News & Events

New Head of Department

Professor Shen Zuowei has been appointed as Head of Department from 1July 2012 to 30 June 2015.

The Department would like to take this opportunity to express our heartfelt thanks and appreciation to Professor Chong Chi Tat for his dedication and contribution as Head of Department from 2006 to 2012.

Upcoming events organized by the Centre for Quantitative Finance

The following events have taken place/will take place during Dec 2012 and 2013, and are held at NUS Kent Ridge Campus unless otherwise stated. Please visit http://cqf.nus.edu.sg/ for updates.

❖ **17 to 18 December ~ NUS-Stanford Workshop on Risk & Regulation**
This workshop aims to provide a forum for researchers and practitioners to present and discuss on risk management and regulation.

❖ **9 to 11 January ~ First Asian Quantitative Finance Conference (AQFC)**
This conference aims to feature the latest developments in the field and promote research on quantitative finance in Asia. It also hopes to provide an occasion for interaction and cooperation among researchers within Asia and internationally.

❖ **3 June to 12 July ~ Summer Program on Nonlinear Expectation and Risk Measure**
Risk has always been a core issue in Economics and Finance, and the Knightian uncertainty is "a risk whose value itself is not known". The nonlinear expectation theory and the related stochastic calculus provide a convenient mathematical tool to "measure" the uncertainty. This theory has been developed very fast during the past years and has attracted lots of attention from both academia and financial industry.

❖ **19 to 21 June ~ The 2013 IMS-FPS Workshop**
This is the third workshop, co-sponsored by the Institute for Mathematical Sciences (IMS), for the recently formed special interest group within IMS on Finance: Probability and Statistics (FPS). The previous two workshops were held in 2011 and 2012 at Columbia University and the University of California at Berkeley, respectively.

The focus of the workshop is on the use of probabilistic and statistical analysis and models for problems arising in finance. By bringing together both leading experts and junior researchers, the workshop will highlight important contributions made through the use of statistics and probability, and identify emerging issues where statistics and probability promise to play an important role in the future.

Upcoming events jointly organized with the Institute for Mathematical Sciences (IMS), NUS

Faculty members from the department actively organise programmes and workshops jointly with the Institute for Mathematical Sciences, throughout the year. Please visit http://www2.ims.nus.edu.sg/prognsem.php for updates.

❖ *14 to 18 January ~ **Workshop on Topological Aspects of Quantum Field Theories***
❖ *1 to 26 April ~ **Modular Representation Theory of Finite and *p*-adic Groups***
❖ *3 June to 12 July ~ **Nonlinear Expectations, Stochastic Calculus under Knightian Uncertainty, and Related Topics.** Jointly organized with Center for Quantitative Finance, NUS*
❖ *22 July to 9 August ~ **Complex Geometry***

Science Alumni-Student Networking Evening, 19 October 2012

The Faculty of Science in collaboration with NUS Career Centre (NCC) and Office of Alumni Relations (OAR), organised the Science Alumni-Student Networking Evening on Friday 19 October at the Shaw Foundation Alumni House. This event provided a cosy informal setting for our students to interact with alumni from various fields to find out more about their career options after graduation.

Our alumni Mr Teo Wei Hao, from the class of 2010, who is currently with DSO was back to share with the students on his exciting career path.

This event will be held at regular intervals throughout the year. If you are interested to attend this event as an alumni or student, do look out for announcements on science.nus.edu.sg or contact our department's alumni representative Lynette at lynettewong@nus.edu.sg

Visit from Zhejiang University, 12 November 2012

A delegation from the Department of Mathematics, Zhejiang University, comprising 3 faculty members and 10 undergraduates, led by Professor Li Song, visited our department on 12 November.

Goodbye and Stay in touch!

We bid farewell to our faculty members Associate Professor Helmer Aslaksen and Associate Professor Juri Hinz and wish them all the best in their future endeavors.

Stay in touch!

