collect patient cases systematically, analyze the data using computers, build mathematical latent structure models, and use these models to guide TCM diagnosis.

Publication of the results of HKUST's ground-breaking methodology in 2004 brought an overwhelming response both from Mainland China and Hong Kong, and additional studies are on-going to develop the research further.

Collaborations have been established with Beijing University of Chinese Medicine under the China National Basic Research Program (973 Program). In addition, recent results of sub-health data analysis carried out in collaboration with the China Academy of Traditional Chinese Medicine, have demonstrated the amazing accuracy that HLC models can bring to traditional Chinese medicine. Its high potential for contributing to the future development of the field also emphasizes HKUST's dedication to pioneering research and to setting new knowledge to work to improve people's lives.

Students' Achievements

- PhD candidate Marine Carpuat, Department of Computer Science and Engineering, gained the Best Presentation Award for her paper "Word Sense Disambiguation vs Statistical Machine Translation" at the 7th Association for Computing Machinery (Hong Kong Chapter) Postgraduate Research Day.
- Research student Wei Chen, Department of Electronic and Computer Engineering, received the Best Paper Award at the prestigious 2006 IEEE International Conference on Communications in Istanbul.
- An Industrial Engineering and Logistics Management team, comprising third-year students Denis Kwok, Alan Wong, Dreamy Yau and second-year student Wai-cheung Lui, has won the 2006 University Student Project Competition, organized by SAE Magnetics (HK) Ltd. Teams were asked to solve a business problem proposed by SAE.
- Industrial Engineering and Logistics Management third-year students Chun-man Law, Hau-lun Leung, and Shun Lam won the Innovation Award for their "HIT Rail-Mounted Gantry Crane Capacity Study" at the first Final Year Project Competition on an Engineering Theme, organized by the IEEE Hong Kong Engineering Management Chapter.
- Department of Computer Science and Engineering first-year student Wilson Ng has been named Most Valuable Professional (Visual Developer – ASP/ASP.NET) by Microsoft. Wilson gained a summer internship at Microsoft Hong Kong and has been made a part-time associate consultant for 2006-07.
- PhD candidate Ivor Wai-hung Tsang, Department of Computer Science and Engineering, received the Best Paper Award at the Second IEEE Hong Kong Chapter of Signal Processing Postgraduate Forum.

First IEEE EDS Graduate Student Fellow for Hong Kong

Department of Electronic and Computer Engineering PhD candidate Wu Wen has become the first student in Hong Kong to be awarded a prestigious IEEE Electron Devices Society (EDS) Graduate Student Fellowship. The accolade recognizes Wu Wen's outstanding contributions to semiconductor research.

Four EDS Graduate Fellows have been selected this year, one each for Europe/Africa, America, Asia, and one for all regions irrespective of location. The awards were launched in 2001.

"When I approach a research topic, I try to anticipate the potential problems and think of ways to tackle them before plunging into it," Wu Wen said. She also attributed her success to support from her supervisor Prof Mansun Chan, which had enabled her to pursue her area of interest, and the University's extensive resources including opportunities for international exposure at first-rate conferences.

Prof Chan said: "Wu Wen faced tough competition against exceptional candidates from universities in Singapore, Taiwan and Japan where semiconductor research is regarded as a strategic technology development area that receives significant government support."

A fellowship includes US$7,000 for the recipient and a travel subsidy of up to US$3,000 to attend the presentation ceremony, which this year takes place at the 2006 IEEE International Electron Devices Meeting in San Francisco on 11 December.

CPEG Teams Shine at Embedded System Contest

Two innovative design projects put student teams from the Computer Engineering Program among the first and second prize-winners in the hotly contested 2006 Intel Cup Undergraduate Electronic Design Contest - Embedded System Design Invitational Contest.

The biennial competition, jointly organized by China's Ministry of Education, Ministry of Information Industry and Intel China, has grown from Mainland China universities only at its launch in 2002 to this year's regional event. A total of 158 teams from 70 universities, including the Mainland, Hong Kong, Malaysia, Singapore, India and the Philippines, were invited to join the 2006 contest, hosted by Shanghai Jiao Tong University.

