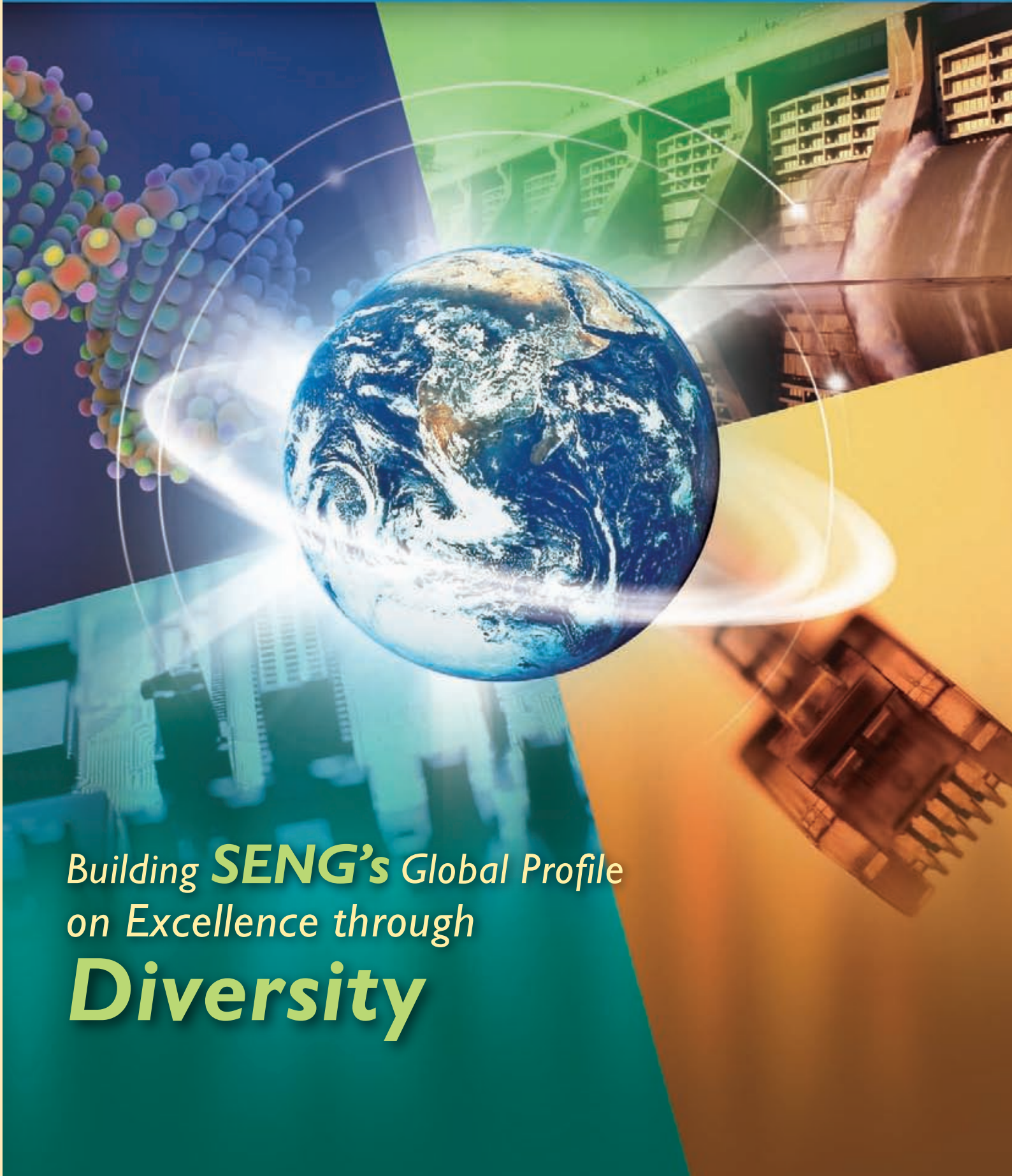


INFOCUS



HKUST ENGINEERING

Newsletter No.15 Autumn 2008



Building **SENG's** Global Profile
on Excellence through
Diversity

The second half of 2008 has been eventful and exciting for the School of Engineering (SENG). During the year, faculty members, students and alumni have striven for excellence and celebrated many outstanding achievements.

In 2008, ten papers by the Vision and Graphics Group of the Computer Science and Engineering Department were accepted at SIGGRAPH, the top global conference in computer graphics and interactive techniques. This definitely shows the research strengths of SENGL. Meanwhile, faculty members were also engaged in the prestigious international conference on Synthetic Biology.

In this newsletter, we are also delighted to share with you the achievements of our students and alumni. Two Robocon teams from SENGL walked away with three prizes at the Robocon 2008 Hong Kong Contest including Champion, Second Runner-Up and the Hong Kong Science and Technology Parks Best Team Spirit Award. Elsewhere, three students share their special learning experiences outside the classroom through internship and exchange programs. Last but not least, MoXi-Digital Ink Art, invented by our PhD graduate Nelson Chu, was used in the Opening Ceremony of the Beijing Olympics and was very well received at Innovation Festival 08.

The School has recently launched the School-based Admission (SBA) Scheme, which will be available to both Joint University Programmes Admissions System (JUPAS) and Early Admissions Scheme (EAS) applicants starting from the 2009-10 academic year.

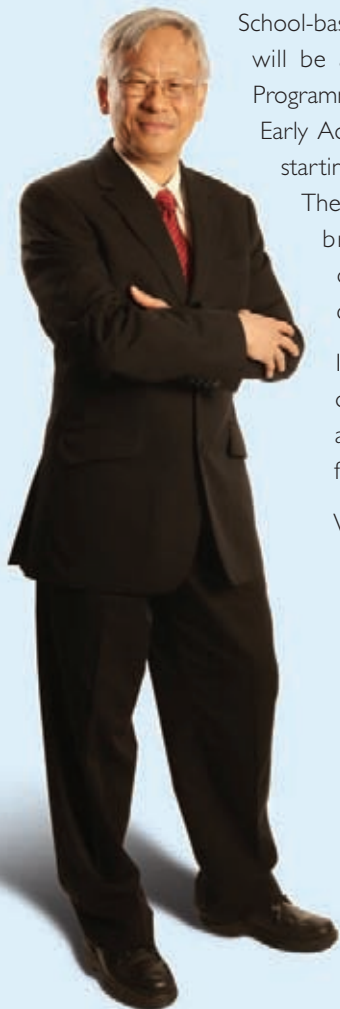
The scheme enables students to gain a broader understanding of what different fields are like before choosing their major.

