World Economic Forum “Summer Davos” 2014

To foster closer cooperation and the exchange of ideas on key areas within the global agenda among world leaders, cities and technology pioneers from around the world, over 1,500 political and community leaders, academics, experts and global entrepreneurs from 90 countries gathered at Tianjin, China for the Annual Meeting of the New Champions of the World Economic Forum 2014 during September 10 - 12 2014. Also known as Summer Davos, participants focused on how innovation can generate better value to society under the theme “Creating Value through Innovation”.

Led by Dr. Eden Woon, Vice-President for Institutional Advancement, Professor Fugee Tsung, Department Head of IELM and three other engineering professors (Professor Zexiang Li from ECE, Professor Dekai Wu and Professor Qian Zhang from CSE) presented their breakthrough ideas and interacted with internationally renowned scholars and experts at the HKUST IdeasLab. With the goal of understanding how emerging technologies augmented the human experience, Professor Tsung explored the challenges and possible business opportunities of 3D printing in the coming five years.

Apart from the HKUST IdeasLab, Professor Tsung was also invited as one of the speakers at the Forum “Strategic Shifts in Manufacturing”. Together with three other speakers including Mr. Alexander Collot d’Escury, former Chief Executive Officer of Desso Holding BV, Mr. Hank C. K. Wuh, Chairman of TruTag Technologies and Mr. Dong-Kwan Kim, Managing Director of Hanwha Group, they had a lively and informative discussion under the topic “What trends, business models and emerging technologies are transforming the manufacturing sector?”

Established in 2007 by the World Economic Forum, Summer Davos is held annually in China with the venue alternating between Dalian and Tianjin. The meeting brings together participants from rapidly growing emerging countries such as China and India, Russia, Mexico, and Brazil, and fast movers from developed countries, creating a unique opportunity for exchange between leaders in governments, media, academia and civil society.

Professor Tsung’s speech delivered at the HKUST IdeasLab is now available at https://youtu.be/lRbSlzhY-ig.
MESSAGE FROM THE DEPARTMENT HEAD

HKUST will celebrate its 25th Anniversary in 2016! At this very special milestone, the Silver Jubilee will see many different kinds of festive events being organized from specific talks to sports competitions to social gatherings and particular projects. The celebration will be all encompassing so that staff, students and alumni can be involved in this exceptional occasion.

As one of the most successful universities that currently focus on research and development in Hong Kong, HKUST will strengthen its commitment to the following five areas: Data Science, Sustainability, Public Policy, Autonomous Systems and Robotics, Design Thinking and Entrepreneurship. At the same time, a special 25A program known as the 25 Projects is ongoing as part of this process; the ultimate aim is to generate new and innovative ideas to help transform the overall HKUST education experience and student life, as well as push forward our research excellence.

All HKUST staff, students and alumni are encouraged to think out of the box and develop ideas that can truly encapsulate our research excellence, education expertise and student life experience. We want to promote HKUST as a forerunner in both innovative education and research as well as help the wider community better understand what we strive for and reinforce the important role of HKUST in society. 25 selected ideas will be implemented with the support of funding from donors, including our Council and Court members, and the University.

Within the Department, dedicated and committed IELM faculty, consistently offer both teaching and research excellence. According to the recently released QS World University Rankings by Subject 2015, HKUST is ranked top 20 in the world and No. 1 in Greater China in Statistics and Operational Research, and is ranked 31 in the world and No. 1 in Hong Kong in the Manufacturing field. I believe we have made a significant and important contribution to this result, emphasizing that IE will continue to play an influential role in both Statistics and Operational Research and Manufacturing areas.

Focusing on the next semester, we look forward to taking the Department to the next level of achievement and recognition; included in this could be your personal contribution and effort towards the 25 Projects, enabling this young and dynamic university to push forward its development in the coming years.

