Invited Overview Session

Session:　　TP1-1.3
Time:　　Thursday, December 17, 15:00 - 15:30
Place:　　Room Y301
Chair:　　Kenneth K.M. Lam, The Hong Kong Polytechnic University (Hong Kong)

Learning Approach on Image Interpolation and Super-resolution

Speaker:　　Wan-Chi Siu, The Hong Kong Polytechnic University, Hong Kong

Abstract

Image interpolation and super-resolution are important topics in image and video signal processing. Their applications include ultra-HDTV, image coding, image resizing image manipulation, face recognition and surveillance. The objective is to increase the resolution of an image/video through up-sampling, deblurring, and/or denoising. However the definitions of interpolation and super-resolution are very confusing, even among researchers. In this talk we start to clarify, as fast as possible, the definitions of interpolation and super-resolution. This is followed by a highlight of our most recent learning approach for image interpolation and super-resolution. This is done via random forest and tree structures, which is the fastest approach with the quality comparable to or even better than those obtained from deep-learning methods; hence represents one of the state-of-the-art approaches on image/video interpolation and super-resolution.

Biography

Wan-Chi Siu, PhD DIC, FIEEE, received the PhD degree from Imperial College, London, in 1984, and is Fellow of the IEEE. He joined the Hong Kong Polytechnic University as a Lecturer in 1980 and has been Chair Professor since 1992. He was Head of Department (EIE) and subsequently Dean of Engineering Faculty between 1994 and 2002. Professor Siu is an expert in digital signal processing, fast algorithms, video coding, 3D videos, pattern recognition and visual surveillance. He has published over 490 research papers, and has 8 recent patents. Prof. Siu was an independent non-executive director of a listed video surveillance company in Hong Kong for over 15 years. His works are well received by peers with high citations, and have been ported into hi-tech industrial uses. Prof. Siu was a Vice President of the IEEE Signal Processing (SP) Society, Chairman of Conference Board and a core member of the Board of Governors (2012-2014). He initiated (together with other BoG members) and implemented successfully new conference series for the IEEE SP Society, and set up criteria and typical procedures for quality conference management. Recently, he has also been elected as the President-Elect (2015-2016) of the Asia-Pacific Signal and Information Processing Association (APSIPA). Prof. Siu is/was subject editor, guest Editor and associate editor of a number of IEEE and other journals, such as Electronics Letters, IEEE Transactions on Circuits & Systems for Video Technology, IEEE Transactions on Image Processing, and IEEE Transactions on Circuits and Systems. He is a very popular lecturing staff member within the University, while outside the University he has been a keynote speaker of over 12 international/national conferences in the recent

10 years. He received many awards, such as Distinguished Presenter Award, the Best Teacher Award, the Best Paper Award and IEEE Third Millennium Medal. He took up the leading role in organizing over 20 international conferences in Hong Kong, mainland China and overseas in these 30 years with high commendation, including say for example the prestigious conferences MMSP'2008 in Australia as a Co-General Chair, ICIP'2010 as General Chair, ICASSP'2003 as General Chair and ISCAS'1997 as TPC Chair, where the last three are IEEE Society-sponsored flagship international conferences. In 1992/3, he chaired the First Engineering/IT Panel of the Research Assessment Exercise (RAE) and initiated to set up a set of objective indicators to assess the basic research quality of academia, which gives substantial impact to the research culture in Hong Kong for the recent 22 years.