

Conference Guide

Dates: Oct 30 - Nov 2, 2012

Location: Hong Kong

Venue: Graduate House, University of Hong Kong

Map of the University and its vicinity:



The University of Hong Kong is located in an area called “Pok Fu Lam” on the Hong Kong Island. The easiest way to get to the University is by taxi; you can inform the taxi driver to go to the University of Hong Kong, then “Graduate House” at “3 University Drive”. Shown above is the driving direction from the university’s West Gate entrance. If you stay at the conference hotel (Traders Hotel), we will have student helpers waiting for you to bring you up to the conference venue. You can also refer to <http://www.maps.hku.hk> and <http://www.gradhse.hku.hk/> for more details.

Reception: Conference reception will be held on October 30 (Tuesday), 5:30pm onwards at the “Main Building” (marked blue on the map) of the University of Hong Kong. This Edwardian Baroque-style building is the oldest architectural structure on campus, completed a hundred years ago. In 1984, the Hong Kong Government declared it a “historic monument.”

Banquet: Conference banquet will be held on November 1 (Thursday) at the Senior Common Room after the tour. The “SCR” is located on the 14th floor of the “K.K. Leung building” (red on the map). It offers a spectacular view of Victoria Harbour, Kowloon, and the hills beyond.

Social Program: The tour will take you to The Peak, arguably Hong Kong’s most popular attraction. It has the best of Hong Kong – from food to shopping, from magnificent views to a historic ride on one of the world’s oldest funicular railways, the Peak has them all. After the coach brings us to the Peak, you can choose to have a relaxing afternoon tea enjoying the mild autumn breeze, or go on a nature walk greeted by tropical plants and birdlife.

Sponsors:

- Institute of Electrical and Electronics Engineers (IEEE) www.ieee.org
- Association for Computing Machinery (ACM) www.acm.org
- Department of Electrical and Electronic Engineering, University of Hong Kong www.eee.hku.hk
- NICTA www.nicta.com.au
- K.C. Wong Education Foundation
- Velosti / CPO Technologies Corporation www.cpotech.com
- Springer www.springer.com

Conference Schedule

	Oct-30 Tuesday	Oct-31 Wednesday	Nov-01 Thursday	Nov-02 Friday
9:00am	Registration	Keynote #1 (Ma)	Keynote #2 (Chung)	Keynote #3 (Nahrstedt)
10:00am	Tutorial #1 (Qureshi)			
11:00am	Lunch	Session Wed.Oral	Session Thu.Oral	Session Fri.Oral.am
12:00pm		Lunch	Lunch	Lunch
1:00pm	Tutorial #2 (Micheloni)			
2:00pm	Coffee	Session Wed.Poster+Demo	Tour and banquet	Coffee
3:00pm	Tutorial #3 (Velipasalar)	Coffee		Session Fri.Oral.pm
4:00pm	Reception	Session Wed.PhD		
5:00pm		Reception	Tour and banquet	
6:00pm				
7:00pm				
8:00pm	Reception	Tour and banquet		

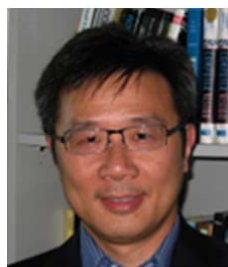
Keynote Speakers



Yi Ma, *Microsoft Research Asia*

The Pursuit of Low-dimensional Structures in High-dimensional Data

Abstract: In this talk, we will discuss a new class of models and techniques that can effectively model and extract rich low-dimensional structures in high-dimensional data such as images and videos, despite nonlinear transformation, gross corruption, or severely compressed measurements. This work leverages recent advancements in convex optimization for recovering low-rank or sparse signals that provide both strong theoretical guarantees and efficient and scalable algorithms for solving such high-dimensional combinatorial problems. These results and tools actually generalize to a large family of low-complexity structures whose associated regularizers are decomposable. We illustrate how these new mathematical models and tools could bring disruptive changes to solutions to many challenging tasks in computer vision, image processing, and pattern recognition. We will also illustrate some emerging applications of these tools to other data types such as web documents, image tags, microarray data, audio/music analysis, and graphical models.



Ronald Chung, *Chinese University of Hong Kong*

The latest development of Structured light based Sensing

Abstract: Structured light based sensing (SLS) has been an important 3D metrology means, and received extensive attention in the last decade especially in the past 5 years. The related techniques have been widely used in industrial inspection and design, reverse engineering, surgery, human-computer-interaction, biometrics, advertisement, and entertainment etc. In this sharing, we will first have a brief review of the history of the structured light based technology. Subsequently, some representative structured light algorithms will be introduced and analyzed with a comprehensive classification. We will then highlight a few recent research efforts and commercialized systems that emerged in the last three years. At the end, the existing problems and potential research directions and trends in the domain will be discussed.