I can assure you that we will further develop our strengths in the years ahead, and would like to thank you for your continued support.

Wishing you all the best.



Prof Philip Chan
Dean of Engineering



Faculty Members

- **Prof Ning Cai**
Assistant Professor, Industrial Engineering and Logistics Management
PhD - Columbia University
- **Prof Lin Gu**
Assistant Professor, Computer Science and Engineering
PhD - University of Virginia
- **Prof Volkan Kursun**
Assistant Professor, Electronic and Computer Engineering
PhD - University of Rochester
- **Prof Henry Hei Ning Lam**
Assistant Professor, Chemical and Biomolecular Engineering
PhD - Massachusetts Institute of Technology
- **Prof Ling Shi**
Assistant Professor, Electronic and Computer Engineering
PhD - California Institute of Technology
- **Prof Gang Wang**
Assistant Professor, Civil and Environmental Engineering
PhD - University of California, Berkeley
- **Prof Chi Wing Wong**
Assistant Professor, Computer Science and Engineering
PhD - Chinese University of Hong Kong
- **Prof Shuhuai Yao**
Assistant Professor, Mechanical Engineering
PhD - Stanford University
- **Prof Charles Zhang**
Assistant Professor, Computer Science and Engineering
PhD - University of Toronto
- **Prof Jidong Zhao**
Assistant Professor, Civil and Environmental Engineering
PhD - Tsinghua University

Administrative

- **Prof Mounir Hamdi**
Appointed as Head of Department of Computer Science and Engineering
- **Prof Edmond Ko**
Appointed as Acting Head of Department of Chemical and Biomolecular Engineering
- **Prof Fugee Tsung**
Appointed as Acting Head of Department of Industrial Engineering and Logistics Management

HKUST Joins Hand with Finetex to Promote Carbon-Nanofibers Research



Nanotechnology is one of HKUST's internationally recognized strengths. As part of its strategic partnership with industry, on 19 February 2008 the University signed a collaborative agreement with Finetex Technology Global Limited (Finetex), a world-leading manufacturer of nanostructured materials.

The agreement will foster collaboration between HKUST and Finetex on a research project for the development and applications of carbon-nanofibers and nanocomposites.

The FINETEX-HKUST R & D Center, which began operations at HKUST with the financial support of Finetex, is set to undertake multi-disciplinary research and development of nanofibers and nanocomposites, and thus provide technological expertise to Finetex Technology and the industry. The establishment of the FINETEX-HKUST R & D Center would serve as a platform between academia and industry to carry out targeted scientific research.

Dignitaries attending the signing ceremony included Prof Tony Eastham, Acting Vice-President for Research and Development at HKUST and Chief Executive Officer of HKUST R and D Corporation Ltd, Prof Jang Kyo Kim, Professor of Mechanical Engineering at HKUST, Mr Tong Youn Seok, Consul General of the Republic of Korea, Mr Jong Chul Park, Chief Executive Officer of Finetex, Mr Jong Man Park, Chief Operating Officer of Finetex, Mr David Kim, Vice President of Finetex, and Mr Eunsung Park, Director of Finetex.

Speaking at the ceremony, Mr Jong Chul Park said that HKUST was widely known and highly respected for its pioneering research in nanotechnology and composite materials. With HKUST's expertise and worldwide research network, the university would make Finetex nanostructured products better serve the industry and its customers.

Teaching Excellence

SENG Teaching Excellence Appreciation Award 2007-08

In each academic year, a maximum of four Engineering faculty members are selected for the Teaching Excellence Award to recognize their dedication and excellence in teaching.

Distinguished Teaching Awardee

Prof Jeff Hong, Assistant Professor
Industrial Engineering and Logistics Management (IELM)



Prof Hong has exceptional abilities in motivating students and stimulating participation and critical thinking in class. He is able to "pull" student attendance at lectures with his innovative style of teaching. His strong commitment to continuously improving his teaching skills, and his top evaluation results are recognized by this distinguished award.

Teaching Awardees

Prof Chun Man Chan, Associate Professor
Civil and Environmental Engineering (CIVL)



Prof Chan's creativity in developing useful teaching tool kits and assessment methods made him an awardee. His use of open-ended competition engineering questions to cultivate students' learning interests is one example of his dedication to providing high quality teaching.

Prof Ping Gao, Associate Professor
Chemical and Biomolecular Engineering (CBME)

Prof Gao has demonstrated continuous excellence in undergraduate teaching, with her course evaluations consistently above the departmental average for the past five years. In addition to classroom teaching, Prof Gao also puts tremendous effort into the supervision of students' final year projects. She turns physically and mathematically demanding subjects into appealing ones that arouse students' interest.



Prof Philip Mok, Associate Professor
Electronic and Computer Engineering (ECE)

Prof Mok is an enthusiastic and popular teacher in the department, whose courses mostly cover theoretical and advanced practical concepts. He never fails to draw together students and deliver excellent lectures. He has consistently received excellent teaching evaluation across different courses over the past five years. His contribution towards undergraduate curriculum design and recruitment is also recognized by the department.



Faculty Honors, Awards and Achievements

- Prof Ning Cai, Industrial Engineering and Logistics Management, has received an honorable mention in the George E. Nicholson Prize at INFORMS 2008. This is the first time a financial engineering researcher has won this accolade since the competition was established in 1975. A record 70 papers were submitted to the George E. Nicholson Student Paper Competition this year, only four of which were accorded recognition.



