Recent Developments in Visual Quality Assessment and Perceptual Image/Video Coding

SPEAKER: Prof C.C. Jay KUO

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TIME: 4:00 pm - 5:00 pm
(Refreshments will be served at 3:45 pm)

VENUE: CS Seminar Room, Y6405, 6th Floor
Yellow Zone, Academic 1
City University of Hong Kong
83 Tat Chee Avenue
Kowloon Tong

ABSTRACT

A new methodology for objective image quality assessment (IQA) with the multi-method fusion (MMF) principle has been proposed recently. The idea is motivated by the observation that there is no single method that can give the best performance in all situations and their fusion may lead to better performance. In this talk, I will present two different fusion approaches. The first one is to get a nonlinear combination of scores from multiple methods with suitable weights obtained by a training process. The second one is to adopt different IQA methods in different blocks depending on the block content and the distortion type so that the fusion is conducted in the spatial domain. It is called the block-based MMF or BMMF in short. It is supported by numerous experimental results that the performance of these fusion-based IQA methods is significantly better than that of state-of-the-art single IQA methods. Challenges and future extensions will be concluded at the end of this talk.

BIOGRAPHY

Prof C.-C. Jay Kuo received the Ph.D. degree from the Massachusetts Institute of Technology in 1987. He is now with the University of Southern California (USC) as Professor of EE, CS and Mathematics. His research interests are in the areas of digital media processing, multimedia compression, communication and networking technologies, and embedded multimedia system design. Prof Kuo is a Fellow of IEEE and SPIE. Prof Kuo has guided about 115 students to their Ph.D. degrees and supervised 20 postdoctoral research fellows. Currently, his research group at USC consists of around 30 Ph.D. students (see website http://viola.usc.edu), which is one of the largest academic research groups in multimedia technologies. He is a co-author of about 200 journal papers, 850 conference papers and 10 books. Prof Kuo is a Fellow of AAAS, IEEE and SPIE. He is Editor-in-Chief for the IEEE Transactions on Information Forensics and Security and Editor Emeritus for the Journal of Visual Communication and Image Representation (an Elsevier journal). He was on the Editorial Board of the IEEE Signal Processing Magazine in 2003-2004, IEEE Transactions on Speech and Audio Processing in 2001-2003, IEEE Transactions on Image Processing in 1995-98 and IEEE Transactions on Circuits and Systems for Video Technology in 1995-1997. Prof Kuo received the National Science Foundation Young Investigator Award (NYI) and Presidential Faculty Fellow (PFF) Award in 1992 and 1993, respectively. He received the best paper awards from the Multimedia Communication Technical Committee of the IEEE Communication Society in 2005, from the IEEE Vehicular Technology Fall Conference (VTC-Fall) in 2006, and from IEEE Conference on Intelligent Information Hiding and Multimedia Signal Processing (IIH-MSP) in 2006. He was an IEEE Signal Processing Society Distinguished Lecturer in 2006, a recipient of the Okawa Foundation Research Award in 2007, the recipient of the Electronic Imaging Scientist of the Year Award in 2010, and the holder of the Fulbright-Nokia Distinguished Chair in Information and Communications Technologies from 2010-2011.

All are welcome!

In case of questions, please contact Prof KWONG Tak Wu Sam at Tel: 3442 2907, E-mail: cssamk@cityu.edu.hk, or visit the CS Departmental Seminar Web at http://www.cs.cityu.edu.hk/.