Klara Nahrstedt, *University of Illinois at Urbana-Champaign*

View-Based TeleCast for Distributed Multi-Camera Systems

Abstract: The decreasing cost of multi-camera systems enables their efficient deployment in sports, health-care and entertainment, as well as the generation of real-time, multi-stream, multi-view, collaborative, interactive and shared content. The multi-view content will be of interest to many viewers that will demand to (a) watch an activity from different viewpoints, and (b) select/change views of an activity at run time. To achieve these demands, we present challenges and potential solutions for view-based 4D TeleCast that enables multi-view video distribution for distributed multi-camera systems. We will discuss and address challenges such as the *support of concurrent viewers with multi-view content delivery*, preserving the multi-stream and multi-view dependencies at the viewer sides, and allowing dynamic viewer behavior arrivals or departures. Challenges and solutions to the multi-view overlay construction problem, as well as to the effective resource utilization problems to preserve multi-view dependencies will be presented. Our simulation and testbed results very strongly support proposed solutions to the outlined problems and yield a roadmap how we move towards efficient multi-view video content dissemination and delivery.

ICDSC 2012 Program

Last update: 12-Oct-2012

October 30 (Tuesday)

**** Registration ****

Tutorial #1

Tuesday 9:30 - 11:30

Faisal Quereshi

Virtual Vision

**** Lunch ****

Tutorial #2

Tuesday 13:00 - 15:00

Christian Micheloni

Video analysis in Pan-Tilt-Zoom camera networks

**** Coffee break ****

Tutorial #3

Tuesday 15:30 - 17:30

Senem Velipasalar

Smart Cameras Getting Smarter

**** Reception ****

October 31 (Wednesday)

Keynote #1: *(chair: Edmund Lam)*

Wednesday 9:00 - 10:15

Yi Ma

The Pursuit of Low-dimensional Structures in High-dimensional Data

**** Coffee break ****

Session Wed.Oral *(chair: Andrea Prati)*

Smart Cameras and Embedded Computer Vision

Wednesday 11:00 - 12:40

- 11:00 Ahmed Nabil Belbachir and Manfred Mayerhofer
BiCa360:High-speed Rotating Line Sensor for Real-time 360° Panoramic Vision
- 11:20 Michele Fornaciari and Andrea Prati
Very Fast Ellipse Detection for Embedded Vision Applications
- 11:40 Mauricio Casares, Koray Ozcan, Akhan Almagambetov and Senem Velipasalar
Automatic Fall Detection by a Wearable Embedded Smart Camera
- 12:00 Franck Vandewiele, Cina Motamed and Tarek Yahiaoui
Visibility Management for Object Tracking in the Context of a Fisheye Camera Network
- 12:20 Chih-Wei Chen, Tommi Määttä, Kevin Bing-Yung Wong and Hamid Aghajan
A Framework for Providing Ergonomic Feedback Using Smart Cameras

**** Lunch ****

Session Wed.Poster+Demo (chair: Andrea Prati)

Wednesday 14:30 - 16:00

Krishna Reddy Konda and Nicola Conci
Camera positioning for global and local coverage optimization

Qiang Wang, Jing Wu, Chengnian Long and Bo Li
P-FAD: Real-time Face Detection Scheme on Embedded Smart Cameras

Niki Martinel, Christian Micheloni and Claudio Piciarelli
Distributed Signature Fusion for Person Re-Identification

Franck Ulrich Yonga Yonga, Christophe Bobda and Ali Akbar Zarazadeh
Improving Video Communication in Distributed Smart Camera Systems Through ROI-Based Video Analysis and Compression

Kuan-Hui Lee, Jenq-Neng Hwang, Jang-Hee Yoo and Kyoung-Ho Choi
Effective Car Video Retrieval Using Feature Matching in a Mobile Video Cloud

Akhan Almagambetov, Mauricio Casares and Senem Velipasalar
Autonomous Tracking of Vehicle Taillights from a Mobile Platform using an Embedded Smart Camera

Csaba Beleznai, Nabil Belbachir and Peter Roth
Density-based rare event detection from streams of neuromorphic sensor data

Michael Rauter, Dan Shao and Csaba Beleznai

Demo: Real-time contour-based pedestrian detection

Simen Sægrov, Alexander Eichhorn, Jørgen Emerslund, Håkon Stensland, Carsten Griwodz, Dag Johansen and Pål Halvorsen

Demo: Bagadus: An Integrated System for Soccer Analysis

**** Coffee break ****

Session Wed.PhD (chair: Abbas Bigdeli)