FACULTY NEWS

New Faculty Member Joins IELM Department: Professor Xuan (Ada) QIU

Professor Xuan (Ada) QIU has been appointed as Lecturer to the IELM Department from the Spring semester 2015. Prior to this position, she was a faculty member at the Department of Supply Chain Management, Hang Seng Management College, after obtaining a PhD degree from the University of Hong Kong. Her research interests include supply chain management, transportation and logistics management as well as optimization and heuristic algorithms; and her research focuses on modeling and analysis of supply chain, warehousing and distribution systems, ports and related areas. Professor Qiu is teaching both Engineering Economy (IELM 3230) and Integrated Production Systems (IELM 4100).

HONORS AND AWARDS – FACULTY

Elected as the Editor-in-Chief of the Journal of Quality Technology (JQT)

Professor Fugee Tsung, Head and Professor of IELM, has been appointed as the next Editor-in-Chief of the Journal of Quality Technology (JQT). He will serve as Editor-Elect for 2015, and as the Editor for 2016 – 2018.

Professor Tsung is the first member outside the US to be elected as the Editor-in-Chief. First published in 1969, JQT is the flagship journal published by the American Society for Quality (ASQ) that emphasizes applied techniques in industrial statistics, including statistical quality control which is Professor Tsung's area of expertise. Consistently ranked by Journal Citation Report as one of the most cited journals in the areas of industrial engineering, management science and statistics, JQT is a peer-reviewed publication which is published four times per year.
**HONORS AND AWARDS – FACULTY**

**Chartered Ergonomist and Human Factors Specialist (Institute of Ergonomics and Human Factors)**

On the 65th anniversary of the Institute of Ergonomics and Human Factors (formerly The Ergonomics Society), Queen Elizabeth II granted a Royal Charter to the Institute. As the elected Fellow of the Institute, **Professor Richard So** has been honored with the title of the Chartered Ergonomist and Human Factors Specialist (C.ErgHF) in recognition for his contribution to the field of ergonomics.

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**First Prize of the INFORMS ENRE Young Researcher Prize 2014**

**Professor Ho-Yin Mak**, Assistant Professor of IELM, has won the first prize of the 2014 INFORMS Energy, Natural Resources and the Environment Section (ENRE) Young Researcher Prize for his paper entitled “Toward Mass Adoption of Electric Vehicles: Impact of the Range and Resale Anxieties”. The journal paper was published in *Manufacturing and Service Operations Management (M&SOM)* (Vol. 17, Issue 1, Winter 2015), a premier quarterly journal for the operations management research community.

The ENRE Young Research Prize has been set up to recognize one or more young researcher(s) for their outstanding paper on the application of OR/MS to an important problem in energy, natural resources, or the environment. This prestigious award is presented at the INFORMS Annual Meeting and it serves as an esteemed recognition of promising researchers who are at the beginning of their academic or industrial career.

It is also worth noting that Professor Mak’s journal paper is highlighted in a press release on the INFORMS’s website: http://goo.gl/gEJSfH.

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**HONORS AND AWARDS – ALUMNI**

**POMS-HK Student Paper Competition 2015**

IELM alumni received **Best Student Paper Award** at the 6th POMS-HK International Conference.

**HE Long**, a 2010 IELM graduate won the First-Place Prize for his paper entitled "Service Region Design for Urban Electric Vehicle Sharing Systems". In his paper, HE studied the car sharing business, such as Car2Go, which employs electric vehicles and accommodates one-way trips. HE then proposed an optimization framework that encompasses the trade-off between maximizing customer catchment by covering travel needs and controlling fleet operations costs, and ultimately recommended a service region for the business.

In the same competition, our alumnum **LONG Zhenghua**, who graduated in January 2015, received the Second-Place Prize in the competition. In his paper entitled "Virtual Allocation Policies for Many-server Queues with Abandonment", LONG studied a multiclass many-server system with generally distributed patience times. By establishing fluid approximations and studying the long-term behavior of the fluid model under a family of non-preemptive policies, it is noticed that the equilibrium state of the fluid model which connects to a nonlinear program can help to identify a lower bound of the long-run expected holding and abandonment cost. Thus a policy can be designed to achieve such a lower bound when the patience time distributions have decreasing hazard rate.
EVENTS

Keynote at Biomedical Engineering International Conference 2014

At the invitation of the BME2014 Secretariat and the Hong Kong Productivity Council, Professor Richard So delivered a Keynote Speech on the first day of the Biomedical Engineering International Conference 2014 (BME2014) (December 4 – 6 2014).