- Prof Xiren Cao, Chair Professor of Electronic and Computer Engineering and Director of the Center for Networking at HKUST, has been named Fellow of the International Federation of Automatic Control (IFAC), making him the first Hong Kong scholar to become an IFAC Fellow since the Federation's inception in 1957. According to the Assessment Committee, this exceptional honor was conferred to Prof Cao for his "contributions to the analysis of discrete event systems, stochastic learning and optimization theory, and their application."



- Prof Chak K Chan, Chemical and Biomolecular Engineering, is now on the Editorial Advisory Board of Aerosol Science and Technology.



- Prof Jang Kyo Kim, Professor of Mechanical Engineering and Associate Dean of Engineering, was elected President of the Asian and Australasian Association for Composite Materials (AACM) for a 2-year term at its Council Meeting on 25 September 2008. Prof Kim has previously served the organization as Executive Secretary (1997-2004) and Vice President (2004-2006).



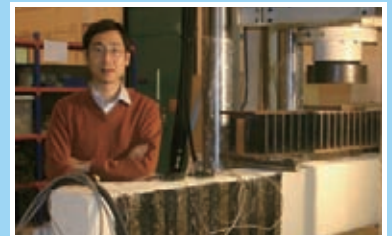
- Prof Vincent Kin Nang Lau, Wing Kwan Ng, David Shui Wing Hui and Bin Chen, Electronic and Computer Engineering, received the Best Paper Award in the 3rd International Conference on Communications & Networking in China (Chinacom) in Hangzhou in August 2008 for their paper "Cross-Layer Optimization for OFDMA System with Imperfect CSIT in Quasi Static Channel".



- Prof Ricky Lee, Mechanical Engineering, has received the 2008 ASME EPPD (Electronic & Photonic Packaging Division) Mechanics Award, in recognition of his outstanding contributions to the applications of engineering mechanics in the field of electronic and/or photonic packaging, including stress analysis, reliability study, experimental methods and computational modeling. Prof Lee has also won the 2008 IEEE CPMT Electronics Manufacturing Technology Award, in recognition of his major contributions to the field. Prof Lee is known worldwide for his teaching, for his research in various areas of packaging and his documentation of this research (materials, packaging and processing), and for his presentation of this information in authored books, authored book chapters and papers in refereed journals, as well as in invited keynote speeches, presentations, short courses and seminars. Prof Lee was presented with the award at the 2008 Electronic Components & Technology Conference (ECTC).



- A paper by Prof Christopher Leung, Civil and Environmental Engineering, Prof Stephen Lee, Advanced Engineering Materials Facility, and their co-authors, was selected as the Best Applied Research Paper published in the ASCE Journal of Composites for Construction in 2007 with "Effect of Size on the Failure of Geometrically Similar Concrete Beams Strengthened in Shear with FRP Strips".



- Prof Irene Lo, Civil and Environmental Engineering, has been selected to be the recipient of the 2008 Best Practice-Oriented Paper Award by ASCE Environmental and Water Resources Institute (EWRI) for the paper on "Natural Gradient Tracer Test for a Permeable Reactive Barrier in Denmark: Spatial Moments Analysis and Dispersion of Conservative Tracer". The Best Practice-Oriented Paper for all ASCE EWRI Journals is selected by nominations with additional input based on high scores by reviewers.



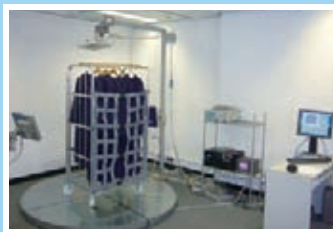
■ Prof Ross Murch, Professor of Electronic and Computer Engineering, has been elected IEEE Fellow for his “contributions to multiple antenna systems for wireless communications.” An IEEE Fellowship is one of the Institute's most prestigious honors. It recognizes extraordinary accomplishments in the profession and is conferred to a person of unusual distinction with a record of accomplishments in any of the IEEE fields of interest after rigorous review. To ensure that the recognition is extraordinary, the number of recipients each year does not exceed 0.1% of the total membership.



■ Prof Charles Ng and Prof Tony L T Zhan, Civil and Environmental Engineering, were named recipients of the R M Quigley Honorable Mention for 2007 for a research paper “Field study of rainfall infiltration into a grassed unsaturated expansive soil slope”.



■ α Gate dynamic RFID Portal (α Gate Portal), invented by Prof Lionel Ni and Prof Shing Chi Cheung, Computer Science and Engineering, has recently been awarded the Certificate of Merit at the Hong Kong RFID Awards 2008. The Hong Kong RFID Awards organized by the GSI Hong Kong were established to bring recognition to pioneering enterprises that have successfully brought EPC/RFID technologies into their business operations.



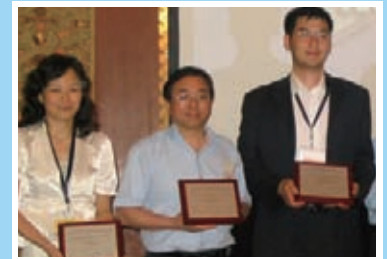
■ The work of “Zeolite Micro Fuel Cell” by Prof King Lun Yeung, Chemical and Biomolecular Engineering, was featured as a hot article in Chemical Communication.



■ Prof Matthew Yuen's research group, comprising Dr H. B. Fan, Cell K.Y. Wong and Prof Matthew Yuen, Mechanical Engineering, has won the NXP Semiconductors Best Paper Award at the 2008 International Conference on Electronic Packaging Technology & High Density Packaging, 29 July 2008. The paper's title is "A Multi-scale Interfacial Delamination Model of Cu-SAM-Epoxy Systems".



■ The paper "Opportunity-based Topology Control in Wireless Sensor Networks" co-authored by Yunhuai Liu, Prof Qian Zhang and Prof Lionel M Ni, Computer Science and Engineering, has beaten over 600 other papers and won the Best Paper Award at the 2008 IEEE International Conference on Distributed Computing Systems (ICDCS) in Beijing. This Opportunity-based Topology Control system effectively improves the energy efficiency of wireless sensor networks (WSNs). ICDCS is an IEEE Computer Society sponsored premier conference with a wide coverage of topics in Distributed Computing. The conference has a long history of significant achievements and worldwide visibility.