Wednesday 16:30 - 17:50

Melanie Schranz and Bernhard Rinner

PhD Forum: Consensus in Visual Sensor Networks Consisting of Calibrated and Uncalibrated Cameras

Prabhu Natarajan

PhD Forum: Decision-Theoretic Coordination and Control for Active Multi-Camera Surveillance

Nyan Bo Bo, Sebastian Grünwedel, Peter Van Hese, Jorge Oswaldo Niño-Castañeda, Dirk Van Haerenborgh, Dimitri Van Cauwelaert, Peter Veelaert and Wilfried Philips

PhD Forum: Illumination-robust Foreground Detection for Multi-camera Occupancy Mapping

Junzhi Guan, Peter Van Hese, Jorge Oswaldo Niño-Castañeda, Sebastian Grünwedel, Dirk Van Haerenborgh, Dimitri Van Cauwelaert, Peter Veelaert and Wilfried Philips

PhD Forum: Correlation Coefficient based Template Matching for Indoor People Tracking

November 1 (Thursday)

Keynote #2 (chair: Edmund Lam)

Thursday 9:00 - 10:15

Ronald Chung

The latest development of Structured light based Sensing

**** Coffee break ****

Session Thu.Oral (Senem Velipasalar / Faisal Qureshi)

Distributed Smart Cameras for Emerging Applications

Thursday 11:00 - 12:40

11:00 Jiuqing Wan and Fan Zhang

Multi-camera People Localization via Cascaded Optimization on Higher-order MRFs

- 11:20 Sebastian Gruenwedel, Xingzhe Xie, Chih-Wei Chen, Hamid Aghajan and Wilfried Philips
A Best View Selection in Meetings through Attention Analysis Using a Multi-camera Network
- 11:40 Yixiao Yun, Irene Yu-Hua Gu and Hamid Aghajan
Maximum-Likelihood Object Tracking from Multi-View Video by Combining Homography and Epipolar Constraints
- 12:00 Chun-Te Chu, Jenq-Neng Hwang, Jen-Yu Yu and Kual-Zheng Lee
Tracking Across Nonoverlapping Cameras Based On The Unsupervised Learning Of Camera Link Models
- 12:20 Le An, Mehran Kafai and Bir Bhanu
Face Recognition in Multi-Camera Surveillance Videos using Dynamic Bayesian Network

**** Lunch ****

Session Thu.Oral.Special (chair: Vincent Tam)

Uses of Smart Cameras/Mobile Devices for Human Well-Being

Thursday 14:00 - 16:00

- 14:00 Feng Tian and Zu-ren Feng
Coordinating the Navigation of Multiple Wheelchairs in Indoor Environment with Wireless Sensor Networks
- 14:20 Xiang Meng, Chung-Ming Cheung, Ka-Lok Ho, King-Shan Lui, Edmund Y. Lam, and Vincent Tam
Building smart cameras on mobile tablets for hand gesture recognition
- 14:40 Bingshu Yang, Jinshi Cui, Hongbin Zha, Hamid Aghajan and Tian Lu
Visual Context Based Infant Activity Analysis
- 15:00 Andrew Kwok-Fai Lui, Ka-Fai Wong, Sin-Chun Ng, Ka-Hing Law
Development of a Mental Stress Relaxation Tool based on Guided Imagery and Microsoft Kinect
- 15:20 Wilton Fok and Jacqueline Lam
Real-time interactive learning through smart mobile devices
- 15:40 Hui Zhao, Qinghua Zheng and Weizhan Zhang
A Mobile Learning System for Supporting Heterogeneous Clients based on P2P Live Video Streaming

**** Tour and Banquet ****

November 2 (Friday)

Keynote #3 (chair: King-Shan Lui)

Friday 9:00 - 10:15

Klara Nahrstedt

View-Based TeleCast for Distributed Multi-Camera Systems

**** Coffee break ****

Session Fri.Oral.am (chair: Jie Yang)

Visual Sensor Networks

Friday 11:00 - 12:40

11:00 Bernhard Dieber, Lukas Esterle and Bernhard Rinner

Distributed Resource-aware Task Assignment for Complex Monitoring Scenarios in Visual Sensor Networks

11:20 Lukas Esterle, Peter R. Lewis, Bernhard Rinner and Xin Yao

Improved Adaptivity and Robustness in Decentralised Multi-Camera Networks

11:40 Rahul Raman, Pankaj K. Sa and Bansidhar Majhi

Occlusion prediction algorithms for multi-camera network

12:00 Chong Ding, Akshay A. Morye, Jay A. Farrell and Amit K. Roy-Chowdhury

Opportunistic Sensing in a Distributed PTZ Camera Network

12:20 Prabhu Natarajan, Trong Nghia Hoang, Kian Hsiang Low and Mohan Kankanhalli

Active Multi-Camera Surveillance of Targets in Uncertain, Partially Observable Environments