The challenging event provided an exciting opportunity for undergraduate teams to design a real project based on assigned embedded hardware platforms. Two CPEG teams from HKUST took part. Chan Hong-ching, Lam Man-wa and Yeung Chi-ho scooped one of the first prizes with their Vision Game Platform, which allows players to use natural body movements and hand gestures, to participate in games. The HKUST project, Speech-controlled Room Service Assistant, developed by Chau Dong-yin, Rio Kwok Tsz-hin and Wong Yiu-fai, received a second prize. This system enables users to control electrical appliances via voice commands and a touch screen.

"The contest was a great chance to put our studies into practice," Chi-ho said. "We not only enhanced our technical skills but also learnt how to sell our ideas and devise marketing strategies."

Twelve first prizes and 26 second prizes were awarded, among other prizes, with a presentation ceremony held in August.

High Flyer Sets Grade Point Average Record

A Class of 2006 Computer Engineering major has accumulated the highest Graduation Grade Point Average (GGA) and Cumulative Grade Point Average (CGA) in HKUST history. Cherie Chui-ying Cheung achieved A+ for 100% of the courses she took at HKUST, earning a perfect GGA and CGA of 12.0 and becoming the first undergraduate student to graduate with such a score, according to the University.

"I am very pleased to have chosen HKUST," said Cherie, who entered the University as an Early Admissions Scheme student in 2003. "Computer Engineering has given me lots of opportunities to learn and explore."

In the summer of 2004, the high flyer worked in the University's Multimedia Technology Research Center developing video processing technology, and in 2004-05 went on exchange to the University of California, San Diego.

In her Final Year Project, together with CPEG students Anthony Cheuk-pan Lui and Sam Long-sing Wong, Cherie developed a novel peer-to-peer interactive video system which is currently undergoing commercialization. This summer, she worked on state-of-the-art WiMax technology.

Cherie is now embarking on a PhD in the Department of Computer Science and Engineering at the University of Washington in Seattle, US, where she has received a three-year studentship.

Bringing Chinese Art to Your Screen

Nelson Chu, a PhD candidate in the Department of Computer Science and Engineering, is the creative force behind MoXi, an innovative digital ink painting software package that can reproduce the brushstrokes and ink dispersion of Chinese traditional painting. The technology has already been used to create special effects in movies and television advertisements and has been licensed by Adobe Systems Inc. for incorporation into its products. ***In Focus*** asked Nelson about his pathway to success.

What inspired MoXi?

I like art since young, and started to enjoy Chinese ink painting in Form Four. Two years later, I realized that I couldn't make similar brushstrokes digitally with existing software. The idea of making my own software took root and I eventually embarked on it for my MPhil. I felt I would regret it if I didn't at least try.

How do you feel about working on this project?

Lucky! Not many people can work on something they like and get paid. I also think now I was meant to do this. After all, it's not easy to find someone who has knowledge of both computers and art. It's like a mission on behalf of the whole art community. That's why I keep on going even when I encounter difficulties.

Yours was the first all-local project to enter the well-regarded International Conference on Computer Graphics and Interactive Techniques (SIGGRAPH)? What was this like?

I almost cried when I heard we had been accepted! It was great experience to speak at such a large conference. It was also my first trip overseas. But the best part was meeting researchers in the same field in person.

You worked as an intern at Adobe this summer. How did this happen?

Adobe keeps an eye on current computer graphics and vision research. They contacted me in summer 2005 and I was able to start work as an intern this August. While there, I helped with the technology transfer of MoXi.

What is your next step?

I returned to HKUST in October to finish my PhD. I expect to graduate in 2007 and after that I may join Adobe, continue to work on MoXi independently, or just see what comes up!