■ Prof Tianshou Zhao, Mechanical Engineering, has been elected a member of the Advisory Board of Energy & Environmental Science, published by The Royal Society of Chemistry.



Vision and Graphics Group Shines at SIGGRAPH-US and -Asia

The Vision and Graphics Group of the Department of Computer Science and Engineering had a record number of ten papers accepted at SIGGRAPH-US (Los Angeles) and SIGGRAPH-Asia (Singapore) in 2008. These ten papers will be published in the prestigious ACM Transactions on Graphics (ToG) journal.

SIGGRAPH is the number 1 international conference in computer graphics and interactive techniques, and has been dubbed the "Academy Award in Computer Graphics" by a local newspaper. Many algorithms and techniques which were first reported in SIGGRAPH have had a long-lasting impact on animation movies, computer games, digital cockpit and flight simulation, to name a few important industrial applications.

The inaugural SIGGRAPH-Asia is equivalent to SIGGRAPH in all ways. Two-thirds of the program committee members of SIGGRAPH-Asia comprise veteran SIGGRAPH PC members. The submissions received by both SIGGRAPHs were comparable in terms of quality and quantity and were truly international. Every decision the SIGGRAPH-Asia program committee made was according to the SIGGRAPH way, as papers from both SIGGRAPH-US and SIGGRAPH-Asia are published in the same top journal. The acceptance rates of both SIGGRAPHs are 18% this year.

The ten published papers are:

■ Skeleton Extraction by Mesh Contraction

Oscar Kin-Chung Au, The Hong Kong University of Science and Technology
Chiew-Lan Tai, The Hong Kong University of Science and Technology
Hung-Kuo Chu, National Cheng Kung University
Daniel Cohen-Or, Tel Aviv University
Tong-Yee Lee, National Cheng Kung University

■ Optimized Scale-and-Stretch for Image Resizing

Yu-Shuen Wang, National Cheng Kung University
Chiew-Lan Tai, The Hong Kong University of Science and Technology
Olga Sorkine, New York University
Tong-Yee Lee, National Cheng Kung University

■ Progressive Inter-scale and Intra-scale Non-blind Image Deconvolution

Lu Yuan, The Hong Kong University of Science and Technology
Jian Sun, Microsoft Research Asia
Long Quan, The Hong Kong University of Science and Technology
Heung-Yeung Shum, Microsoft

■ Image-based Facade Modeling

Jianxiong Xiao, The Hong Kong University of Science and Technology
Tian Fang, The Hong Kong University of Science and Technology
Peng Zhao, The Hong Kong University of Science and Technology
Ping Tan, The National University of Singapore
Eyal Ofek, Microsoft
Long Quan, The Hong Kong University of Science and Technology

■ Single Image Tree Modeling

Ping Tan, The National University of Singapore
Tian Fang, The Hong Kong University of Science and Technology
Jianxiong Xiao, The Hong Kong University of Science and Technology
Peng Zhao, The Hong Kong University of Science and Technology
Long Quan, The Hong Kong University of Science and Technology

■ Fast Image/Video Upsampling

Qi Shan, The Chinese University of Hong Kong
Zhaorong Li, The Chinese University of Hong Kong
Jiaya Jia, The Chinese University of Hong Kong
Chi-Keung Tang, The Hong Kong University of Science and Technology

■ Texture Amendment: Reducing Texture Distortion in Constrained Parameterization

Yu-Wing Tai, National University of Singapore
Michael S. Brown, National University of Singapore
Chi-Keung Tang, The Hong Kong University of Science and Technology
Heung-Yeung Shum, Microsoft

■ Interactive Normal Reconstruction from a Single Image

Tai-Pang Wu, Microsoft Research Asia
Jian Sun, Microsoft Research Asia
Chi-Keung Tang, The Hong Kong University of Science and Technology
Heung-Yeung Shum, Microsoft

■ Efficient Traversal of Mesh Edges using Adjacency Primitives

Pedro V. Sander, The Hong Kong University of Science and Technology
Diego Nehab, Microsoft Research
Eden Chlamtac, Princeton University
Hugues Hoppe, Microsoft Research

■ Automated Reprojection-Based Pixel Shader Optimization

Pitchaya Sitthi-amorn, University of Virginia
Jason Lawrence, University of Virginia
Yang Lei, The Hong Kong University of Science and Technology
Pedro V. Sander, The Hong Kong University of Science and Technology
Diego Nehab, Microsoft Research
Jiahe Xi, Zhejiang University



Flexible Start to Engineering Studies

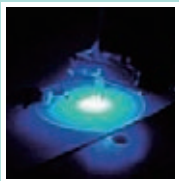
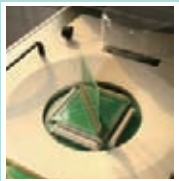
SENG School-based Admission Scheme



The new scheme, incorporating the current “program-based” arrangements and the new “school-based” option, gives students the best of both worlds.



The new School-based Admission (SBA) Scheme will be available to both Joint University Programmes Admissions System (JUPAS) and Early Admission Scheme (EAS) applicants starting from the 2009-10 academic year. In addition to the existing individual 13 programs offered by HKUST's School of Engineering, students will be given the opportunity to explore their interests further before they select a program under SBA, which gives them a total of 15 programs to choose from.

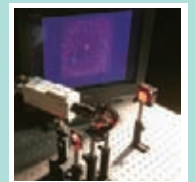


SBA means that students do not have to choose a particular program in their admission application. Rather, they need only choose one of two streams for the first semester. After that, they can choose their favorite program from within that stream.

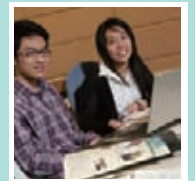
Stream A comprises Chemical Engineering, Chemical and Environmental Engineering, Chemical and Bioproduct Engineering, Civil and Environmental Engineering, Civil and Structural Engineering, and Mechanical Engineering.