**** Lunch ****

Session Fri.Poster+Demo (chair: Faisal Qureshi)

Friday 14:00 - 15:30

Keren Fu, Chen Gong, Yu Qiao, Jie Yang and Irene Gu

One-Class SVM Assisted Accurate Tracking

~~Alex Susu~~

~~*Using Python for Cross-platform Video Surveillance Mobile Application Development*~~

Fang Zhu, Chen Zhao and Jinmei Cheng

ECLC: edge character and latency connection enhanced inter-frame difference algorithm for real-time outdoor surveillance

Maarten Slembrouck, Michaël Heyvaert, Dimitri Van Cauwelaert, David Van Hamme, Peter Veelaert and Wilfried Philips

Time complexity of traditional vision algorithms on a block-based image processor (BLIP)

Jose Luis Alarcon Herrera and Xiang Chen

Real-Time Configuration of PTZ Camera Networks

Qiao Huang, Jie Yang and Yu Qiao

Person re-identification across multi-camera system based on local descriptors

Fatemeh Rezaei and Babak Hossein Khalaj

Distributed Human Tracking in SmartCamera Networks by Adaptive Particle Filtering and Data Fusion

Carsten Grenz, Uwe Jaenen and Joerg Haehner

Demo: CamInSens - A Distributed Smart Camera System for In-Situ Threat Detection

Hui Zhao, Qinghua Zheng and Weizhan Zhang

Demo: SkyClass: a Large-scale Mobile Learning System for Heterogeneous Clients

Quentin De Neyer, Li Sun, Christophe Chaudy, Christophe Parisot and Christophe De Vleeschouwer

Demo: Point Matching for PTZ Camera Auto-tracking

**** Coffee break ****

Session Fri.Oral.pm (chair: Abbas Bigdeli)

Distributed Computer Vision

Friday 16:00 - 17:40

16:00 Michael Bredereck, Xiaoyan Jiang, Marco Körner and Joachim Denzler

Data Association for Multi-Object Tracking-by-Detection in Multi-Camera Networks

16:20 Xingzhe Xie, Sebastian Gruenwedel, Vedran Jelaca, Jorge Oswaldo Nino Castaneda, Dirk Van Haerenborgh, Dimitri Van Cauwelaert, Peter Van Hese, Peter Veelaert, Wilfried Philips and Hamid Aghajan

Learning about Objects in the Meeting Rooms from People Trajectories

16:40 Jiajia Luo and Hairong Qi

Motion Local Ternary Pattern for Distributed Multi-View Human Action Recognition

17:00 Mohamed Helala, Luis A. Zarrabeitia and Faisal Z. Qureshi

Mosaic of near ground UAV videos under parallax effects

17:20 Zhixing Jin and Bir Bhanu

Integrating Crowd Simulation for Pedestrian Tracking in a Multi-Camera System

Call for Papers

IEEE Journal on Emerging and Selected Topics in Circuits and Systems

Special Issue on Computational and Smart Cameras

Scope and Purpose

The IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS) seeks original contributions for an issue on computational and smart cameras, scheduled to appear in June 2013.

Technological developments in imaging, computation, and embedded systems have created an opportunity for multi-disciplinary approaches to techniques and applications related to cameras. They are no longer merely devices to record a particular scene in a 2D picture; instead, with novel designs of the imaging systems, together with powerful computation and interconnections among multiple cameras, many new applications in photography, vision, and sensing are now possible.

Topics of Interest

Topics of interest for this issue include, but are not limited to:

- Circuits and systems for camera designs and architectures
- Image sensing and processing for smart cameras
- Computational cameras
- Computational illumination, optics, and electronic design
- High-performance imaging and in-camera image processing
- Embedded vision programming and parallel systems
- Wireless and mobile camera networks
- Camera arrays, and cameras based on cellular networks
- Distributed capture and vision processing algorithms
- 3D scene capture, storage, and analysis
- Multi-view vision algorithms and applications
- Image processing with computational and energy constraints

Guest Editors

Edmund Lam, University of Hong Kong : elam@eee.hku.hk

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Andrea Prati, Università luav di Venezia : aprati@iuav.it

Submission Procedure and Publication Timeline

Authors are encouraged to submit high-quality contributions following the instructions provided on the JETCAS website:

<http://jetcas.polito.it>

- | | |
|-------------------------------------|-------------------|
| • Manuscript submissions due | December 1, 2012 |
| • First round of reviews completed | February 15, 2013 |
| • Revised manuscripts due | March 1, 2013 |
| • Second round of reviews completed | March 29, 2013 |
| • Final manuscripts due | April 15, 2013 |
| • JETCAS issue | June 2013 |