Having been a biennial converging point of biomedical professionals of different nationalities, disciplines and research foci since 1992, the BME conference series are organized by the Biomedical Discipline of the Hong Kong Institution of Engineers (HKIE).

The keynote speech, titled "Computational Ergonomics", highlighted experiences in using cell level computational neuroscience models to simulate and predict human performance at the individual and group levels.

With the theme of "The Future of Biomedical Engineering - from Vision to Reality", BME 2014 provides an excellent platform for biomedical engineers, researchers, regulators, industrialists and healthcare professionals to exchange ideas on the new advancement of research and development (R&D) and update on a wide spectrum of the medical devices industry. Presentation topics include laboratory research, clinical application and regulatory affairs, allowing further promotion of the professional development in the biomedical engineering field.

Keynote at POMS-HK International Conference 2015

Professor Chung-Yee Lee, Chair Professor of IELM and Cheong Ying Chan Professor of Engineering was invited to give a Keynote on "Ocean Transport Logistics: Making Global Supply Chain Effective" on the first day of the 6th POMS-HK International Conference.

This year, the conference was held at Sun Yat-Sen University, Guangzhou on January 3 - 4 2015. Jointly organized by Production and Operations Management Society - Hong Kong Chapter, Lingnan University and Sun Yat-Sen University, this conference provides a forum for experts from industries and academics to share their research, experience and insights in the areas of production and operation management based on this year's theme - VIP: Variety, Integration and POM.

In the Keynote, Professor Lee talked about challenges in the ocean container transportation on supply chain currently faced by both container shipping service providers and users, which are understudied in the literature. The progress of the Theme-Based Research project "Transforming Hong Kong's Ocean Container Transport Logistics Network" currently conducted by Professor Lee was also presented.
Further to the success of the first HKUST-USC Forum in January 2014, the second HKUST-USC forum on 3D Printing: Research and Practice, supported by the 2014 sponsorship scheme for targeted strategic partnerships, was successfully held on December 18 2014. Jointly organized by IELM, HKUST and the University of Southern California (USC) Viterbi School of Engineering, 8 panelists from both academia and industry were invited to join the forum.

Shortly after the address given by Professor Fugee Tsung, Head of IELM Department, HKUST, the forum was initiated with a panel discussion on the recent development and future trend of 3D printing from the industry’s point of view. Dr. Xiaoshu Xu, founder and CEO of Hunan Farsoon High-tech Co., Ltd. gave an overview on the 3D printing developments; followed by Mr. Andrew Chiu, Managing Director of 3DP Technology Ltd. who specifically cited the most recent developments and offered a personal view on the future trend of 3D printing in Hong Kong. The floor was then passed to Dr. Jing Zhang, founder and CEO of SprintRay Inc., who offered an insight into his own particular research and the recent trend of 3D printing technology; and the session was concluded with a lively discussion by the 4 panelists after a presentation by Mr. Tsz King Leung of US Product Design Co. on how to personally design and build an individual 3D printer.

After listening to the viewpoints from the industry, 4 scholars from 3 different universities shared their perspectives on the recent advances of 3D printing research and the research on the methodology of statistical quality control in the area of 3D printing. They were Professor Fugee Tsung, Head of IELM Department, HKUST, Professor Yong Chen, Associate Professor of the Daniel J. Epstein Department of Industrial and Systems Engineering, USC, Professor Qiang Huang, Associate Professor and Gordon S. Marshall Early Career Chair in Engineering of the Daniel J. Epstein Department of Industrial and Systems Engineering, USC and Professor Yong Hua Chen, Associate Professor of Department of Mechanical Engineering at the University of Hong Kong. Through the informative presentation and dynamic discussion, they provided the audience with their outlook on the research and breakthrough of 3D printing technology.