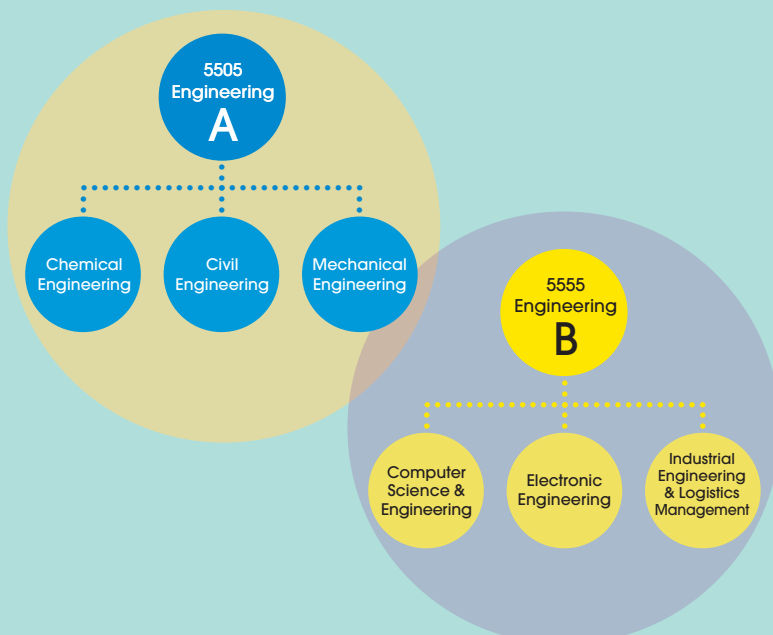
Stream B encompasses Computer Science, Computer Science (Information Engineering), Computer Engineering, Electronic Engineering, Electronic Engineering (Information and Communication Engineering), Industrial Engineering and Engineering Management, and Logistics Management and Engineering.



In brief, Stream A is more focused on chemical, civil and mechanical engineering, while Stream B focuses more on computer and electronic engineering, as well as engineering management. The 13 individual programs are all included in Streams A and B.



Under the SBA scheme, students admitted to Stream A or Stream B at the start of the first semester will prioritize their favorite programs at the end of November.



Internships Across Asia

Gilbert Tan Aik Yeoh, Year 3 student from Department of Industrial Engineering and Logistics Management. Internship in IDS Thailand and Singapore, a member of the Li & Fung Group of companies.

“I am originally from Malaysia. I scored full As in my STPM (Malaysia’s A-Levels) and was offered scholarships to come to Hong Kong to study. I was actually accepted by other universities as well as HKUST and was discouraged by other people that I should stick to better known universities in Singapore. Instead of following others blindly I did some research on HKUST and was surprised to find that it was better ranked than NTU (Nanyang Technological University), which was at that time the dream school of most of my classmates. That ranking, which I believed to be unbiased, canceled out most of the discouraging advice I’d been given. Also, I knew that deep down I was more adventurous and assertive than conservative and passive, so I finally decided to go with my instinct and come here. I made the right choice.

I found my internship via JIJS. It was nonetheless quite a discouraging experience, as most of them required the candidates to be in Year 2 (I was only a Year 1 student in 2007). However, that did not stop me from applying. I sent out three letters, and got one positive reply. I later went for the interview, which was conducted in three languages (English, Mandarin and Cantonese). I was really grateful to IDS that they did not shut me out just because I was a Year 1 student. They actually gave me a full-scale interview that lasted more than an hour, and I took that as a hint that being a Year 1 student did not after all put me at a disadvantage.

I was placed under Nike account in IDS Thailand, and was given specific project to help smooth the entire operation. Although they had some very skilled workers under Nike operation, they still faced problems associating with space management and error during handling of stocks. I observed that there were still rooms of improvement in the way they designed the facilities lay-out, hence I refined the entire floor plan and managed to squeeze out about 20% more pallet locations in the inbound-outbound operation area. In that refined plan I also changed the zig-zag sequence of stock handling into a horseshoe sequence with the hope to reduce error. On top of that I developed a set of decision making rules to help better forecast

the incoming stocks and hence better stocks allocation that would eventually lead to more efficient space management.

IDS required the interns to make a presentation of their findings and proposals to senior management in the last week of the internship. This provided me with good experience in proposing a serious business plan to managers who would actually heed your advice carefully. I was really proud of my achievement when the Managing Director came up to me to pat me on the shoulder and asked me to come back for a second internship.

I did go back for the second internship, and that would turn out to be more intense. Satisfied with my first proposal for the Nike operation, they handed me an even more complicated task in their Singapore branch: a posting at the newly operating warehouse outside the HQ to monitor the newly established L’Oreal ASEAN Hub Operation. The nature of this task was somehow different from the previous one because this operation involved more parties as it dealt with buyers from other countries as well. I unveiled the inefficiency by a statistical approach, and with that I successfully convinced the senior management that there was room to improve the productivity by 100% while cutting OT claims by 40%. I was truly honored when my presentation was greeted with the immediate offer by the Managing Director to extend my internship contract.

In a nutshell, my internship experiences were spectacular ones. I got to go to different places, work in different environments, communicate across language barriers and gain exposure to different office cultures. These, I would say, are things that you cannot simply get from your text books.

I have been offered a scholarship to further my studies at Masters level and this time I will go to King Abdullah University of Science and Technology (KAUST) in Thuwal, Saudi Arabia. Once again I faced a dilemma, just like two years ago, only this time without any data or ranking that will serve as references to help me make my decision. (KAUST is completely new; the campus will only be completed by September 2009, and I will be among the first batch to go there). But again the knowledge that I will enjoy being a pioneer is stronger than any rational analysis or the fact of the 40-degree-Celsius-desert-torching-environment. That won’t be enough to stop me - I will definitely be there! ”



Exploring the World through Exchange Programs



Wing Yin Kong from Department of Mechanical Engineering participated in two exchange programs to Denmark and Mainland.

