### Programme at a glance

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Welcome!

We are most delighted to welcome you to join us at the third ACM/IEEE International Conference on Distributed Smart Cameras (ICDSC 2009).

After the successful meetings in Vienna (2007) and Stanford (2008), the ICDSC 2009 is taking place in Como, Italy on August 30th - September, 2nd 2009. The conference offers insight into the potentials and challenges of distributed vision networks and presentation of design methodologies employed by leading research groups working in these areas are also the objectives of the conference. We are pleased to announce that ICDSC 2009 will feature, in addition to a PhD forum, a Challenge and a Panel, the following tutorials and keynote talks:

**Tutorials**
- Multiple cameras in smart rooms: analysis strategies
- Multimodal human-centered vision systems
- Multi-camera and distributed video surveillance

**Keynotes**
- Urban Surveillance Networks: a challenge for video analytics technologies
- Multi-sensor coordination and control
- PANOPTIC: An omnidirectional multi-aperture visual sensor

The ICDSC 2009 technical programme also includes the following sessions:

**Special sessions**
- Activity Monitoring by Multi-Camera Systems
- Embedded Techniques for Smart Cameras
- Advances in Coding for Distributed Camera Networks
- Collaborative Signal Processing for Distributed Systems

**Regular Sessions**
- Architectures and Protocols for Camera Networks
- Smart Environments and 3D Scene Analysis
- Surveillance and Tracking
- Embedded Smart Cameras
- Camera Networks
- Distributed and Collaborative Signal Processing
- Camera Network Topology

Many thanks go to the organizing committee members and the technical program committee whose valuable support made this exciting programme possible. We hope you will find this technical programme an enriching experience. We also invite you to attend the Welcome Reception that will take place at Villa Olmo and the Banquet that will feature a boat trip on Lake Como followed by a dinner with regional specialities at "Il Vapore" in Torno. We look forward to the opportunity of meeting you also at these social events and we hope you will enjoy them.

We would like to take this opportunity to acknowledge the sponsorship of ACM and IEEE. We would also like to recognize and acknowledge the generous contributions to this year's conference by our sponsors Philips, IBBT, Project Automation, KeeSquare and LabTechnology. The support of the administrative and technical staff from Politecnico di Milano and Queen Mary University of London is hereby acknowledged.

We hope you will have four fruitful and inspiring days in Como and look forward to hearing about the new results and collaborations that follow.

*Andrea Cavallaro*
*Stefano Tubaro*
*ICDSC 2009 General Chairs*
### Detailed Programme

**Sunday, August 30, 2009**

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<th>Time</th>
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<tr>
<td>08:00 - 09:00</td>
<td>Registration, PhD forum posters up on boards</td>
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<tr>
<td>09:00 - 11:00</td>
<td><strong>Tutorial</strong></td>
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<td><strong>Multiple cameras in smart rooms: analysis strategies</strong></td>
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<td>Prof. Josep R. Casas, <em>Technical University of Catalonia</em></td>
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<td><strong>Abstract:</strong> Smart rooms are a paradigm of ambient intelligence and pervasive computing, providing an interesting combination of analysis from sensors, response through actuators and modeling of the situation for the development of consistent strategies in a particular &quot;service&quot; provided by the room. Technically speaking, a smart room is just an advanced computer interface, equipped with sensors and actuators. The tutorial starts from these concepts in order to justify the need of multiple cameras in a smart room for the unobtrusive analysis of the scene. After a brief discussion on the camera setup, framing and spatial coverage, the tutorial focuses on several visual analysis strategies and algorithms which may provide valid scene descriptions for the computer interface to work properly. A review on different fusion approaches for visual analysis in the context of a smart room introduces the description of the low level visual analysis tasks of person location and tracking, person identification, articulated body tracking and head-pose estimation. Higher level analysis requirements allow providing an insight into the more semantically meaningful analysis tasks of detection of focus of attention, gesture recognition or activity and event classification. Finally, the concept of smart room &quot;service&quot; is revisited for the closing of the tutorial, so that the set of visual analysis strategies described before are shown as integrated in a service environment.</td>
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<td>11:00 - 11:20</td>
<td><strong>Break</strong></td>
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<td>11:20 – 12:20</td>
<td><strong>Tutorial</strong> <em>(Multimodal human-centered vision systems Part I)</em></td>
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<td><strong>Multimodal human-centered vision systems</strong></td>
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<td>Prof. Nicu Sebe(^1) and Prof. Hamid Aghajan(^2), (^1)University of Trento, (^2)Stanford University</td>
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<td><strong>Abstract:</strong> In this tutorial, we take a holistic approach to the human-centered visionsystems problem. We aim to identify the opportunities in addressing novel applications, and the potentials for fruitful future research directions in this area. In particular, we introduce key concepts, discuss technical approaches and open issues in three areas: (1) multimodal interaction: visual (body, gaze, gesture) and audio (emotion) analysis; (2) smart environments; (3) distributed and collaborative fusion of visual information. The tutorial sets forth application design examples in which a user-centric methodology is adopted across the different stages from feature and pose estimation in early vision to user behavior modeling in high-level reasoning. The role of query for user’s feedback will be discussed with examples in smart home applications. The course will motivate the use of multiple sensors in the environment as well as contextual information for effective data and decision fusion, and will focus on the user interaction techniques formulated from the perspective of key human factors such as adaptation to user preferences and behavior models. Several applications based on the notion of user-centric design will be introduced and discussed.</td>
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<td><strong>Lunch</strong></td>
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<td><strong>Tutorial</strong> <em>(Multimodal human-centered vision systems - Part II)</em></td>
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**ICDSC 2009**