The forum attracted over 30 participants who gained a much better insight into this fast moving industry with a rewarding and productive session of interaction with the panel of experts. They also acquired a further understanding on the latest advancements in the 3D printing industry as well as a unique insight into forthcoming trends and influences of this type of 3D printing technology and its impact on today's world.

Check out the video of the Forum at http://goo.gl/UFHetV!
EVENTS

Design Studio - hands-on workshop for prototype making

How much experience do you have in presenting your abstract ideas to the general public, experts, engineers, investors or even potential business partners? Do you find that it is hard to present your idea without a physical prototype, or that it is even harder to translate product ideas into three-dimensional functional prototypes? Sixteen HKUST students from Business, Science, and Engineering Schools took the challenge to equip themselves with the skills of building quick and aesthetically-pleasing prototypes during the Winter semester 2015.

Under the guidance of Professor Uwe Reischl from USA and Professor Ravindra Goonetilleke, Associate Head and Professor of IELM, students in the Design Studio course (IELM 2145) made models using cheap materials and quick assembly methods while refining and improving their ideas. In this three-week course, students learnt about basic principles of model making and had a great opportunity to do 5 projects (Lampshades, Gliders, Wheels, Heads and Space/Submersible Module for Living and Work) within a limited time frame. Through a variety of practical workshops, students gained a good understanding about the various techniques that can be used to build prototypes selecting appropriate scales, working to time frames, and making use of various architectural model-building materials.

Many of the students found this course to be a very rewarding experience. With their newfound skills of model building, students were able to bring an original idea to a product stage via prototyping, thus separating themselves from dozens of others who only have a concept in their minds. The highly visual and striking items of artwork have been on display throughout the Spring semester in G/F, LG1 & LG4 of the HKUST Library. Take a walk to these areas and see their innovative creations! More information about the artwork and background of the exhibition can be found at http://lbcone.ust.hk/exhibit/exhibition/39.

HKUST co-hosts My Toy Design Competition 2014-15 with the Toy Associations in Hong Kong

Continuing our initiatives in design, creativity and innovation, IELM Department, HKUST are co-hosting the second My Toy Design Competition 2014-15. Due to the overwhelming success of our first competition in 2013-2014, the second Toy Design Competition attracted all related toy associations, Federation of Hong Kong Industries (FHKI), Hong Kong Toys Council (HKTC) and The Toys Manufacturers’ Association of Hong Kong Limited (TMHK) to participate in this important venture. This time the competition was funded by the CreateSmart Initiative of Create Hong Kong, HKSAR Government and various local toy companies and associations to the tune of over HK$2 million for the competition.

An additional category of toys with smart device applications is part of this competition, encouraging participants to be creative in designing toys by blending the hardware and software components. The Designer Group is also new allowing professional designers to compete and learn more about the industry, to foster an innovation culture and to nurture the creativity of the younger generation.

The Competition was launched on September 25 2014 at FHKI with Mr. Gregory So, Secretary for Commerce and Economic Development, HKSAR Government as the chief guest at the Ceremony. In his address, Mr. So said, “My Toy Design Competition can inspire the toy industry to have more novel ideas. It brings a creative culture to the industry and fosters the development of the Hong Kong toy industry. I believe, with organizing such a meaningful competition, Hong Kong toy industry will become more energetic and competitive.”
Other guests included Dr. Eden Woon, Vice-President for Institutional Advancement at HKUST, Professor Fugee Tsung, Head of IELM, Professor Ravindra Goonetilleke, Associate Head of IELM and Chairman of the competition, Mr. Jimmy Kwok, Deputy Chairman of FHKI, Mr. Eric Yim, Deputy Chairman of FHKI and Chairman of Design Council of Hong Kong, Mr. John Tong, Chairman of HKTC, Dr. K M Cheung, President of TMHK and Mr. Y M Tam, Past President of TMHK. The ceremony showcased the winning products of the 2013-2014 competition with past winners sharing their valuable experience with those present.