“I have taken part in two exchange programs. One was the Mainland Exchange Program and I went to Harbin Technical University. The other one was the Overseas Exchange Program and I went to the Technical University of Denmark. The two universities were totally different. They were in different countries and had different languages and cultures. Both programs lasted one semester and offered me a chance to see the big cultural difference between China and the West.

My main reason for joining two exchange programs was a concern about the exchange period. I thought that staying in the same place for a year would be too long for me. If I joined two half-year programs, on the other hand, the time spent away is the same but I can see more and gain wider experience. Also, I am an engineering student and it is well known that the schedule of engineering students is very full. Students may need to extend their time at university if they want to be part of exchange programs. Besides, Hong Kong is an international city, so understanding the cultural differences between countries and having the opportunity to speak fluent Mandarin and English are very important for all university graduates.

In the Mainland Exchange Program, I was the only Engineering student who went to Harbin Technical University that semester and therefore it was easy to meet local friends. I understood more about the character and thinking of Chinese people than before. They were friendly and funny. On the other hand, there were many parties in Denmark. European students enjoy going to parties very much but they were hard working as well. Moreover, there was no big difference between the teaching methods of the two exchange universities and HKUST, so that didn't pose a problem.”



Student Honors, Awards and Achievements

- MPhil Student Michael Chi Fung Chan, Computer Science and Engineering, was awarded an Overseas Fellowship of the Sir Edward Youde Memorial Fund to support his PhD studies in Computer Science at Stanford University. Before taking up this offer, he was offered a place on the PhD programs at Princeton University and the University of California, San Diego. Michael graduated with first-class honors from HKUST's Computer Engineering Program.



- PhD students Jia Chen and Lu Yuan, Prof Chi Keung Tang, and Prof Long Quan from the Visgraph research group, Computer Science and Engineering, received the Best Student Poster Award at the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR) held in Alaska for their research paper "Robust Dual Motion Deblurring".



- Sai Shing Chim and Sheung Chi Yeung, Civil and Environmental Engineering, were awarded The Institution of Highways & Transportation (IHT) Hong Kong Branch Student Paper Award 2008. The title of their paper was "Transport Infrastructure Planning over Time".



- Kei Hong Chu, Civil and Environmental Engineering, received a Merit Paper Award in the Papers Competition 2007 from the Graduates & Students Division, Institution of Civil Engineers (ICE) Hong Kong Association.

- PhD student Yin Bon Ho, Civil and Environmental Engineering, has been awarded a Sir Edward Youde Memorial Fellowship 2007-2008.



- PhD student David Shui Wing Hui and Prof Vincent Kin Nang Lau, Electronic and Computer Engineering, received the Best Paper Award at the IEEE International Conference on Communications in IEEE IE Beijing in May 2008. The paper was entitled "Distributive Delay-Sensitive Cross-Layer Design for OFDMA Systems". This conference is one of the largest IEEE conferences on wireless communications.

- Recent graduates Kwok To Kwan and San Yiu Leung, Electronic and Computer Engineering, won the Champion Award in the Undergraduate Section of IET Younger Members Exhibition / Conference 2008 (YMEC) for their final-year project "Fully On-chip Charge Pump with Reversion Loss Reduction." YMEC is an exhibition and conference, where science and engineering students from tertiary institutions and secondary schools meet and present their projects or papers. Participants are from Hong Kong, Mainland China and overseas. Selected winners are nominated to attend the IET Asia Pacific Younger Members Conference 2008. Both students were also Winners of the HKUST President's Cup 2008.



- Kui Sing Kwok, Chemical and Biomolecular Engineering, won the 2008 AIChE Process Development Division Student Paper Award for his paper "Thermodynamics of Salt Lake System: Representation, Experiments, and Visualization". The advisor on the paper was Prof Ka Ming Ng.



- MPhil student Chi Ho Lau supervised by Prof Ricky Lee, Mechanical Engineering, has won the Best Student Paper Award of the Electronic Packaging Materials Symposium at the MRS International Materials Research Conference held



in Chongqing, China, on 9-12 June 2008. The paper was entitled "Suspended Membrane with nanoscale Through Vias on a Silicon Substrate by Offset Patterning Technique".

- MPhil student Chit Man Mok, Civil and Environmental Engineering, received an Honorable Mention in the 2007-2008 Best Master Thesis Award from the ASCE Hong Kong Section. The award-winning paper was entitled "An investigation of strain localization in cemented sands and mechanisms of stiffness anisotropy using the DEM simulations".
- PhD graduate Feng Su, Electronic and Computer Engineering, had his paper "Digitally Assisted Quasi V^2 Hysteretic Buck Converter with Fixed Frequency and without using Large-ESR Capacitor" accepted for presentation at the International Solid-State Circuits Conference (ISSCC) 2009 (dubbed the "Chip Olympiad" by the local press) in San Francisco. ISSCC is the foremost forum for presentation of advances in solid-state circuits and systems-on-a-chip. The conference offers a unique opportunity for engineers working at the cutting edge of IC design and use to maintain technical currency, and to network with leading experts.
- PhD student Yu Ping Yuen, Civil and Environmental Engineering, received two awards: the Best Student Award in Structural Engineering 2007-08, presented by the Joint Structural Division of the Hong Kong Institution of Engineers and the Institution of Structural Engineers, UK; and the 2007-2008 Best Final Year Project Award from the ASCE Hong Kong Section for the paper "Steel-concrete Composite Coupling Beams in Tall Buildings".

- Charlie Shucheng Zhu, Year 3 Computer Engineering student, won second prize in the IEEE Region 10 (Asia Pacific) Student Paper Contest. His award-winning paper entitled "P2P (Peer-to-Peer) Content Protection" was also awarded first prize in the IEEE Hong Kong Section 2007 Undergraduate Students Paper Contest.



- The American Society of Civil Engineers International Student Group in the Department of Civil Engineering at HKUST (ASCEISG, HKUSTCE) received the American Society of Civil Engineers Region 10 Governors Awards 2008. This is the second year that ASCEISG, HKUSTCE has received this award, by which ASCE Headquarters honors the most outstanding International Student Group outside America.



