

Title: Consistent Disparity Estimation for 3D Video Processing

Speaker:

Stanley Chan
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Date: Wednesday, 23 March 2011

Time: 11:00 am

Venue: Room 603, Chow Yei Ching Building

Abstract:

The resurgence of interest in 3D films, both from Hollywood and moviegoers, has launched a new era in visual media consumption and research. The public awaits new gadgets that will free them from the two-dimensional confines of existing imaging technology, and the corporations are all eyeing the limitless market for the next hot product. Every major electronics manufacturer has released, or will soon be releasing, a 3D video or gaming system. Meanwhile, researchers are busy sorting out issues such as compression of 3D imagery, transmission over a limited bandwidth channel, and display on various devices with competing standards. There are many open problems: What are the technical issues associated with processing 3D videos? What modifications are needed to accommodate the transmission of 3D videos? Also, given a 3D video, what applications can we find beyond entertainment?

Among all the 3D video processing problems, determining a sequence of accurate and consistent disparity maps from a pair of stereo videos is so far the most fundamental challenge. A good disparity map is vital for a wide range of applications including foreground extraction, object detection, stereo to multi-view conversion and multi-view video coding. However, most of the existing disparity estimation algorithms are based on a pair of images. While these methods are giving excellent results on some specific datasets, the performance on general data, especially videos, can be unsatisfactory. This talk addresses the issue of spatio-temporal consistency in video disparity estimation. A new space-time total variation regularized convex minimization method will be discussed.

For more information about the project, please visit

<http://videoprocessing.ucsd.edu/~stanleychan/deconvtv>

Biography of the speaker:

Stanley Chan is currently a Ph.D. candidate in the Video Processing Laboratory, University of California, San Diego. He received M.A. in applied mathematics from UCSD in 2009, and B.Eng. in electrical engineering (with first class honor) from the University of Hong Kong in 2007. His research interests include large-scale convex optimization algorithms, image and video restoration, spatially variant distortion, and recently the general four-dimensional space-time signal processing. Mr. Chan is a Croucher Foundation scholar 2008-2010 and UC San Diego Summer Graduate Teaching fellow 2011. He is also a recipient of Sumida Yawata Foundation Scholarship 2007, Hongkong Electric Co. Ltd. Scholarship 2006-2007, CLP Scholarship for Electrical Engineers 2004, and Electric Core and Manufacturing Ltd. Scholarship 2004.

Organizer: Dr. E.Y.M. Lam