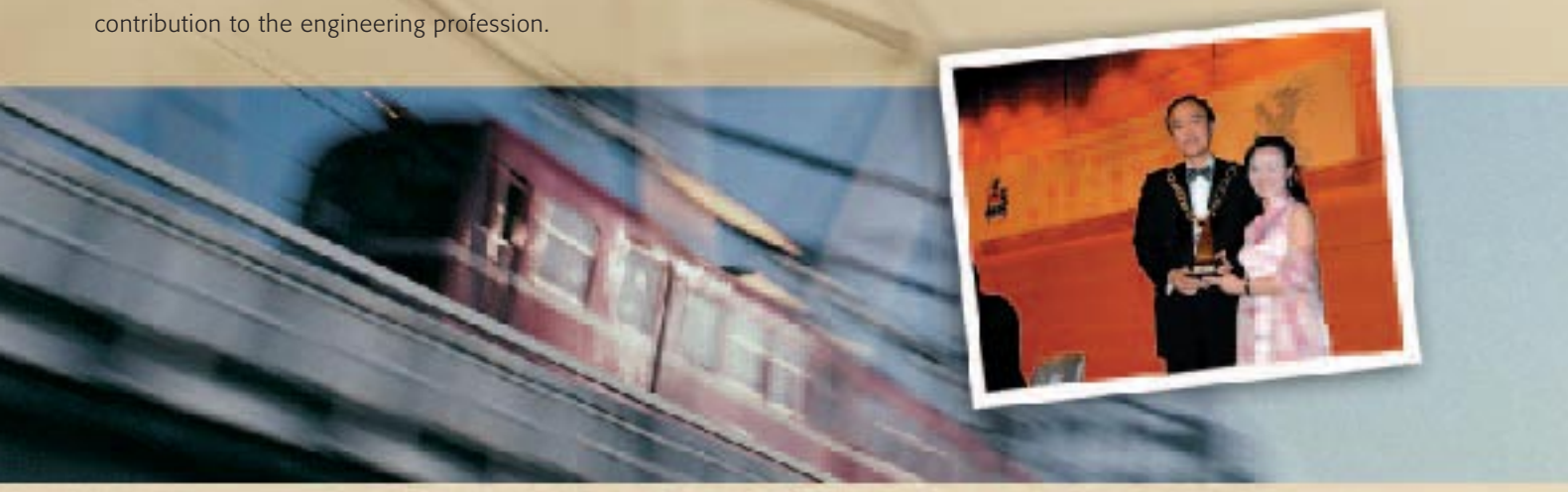
What would you say are the ingredients of success?

Being gifted certainly helps in one's success, but perhaps attitude and hard-working are more important.

Civil Engineering Alumna Named **Young Engineer of the Year**

Demonstrating the caliber and capabilities of School of Engineering graduates, a Department of Civil Engineering alumna has received the Young Engineer of the Year Award 2006 from the Hong Kong Institution of Engineers (HKIE). The award was presented to Jenny Yeung, 1995 BEng (Civil & Structural) at the HKIE 31st Annual Dinner in March in recognition of her outstanding achievements and significant contribution to the engineering profession.

After graduating from HKUST, Jenny was awarded an MPhil from the University of Cambridge. She is now working as a geotechnical engineer in the Civil Engineering and Development Department of the HKSAR government, where she is able to put her knowledge and skills to work on behalf of the Hong Kong community on a daily basis by assisting with slope safety and other geotechnical issues.



Corporate Social Responsibility **Proves a Winner**

Innovative management and company practices that help create synergy between staff members, the community, and the environment have proved a winner for alumnus Almon Kwan, 1995 BEng (Computer Science), and his training and education company FDMT.

This creative and caring approach has seen FDMT, founded by Almon in 2003, receive a series of awards, including the Certificate of Excellence at the HSBC Living Business Awards 2006 in July. The HSBC awards recognize socially and environmentally responsible small and medium-sized enterprises.

At FDMT, a paperless work environment supports environmentalism and saves costs. The company also invests in its people, providing comprehensive training to all staff including students on internships. This has resulted in high productivity and speed of execution, according to Almon, FDMT managing director.

The company involves itself in community work through the non-profit FDMT Synergy, which organizes events on a voluntary basis for social service and educational organizations such as the Hong Kong Red Cross and Zhongshan University.

FDMT received early recognition for its dynamic approach gaining the LiveWIRE Participant Business Award in 2004, a global Shell initiative co-organized locally by Shell Hong Kong Ltd and the Hong Kong Federation of Youth Groups. In 2005, the company was presented with the Certificate of Merit at the HSBC Living Business Awards.