- Students from the School of Engineering swept all the top awards in the President's Cup 2008, an annual University-wide contest organized by HKUST to encourage undergraduates to pursue research and enhance their presentation skills.

President's Cup Winner

Kwok To Kwan (ECE)

San Yiu Leung (ECE)

Project Title:
Fully On-chip Charge Pump with
Reversion Loss Reduction



Gold Award

Yi Xu (ECE)

Tsz Kwan Tsui (ECE)

Tim Tat Wong (ECE)

Project Title:
Humanoid Robot



Silver Award

Wing Chak Hung (CBME)

Hin Man Siu (CBME)

Chun Yip Tam (CBME)

Kai Yee Wah (CBME)

Project Title:
Nanobottle-immobilized Biomolecules for Sensor Application



Honorable Mention

Dachun Lu (CBME)

Chan Wa Eric Ng (CBME)

Tsz Ho Wong (CBME)

Lei Yao (CBME)

Project Title:
Capture and Release of Protein
by Reversible DNA induced Sol-gel Transition System



Getting the Most from Your Studies Sharing by EAS Student

Tsz Ling Elaine Tang from Department of Chemical and Biomolecular Engineering joins HKUST School of Engineering through Early Admissions Scheme (EAS).



“When I was a secondary school student, I never imagined that I would have a chance to communicate with people from different regions in the world. So when I joined the EAS Summer Program in 2006, I was so glad to have a

chance to interact with people from various places like Malaysia and Germany. Surrounded by both local and international elites, I was enabled to develop a global horizon and think beyond getting good grades. Having the support of friends met in the summer program, I managed the transition from secondary school to university easily.

One of the highlights of my university life would definitely be my exchange trip at the Technical University of Denmark (DTU). Paying only the tuition fee of HKUST, I could study in a European university, and I even got a chance to travel in 14 European countries with friends I met in DTU! Even today I miss the days when I was partying with the international students at DTU, the time when I was listening to opera in Vienna and the moment when I saw the Olympic Torch Relay in Paris. Though it was expensive to stay in Europe for one semester, I got sponsorship from the School to support my exchange expenses. This relieved my financial burden and made this trip the best I could ever have.

If you are interested in academic research, HKUST is the right place for you. Various opportunities are present in HKUST. Through the Undergraduate Research Opportunities Program (UROP) last summer, I not only had a taste of laboratory research work, but also a chance to discover my own research interest. In addition to that, attending international conferences held at HKUST and participating in academic seminars held by world renowned professors allowed me to gain a deeper understanding of chemical engineering and academic research. I was also inspired to set up the goal of pursuing further study.

Looking back through the years I spent in HKUST, I could not imagine how much I have changed! From a little girl that was too shy to talk to foreigners, to a grown-up that is open-minded to interacting with people from various backgrounds; from a diligent secondary student that only aimed at good academic results, to a student that strives for balanced development. I am so pleased to see the transformations I have been through in HKUST as an EAS student.”



Fiery Performance in Robocon 2008 Hong Kong Contest

Two student teams from the School of Engineering scooped a number of awards including Champion, Second Runner-Up and the Hong Kong Science and Technology Parks Best Team Spirit Award at the 2008 Robocon Hong Kong Contest. Two students talk about their rewarding experiences as part of the Robocon teams:

“Robocon” is an annual Asia-Pacific robot competition held by the Asia-Pacific Broadcasting Union (ABU). The theme and rules of the competition are changed every year by the different countries in which it is held. Generally, teams are asked to create robots on their own to perform some specific tasks. At HKUST, engineering students from different departments, such as Computer Science and Engineering, Mechanical Engineering, and Electronic and Computer Engineering take part in this competition.

I joined the HKUST Robocon team in Year 2 as a programmer and I honestly enjoyed this competition very much because it gave me extremely valuable experience, which is necessary for my future career.

First, I learned that team cooperation is essential when working on a complex project with a large number of people. Second, care is vital for an engineer – indeed, for everyone. Problematic mechanical designs can be prevented if our design is as detailed as possible and verified before manufacture.

To summarize, this project gave me many benefits, so I hope more engineering students will take part in this wonderful competition.”

by Ho Wa Wong
Department of Computer Science and Engineering



“I have participated in this competition for two years. Being a programmer, I wrote software for our robot and developed our ongoing strategy. This was a very challenging task. The uncertainty and speed of the game tended to increase the complexity of the software, which served to train our problem solving skills. As each problem emerged, we needed to trace the cause and quickly solve it or by-pass it to alleviate the situation. Soon, this became a conditioned reflex.

The competition gave me lots of opportunities to work with different team members, each of whom had their special characteristics and talents. Working with them was enjoyable as you learned how to communicate with each other and deal with everyone's emotions. This competition not only improved my communication skills, it also led to precious friendships between team members. Every member worked very hard this year. When we finally got the Hong Kong Champion title, we were all overjoyed.”

by Chun Siu Ng
Department of Electronic and Computer Engineering



Innovation Festival 08 Sharing Innovation and Technology with the Public

A number of innovative inventions by HKUST's School of Engineering (SENG) were showcased in two public exhibitions, InnoCarnival and Science in Public Services Funfair 2008, to promote and develop interest in innovation, technology and design among the young.

Organized by the Innovation and Technology Commission of the HKSAR Government, InnoCarnival and Science in Public Services Funfair 2008 were the highlight events of Innovation Festival 08. The festival aims to nurture young, innovative talents and foster an innovative culture by showcasing the latest technology achievements and outstanding projects. The InnoCarnival was held from 16 to 18 October 2008 at the Hong Kong Science Park, while the Science in Public Services Funfair 2008 was held from 14 to 16 Nov 2008 at Victoria Park.

The innovative applications of MoXi-Digital Ink Art, Crystal Crisis, and Song Searching Device were displayed at both InnoCarnival and Science in Public Services Funfair. Further, the robots of Fiery Dragon, the winning entry in the Robocon 2008 Hong Kong Contest, were showcased at InnoCarnival. All these applications were invented and developed with distinctive features by students from the School of Engineering.