Juri Hinz

Helmer Aslaksen

Awards & Accolades

Faculty of Science Teaching Awards 2011/2012

Faculty Honour Roll	Mr NG Wee Seng
Faculty Teaching Assistant (Full-time) Award	Mr MIAO Weimin
Faculty Teaching Assistant (Part-time) Award *The Teaching Assistant Award serves to recognize Teaching Assistants in the Faculty of Science who have demonstrated excellence in teaching during the preceding academic year.*	Mr HUANG Mengmin
	Mr JI Feng
	Mr LI Wei
	Mr LIU Minghui
	Mr WANG Nan
	Mr ZHOU Feng
Faculty Teaching Excellence Award *The Faculty Teaching Excellence Award (FTEA) is to honour the top 10% teaching staff whose outstanding abilities and efforts in teaching are recognized and endorsed by the Faculty. Award winners are staff members selected based on peer review, qualitative and quantitative student feedback during the preceding year.*	Professor CHAN Heng Huat
	Associate Professor Denny LEUNG
	Professor GOH Say Song
	Dr KU Cheng Yeaw
	Professor LEE Soo Teck
	Associate Professor Victor TAN

Snapshots of some of our teaching award winners, from L to R:

Mr Ng Wee Seng, Prof Goh Say Song, A/Prof Victor Tan, Prof Lee Soo Teck, Prof Chan Heng Huat, A/Prof Denny Leung and Dr Ku Cheng Yeaw

NUS Faculty of Science 2012 Chair Professorships

The **Tan Chin Tuan Centennial Professorships** are amongst the most prestigious professorships of the University established with private funds. They are bestowed upon academics who have demonstrated an exceptional level of achievement in their field of study, as well as made significant contributions to the academic policies and programmes of the University.

Professor Shen Zuowei
Tan Chin Tuan Centennial Professor (for three years from 1 January 2013)

The **Distinguished Professorship** is awarded to a senior faculty member who has demonstrated excellence and international recognition in research and creative activity, together with significant and impactful leadership in raising standards of the University with respect to research or creative activity, teaching and service.

Professor Louis Chen Hsiao Yun
Distinguished Professor (from 1 January 2013)

Professor Shen Weixiao
Distinguished Professor (from 5 June 2012)

***Provost's and Dean's Chairs* Professorships** are for a three-year term with effect from 1 July 2012, and are bestowed in recognition of their excellent academic contributions to the Faculty and international recognition in their fields of research.

Associate Professor Ren Weiqing
Dean's Chair Professor (from 1 July 2012)

Research Profiles

Blind image deconvolution for a shaken photograph
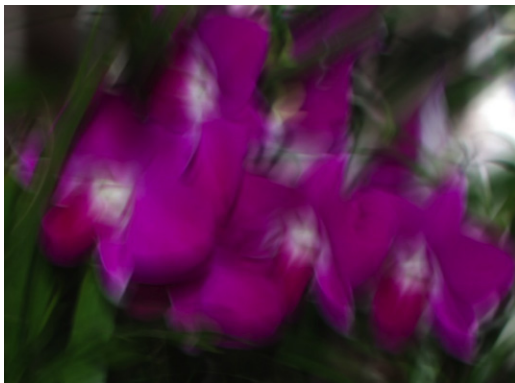*Associate Professor JI Hui*

Despite all the advances in digital photography, motion blurring is still one of the most common causes of blurred pictures caused by camera movement during exposure time. A motion-blurred picture is usually modeled by

$$f = p * g + n,$$

where f denotes the blurry picture, g denotes the sharp one, n denotes image noise, and p denotes the blur kernel determined by camera movement. Then blind image deconvolution is about how to recover both the sharp image g from its blurred observation f without knowing the operator A; a challenging ill-posed non-linear inverse problem.

Our main objective is to develop powerful mathematical concepts and techniques for solving the blind image deconvolution problem, particularly for motion blurring caused by camera shake. Based on wavelet tight frame theory and l_1 norm related minimization models for sparse approximation, we developed several important results and techniques for blind image deconvolution, including (i) a wavelet frame based mathematical functional that accurately measures the sharpness of an image [Ji et al. (2012), ACHA]; (ii) a new non-blind image deconvolution that is robust to the kernel error often seen in blind deconvolution [Ji & Wang (2012), IEEE TIP]; and (iii) a framelet-based algorithm for removing motion blurring caused by camera shake [Cai et al. (2012), IEEE TIP].

The experiments showed that the blind deconvolution algorithms we developed can be used to effectively remove motion blurring from images. Moreover, these results and techniques are quite general such that they are applicable to many other inverse problems arising from imaging science with small modifications.

(b) a motion-blurred photo

(a) The recovered one by our method