Enjoying **the Google Life**

Seven years after graduating from HKUST, Jeremy Chau (BEng in Electronic Engineering 1999) returned to campus in mid-September. He found a warm welcome waiting and was instantly recognized by Dean Philip Chan, his tutor for a core electrical engineering course in undergraduate days. However, Jeremy's main purpose was not a trip down memory lane. He was accompanying Dr Kai-Fu Lee, President of Google China, on a mission to attract the brightest engineering and science graduates to Google China, which plans to grow from 250 to 1,000 employees in three years.

How did Jeremy launch his own career as a software engineer at the global giant? During his HKUST student days, Jeremy took many computer science courses that were not required for his electrical engineering studies. This led to his interest in software development. After graduating from HKUST with first-class honors and gaining an MSc in Electrical Engineering from Stanford in 2000, Jeremy decided to pursue his interest. He received job offers from major companies, such as Microsoft and Cisco, and 10 little-known companies. Opting for a challenge rather than security, Jeremy chose to cast his lot with a small "core technology" company in Mountain View, California. The decision proved to be the right one. The other nine companies all went under. The company Jeremy picked was Google.

At Stanford, Jeremy had found the teaching style and concentration on academic excellence and quality education similar to his experience at HKUST enabling a seamless transition. However, unlike the pragmatic mindset commonly seen in Hong Kong, at Stanford Jeremy noticed many students studied out of interest in a subject, not just for grades. This made a great impact as it accorded with his views. "To discover your interests, you must try different things. Don't worry whether you can get 'As'," he said.

There are many examples of people who turn their passion into a successful career, Jeremy said. He also points out that, with current life expectancy, work may span 40-50 years. Thus, finding a field that interests you, not just a promising career, is essential. "Only this can make you want to go to work, instead of wishing for a number 8 typhoon signal or black rainstorm signal to set you free for a day from the dreaded office," he said.

Now an established member of the Google team, Jeremy does indeed look forward to going to work every day. At the "Googleplex", the atmosphere is informal, shorts and sports shoes are everywhere, and the flat management hierarchy makes every employee feels important and respected.

Most importantly, Jeremy feels his creativity is continuously fueled by the company's effective practice of initiating and incubating innovations. At Google, engineers can spend 20% of their working hours on whatever they want. They are encouraged to generate, develop, test, and improve their creative ideas, without first needing to evaluate if the idea will be profitable. The popular Gmail is one result of this innovation-friendly environment.

Sounds too good to be true? "Come to visit Google to see for yourselves!" Jeremy said.

Thousands Enjoy Open Days at HKUST

September saw two, wide-reaching events that brought thousands of members of the community to the HKUST campus to discover more about the work of HKUST and gain a taste of university life.

On 23 September, around 22,000 school students, their families, friends and other interested individuals attended HKUST's annual Outreach Day, the highest number for several years. This was followed on 24 September by the University's 15th Anniversary Open Day, which drew close to 6,000 people.

A series of seminars was organized on both days to provide information about HKUST's wide range of courses and the many activities that are available on campus. Display booths, teaching laboratories, and computer rooms were crowded with students eager to find out more about the University's high-quality learning and teaching facilities. In addition to academic insights, tours of halls of residence and sports facilities were arranged to give visitors an opportunity to view the lifestyle and many recreational pursuits on offer at HKUST.

To celebrate the University's 15th Anniversary, HKUST professors gave talks on topics ranging from black holes to how Hong Kong students can best handle the challenges of globalization. A variety of student performances were scheduled, including Shaolin Martial Arts, magic, dance and musical activities. Alumni events also took place.

Calendar of Events

September 16-20, 2006

The Croucher Foundation Advanced Study Institute (ASI):

Leading-edge Strategies and Technologies for Sustainable Urban Water Management.

September 18, 2006

One Day Workshop:

Regulations, Technologies and Risk Assessment in Wastewater Reclamation and Reuse.

November 27-30, 2006

5th Asian-Australasian Conference on Composite Materials

http://www.me.ust.hk/~accm5

December 11-14, 2006

8th International Conference on Electronic Materials and Packaging (EMAP2006)

http://www.ust.hk/emap2006

The above events are subject to change without prior notice

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.

Stay connected and keep in touch!

In Focus is published biannually by the HKUST School of Engineering. Its purpose is to communicate the School's developments and activities of interest to members, alumni and friends of the School. Comments, suggestions and contributions are welcomed.

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