The most notable project was MoXi, digital ink painting software developed by PhD graduate in computer science, Nelson Chu Siu-hang. This application simulates the characteristics of Chinese calligraphy and ink painting on the computer screen. MoXi was even used to generate an image of the Great Wall on the unrolling scroll in the Opening Ceremony of the Beijing Olympic Games.



On the first day of the funfair, Mr Donald Tsang Yam-kuen, the Chief Executive of the HKSAR, visited the HKUST booth to try out this locally made software. Prof Philip Chan and Prof Charles Ng, HKUST's Dean and Associate



Dean of Engineering, introduced the software to the Chief Executive, who then wrote the theme of the exhibition 'Science in the Public Service' using MoXi.

In addition to the SENG student projects, Robotcop (a robot policeman), which was designed and produced jointly by HKUST and the Hong Kong Police Force Crime Prevention Bureau, drew the attention of the Financial Secretary, Mr John Tsang Chun-wah at InnoCarnival. After officiating at the InnoCarnival opening ceremony, the Financial Secretary came to the HKUST pavilion and chatted with Robotcop. When asked if he knew what drugs were, Mr Tsang, rather than answering the question raised by Robotcop, replied by asking "Will I get a prize for a correct answer?"



The HKUST booth at both InnoCarnival and Science in Public Services Funfair 2008 met with a very enthusiastic response from the community. Visitors ranging from children to the elderly tried out various SENG projects and took away their own artwork after their session with MoXi. The innovative applications showcased by SENG also attracted a large amount of press coverage in print and electronic media.



Source: Sing Tao Daily & Apple Daily, 7 Oct 2008



HKUST in the Forefront to Host Synthetic Biology 4.0 International Conference

Proudly presented with MIT-based Biobricks Foundation in Asia for the first time, Prof I-Ming Hsing and Prof Ying Chau from Chemical and Biomolecular Engineering Department and Prof King Lau Chow from Biology Department jointly organized the Synthetic Biology 4.0 International Conference in HKUST campus in October 2008. The HKSAR Financial Secretary Mr John Tsang officiated at the closing session in the first day's conference. The event also attracted more than 500 attendees from over 15 countries to share views and hold discussions over various aspects of synthetic biology in areas of research, education, investment, industrial application in energy, green manufacturing, agriculture, drug production, and medicine, among others.



Synthetic Biology is an interdisciplinary application tool that allows scientists and engineers to redesign existing biological systems or design and construct novel biological parts. Its recent areas of advancement are development of anti-malaria drug and bio-diesel. Artemisinin, extracted from a plant called sweet wormwood, is known for its effectiveness in treating malaria. However, its high cost and short supply limit its application in curing this disease. At a fraction of the cost, bioengineers can now manipulate plant enzymes of sweet wormwood into brewer's yeast in producing same properties as effective as Artemisinin. Synthetic biology, claimed by engineers and venture capitalists, is the "new focal point" in solving issues vital to human existence and will make an enormous impact on our future.



Series of unrivaled activities launched with Japan's NTT DoCoMo



The Dual Degree Program in Technology and Management had joined hands with NTT DoCoMo, offering a series of unrivaled educational activities for HKUST faculty and students in the past few months.

A distinguished lecture on "Insights into Mobile Applications beyond 3G" was held in early February, discussing the current progress of mobile multimedia applications in Japan's broadband cellular environment.

Dr Minoru Etoh, Deputy Managing Director of NTT DoCoMo Research Laboratories and Vice President of NTT DoCoMo, explored the potential expansion of wireless broadband to "fixed-line" internet application and identified how mobile-specific aspects such as mobile multimedia, mobile advertising and e-commerce have enriched our daily life.

Fifteen outstanding Dual Degree Students were selected to form three teams for the project. Each team proposed a business model to commercialize the new interaction technology for the enhancement of the 'mobile life' of mobile phone users and to capture the unique business value of the technology. Based on the novelty and the feasibility of their business plan, together with their presentation skills, the winning team presented the project "Technology Commercialization - A strategic plan to improve the quality of life through the use of AOFDM technology in theme park". Team members comprised Minying Kito Chen, Yan Ting Mandy Chu, Jun Xing Jack Chin, Wang Kit Li and Connie Hiu Ying Chow.

NTT DoCoMo is a world leading mobile communications company based in Japan. The company offers a wide variety of leading-edge mobile multimedia services and serves more than 53 million customers.



EX.I.T.E. Camp Introduces Female Students to the World of Science and Technology



IBM China/Hong Kong and the Hong Kong University of Science and Technology (HKUST) celebrated their success in providing thirty-six girls with a unique and memorable experience at the Exploring Interest in Technology and Engineering (EX.I.T.E.) Camp. During the five-day camp, the girls participated in a series of hands-on workshops, games and lectures designed to increase their interest in science and technology and open the door to a wider range of career options.

Now in its fourth consecutive year in Hong Kong, the IBM EX.I.T.E. Camp seeks to help girls realize their potential and cultivate an early interest in technology-related fields. Thirty-six girls aged 11-13

from four distinguished secondary schools in Hong Kong - Belilios Public School, Maryknoll Convent School, St Paul's Convent School and St. Stephen's Girls' College - participated in the five-day program from July 28 to August 1 2008.

During the camp, participants worked in teams and learned how science and technology can improve daily life through fun and enlightening activities such as building an earthquake alarm, assembling a temperature sensor with a digital display and creating their own "3D glasses" simulating the technology built into the Nintendo Wii remote. The girls also attended lectures by IBM and HKUST experts on IT-related subjects and career opportunities in technology fields.



Calendar of Events

July 20-25 and July 27 – August 1, 2009

Youth IT Summer Camp 2009

Co-organized by the Department of Computer Science and Engineering, and held at HKUST

August 6-8, 2009

2009 INFORMS International Conference on Service Science

Organized by the Department of Industrial Engineering and Logistics Management, sponsored by INFORMS, held at HKUST

<http://informatics09.ielm.ust.hk>

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!

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