

# NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

## C S S E M I N A R

**Title:**           **Enabling real-time tracking in embedded video sensor networks using compressive sensing**

**Speaker:**       Associate Professor Chun Tung Chou  
School of Computer Science and Engineering  
University of New South Wales

**Date/Time:**   7 July 2015, Tuesday, 10:00 AM to 11:30 AM

**Venue:**           SR8, COM1-02-08

**Chaired by:**   Dr Chan Mun Choon, Associate Professor, School of Computing  
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### Abstract:

An embedded video sensor network consists of distributed video sensors interconnected by wireless links. Due to the high data rate of video sensors, it is not feasible to stream the video data to a centralised location (sink) for processing. This means that a lot of the video processing must be performed on the embedded device. However, this presents a challenge because of limited computation power on embedded platforms. For example, conventional background subtraction methods can only process a few video frames per second on embedded platforms. In this talk, we discuss how compressive sensing can be used to address this computational bottleneck. We present a compressive sensing based background subtraction method, whose accuracy is similar to conventional methods, but is five times faster. We show that this faster background subtraction method enables real-time tracking in an embedded camera network. This is joint work with my former PhD student Yiran Shen as well as a number of other researchers.

### Biodata:

Chun Tung Chou is an Associate Professor at the School of Computer Science and Engineering, University of New South Wales, Sydney, Australia. He received his BA in Engineering Science from University of Oxford and his Ph.D. in Control Engineering from the University of Cambridge. He has published over 150 articles on various topics, including, systems and control, wireless networks, and communications. His current research interests are molecular communication, nano-scale communication, compressive sensing and embedded networks.

URL:<http://www.cse.unsw.edu.au/~ctchou/index.html>