Soon after the Launch Ceremony, informational tours were arranged to 10 secondary schools and educational institutions. These were led by Professor Emily Au, Assistant Professor of Engineering Education of IELM and high-level representatives from toy companies. These tours provided a valuable opportunity for students to understand innovative concepts and practices in the toy industry. Students also had the opportunity to learn first-hand from some of the top toy innovators and design consultants.

Registration to participate in the competition ended on November 16 2014 and the competition has successfully attracted nearly 400 teams of full-time Hong Kong students aged between 12 and 30 and over 300 individual local designers. In order to give participants the most up to date and relevant knowledge of the industry, three different workshops were organized on three afternoons in November 2014. Ten professionals with many years of experience in their trade spoke at these workshops. Topics covered included trends in toy industry, toy design and designing toys with Smart Device Apps.

The final judging panel, comprising nearly 40 design professionals and specialists from academia and industry and toy users, evaluated each entry on play value, creativity, aesthetics and marketability and selected 100 finalists (25 individuals/teams from each category) to go to the final round. A workshop on "Toy Safety and Marketing" was held in February 2015 for these finalists to further improve their overall design. Finalists of the student group were encouraged to join the Mentorship Program, where they were assigned to a mentor to develop commercial quality prototypes.

With the aim of nurturing students' creativity and discovering the future designers, My Toy Design Competition 2014-15 is an excellent avenue for local students to show their creativity through innovative toy designs and a potential career in the toy business. The Final Round Presentation was held on April 18 2015. All finalists will be invited to the Award Presentation Ceremony to be held on May 29 2015. Let's keep an eye on the next generation toys! More information on this Competition is at http://mytoydesign.ust.hk.
FORTHCOMING EVENTS

International Conference at HKUST this Summer

Summer will be a gathering season for IE experts. Two international conferences: ICSI/GCSI 2015 and LOGMS 2015 will be hosted by IELM Department, HKUST in Summer 2015.

ICSI/GCSI 2015

The 6th International Conference on Systematic Innovation (ICSI) & the 5th Global Competition on Systematic Innovation (GCSI) will be held on July 15 – 17 2015 at HKUST. Co-organized by Institute of Systematic Innovation, Hong Kong, The Hong Kong Institution of Engineers (HKIE) - Manufacturing and Industrial Division, HKUST IELM Department, International TRIZ Association, and Altshuller Institute of TRIZ Studies and sponsored by The Society of Systematic Innovation (SSI), this conference will bring theoretical and technological advances in Systematic Innovation (SI) to public attention, including systematic strategic, managerial, or technical innovations. Professor Fugee Tsung, Head of IELM Department, would be the co-chair of the conference.

The conference will contain plenary speeches/tutorials by world renowned SI researchers/practitioners and parallel technical sessions. Paper Submission has already closed and you are encouraged to register on or before May 15 to enjoy the early bird rate. More details of the conference can be found at http://www.systematic-innovation.org/icsi/icsi2015.

LOGMS 2015

The 5th International Conference on Logistics and Maritime Systems (LOGMS 2015) will be held on August 27 - 29 2015 at HKUST. With the theme of “Ocean Transport Logistics: Making Global Supply Chain Effective”, this Conference provides an opportunity for local and international experts from both academia and industry to exchange ideas on the latest developments in the field of logistics and maritime systems. Professor Chung-Yee Lee, Chair Professor of IELM and Cheong Ying Chan Professor of Engineering, and Professor Xiangtong Qi, Professor of IELM are the Conference Chair and Program Chair of the conference respectively.

We now welcome for Paper Submission and the submission deadline is May 12. Registration of the Conference will soon open and the registration deadline is July 8. You are welcome to register on or before June 15 to enjoy the early bird discount. For more information, please visit the conference website at http://logms2015.ust.hk.

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Email: ieug@ust.hk
Mail: IELM Newsletter Editor
Department of Industrial Engineering and Logistics Management
The Hong Kong University of Science and Technology
Clear Water Bay, Kowloon, Hong Kong

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