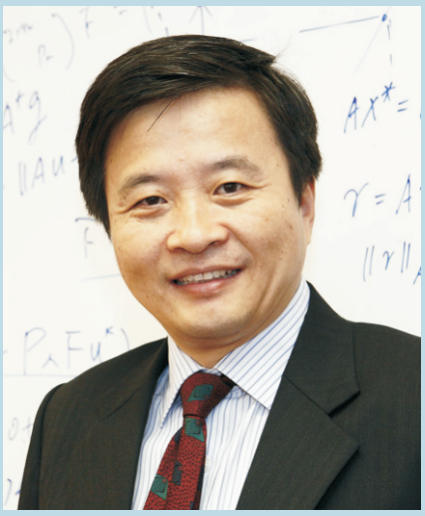
香港浸會大學
HONG KONG BAPTIST UNIVERSITY

Organized by

Centre for Mathematical Imaging and Vision and Joint Research Institute for Applied Mathematics

Distinguished Lecture

Image Restoration: Wavelet Frame Approach, Total Variation and Beyond



Professor Zuowei Shen

Distinguished Professor, National University of Singapore
Fellow, Singapore National Academy of Science

Date: 11 December 2012, Tuesday

Time: 11:30 a.m. - 12:30 p.m. (Preceded by Tea Reception at 11:00 a.m.)

Venue: RRS905, Sir Run Run Shaw Building,
Ho Sin Hang Campus, Hong Kong Baptist University

Abstract

This talk is about the wavelet frame-based image and video restorations. Main ideas of wavelet frame based models and corresponding algorithms for image restorations will be reviewed. Some of applications of wavelet frame based models image analysis and restorations will be shown. Examples of such applications include image and video inpainting, denoising, decomposition, image deblurring and blind deblurring, segmentation, CT image reconstruction and etc. In all of these applications, spline wavelet frames derived from the unitary extension principle are used. This allows us to establish a connection between wavelet frame base method and the total variation based method. In fact, we will show that when spline wavelet frames are used, a special model of a wavelet frame method can be viewed as a discrete approximation at a given resolution to the total variation based method. A convergence analysis in terms of objective functionals and their approximate minimizers as image resolution increases will be discussed.

All are welcome

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