IEEE

Association for Computing Machinery
Multi-camera and distributed video surveillance

Prof. Rita Cucchiara, University of Modena and Reggio Emilia

Abstract: This tutorial addresses algorithms and techniques of computer vision and pattern recognition for multi-camera and distributed video surveillance. When multiple (heterogeneous) cameras are connected in a forest of sensors, standard techniques used in single- fixed camera surveillance are not sufficient anymore. Different approaches should be taken into account depending on the camera layout (e.g., with overlapped or not overlapped field of view), the camera motion (e.g., fixed or PTZ cameras), the network capability and the availability of computational resource in the smart camera for early processing. The tutorial aims at presenting a short survey of the research activities in this area, mainly focusing on people surveillance; models and algorithms for object segmentation and tracking in multi-camera environments will be presented in details with several demos from ImageLab of Modena. Techniques for people detection in cluttered environment will be presented. Finally, recent advances in trajectory analysis for people behaviour classification in distributed cameras systems will be discussed. Benchmark videos with ground truth and tutorial material will be available for the tutorial attendees.

16:30 - 16:50  Break

16:50 - 18:30  PhD Forum

Probabilistic Surveillance with Multiple Active Cameras
Eric Sommerlade and Ian Reid.
University of Oxford

Calibrating and Using the Global Network of Outdoor Webcams
Nathan Jacobs and Robert Pless.
Washington University in St. Louis

Hierarchical Feature Scheme for Object Recognition in Visual Sensor Networks
Vildana Sulic, Janez Pers, Matej Kristan and Stanislav Kovacic.
University of Ljubljana

Competing Agents for Distributed Object-Tracking in Smart Camera Networks
Uwe Jaenen, Joerg Haehner and Christian Mueller-Schloer.
Leibniz Universität Hannover

Flexible Clustering in Smart Camera Networks
Bernhard Dieber¹ and Bernhard Rinner².
¹Austrian Institute of Technology, ²Klagenfurt University

Multiple Camera Management Using Wide Base-line Matching
Ruan Lakemond, Clinton Fookes and Sridha Sridharan.
Queensland University of Technology

Keypoints-based Background Model and Foreground Pedestrians Extraction for Future Smart Cameras
Omar Hamdoun and Fabien Moutarde.
Mines ParisTech

Non Supervised Learning of Human Activities in Visual Sensor Networks
Rodrigo Cilla, Miguel A. Patricio, Antonio Berlanga and Jose M. Molina.
Universidad Carlos III de Madrid

A Distributed Architecture for Object Tracking Across Intelligent Vision Sensor Network With Constrained Resources
Joshua Goshorn.
University of California, San Diego

Dempster-Shafer Based Camera Contribution Evaluation for Task Assignment in Vision Networks
Marleen Morbee¹, Linda Tessens¹, Wilfried Philips¹ and Hamid Aghajan².
¹TELIN - IPI - IBBT, Ghent University, ²Stanford University
Monday, August 31, 2009

08:00 - 09:00  Registration, posters up on boards

09:00 - 09:10  Welcome

09:10 - 10:00  Keynote

**Urban Surveillance Networks: a challenge for video analytics technologies**

Dr. Arun Hampapur, *IBM*

**Abstract:** The most visible and pervasive cameras networks today are evolving in metropolitan cities. In these networks cameras cover 100’s of square miles of densely populated urban areas. These cameras networks have evolved from a heterogeneous technology base, starting from analog camera and encoders to IP cameras and fiber optic networks. While the challenges of building large scale networked surveillance system are enormous, the challenge of making sense out of the 1000’s of video feeds that are being captured and stored. The challenge using automatic video analysis and pattern recognition technologies in surveillance video is made many orders of magnitude more complex by the high activity levels that occur within the field of view of urban surveillance cameras. In this talk, we will describe the real world implementation of one of the most advanced video analytics system applied to urban surveillance. The talk will begin by providing the background of a complex urban surveillance network and discuss the various use cases for analytics in surveillance networks. The second part of the talk highlights the various technical challenges involved in video analytics in urban environments. The talk will conclude with demonstrations of customer implementations video analytics technology and discuss key areas of research needed in computer vision, video indexing and data management to take urban surveillance networks to the next level.

10:00 - 10:20  Break

10:20 - 12:00  Oral Session Mon AM: *Smart Environments and 3D Scene Analysis*

**chair:** B. Bhanu

**Detecting Interleaved Sequences and Groups in Camera Streams for Human Behavior Sensing**

Athanasios Bamis, Jia Fang and Andreas Savvides.

*Yale University*

**Multiple-View Object Recognition in Band-Limited Distributed Camera Networks**

Allen Yang, Subhransu Maji, C. Mario Christoudias, Trevor Darrell, Jitendra Malik and Shankar Sastry.

*University of California, Berkeley*

**View-Invariant Full-Body Gesture Recognition via Multilinear Analysis of Voxel Data**

Bo Peng, Gang Qian and Stjepan Rajko.

*Arizona State University*

**PEM-ID: Identifying People by Gait-Matching using Cameras and Wearable Accelerometers**

Thiago Teixeira, Deokwoo Jung, Gershon Dublon and Andreas Savvides.

*Yale University*

**A Distributed Camera System for Multi-Resolution Surveillance**

Nicola Bellotto\(^1\), Eric Sommerlade\(^1\), Ben Benfold\(^1\), Charles Bibby\(^1\), Ian Reid\(^1\), Daniel Roth\(^2\), Charles Fernandez\(^2\), Luc Van Gool\(^2\) and Jordi Gonzalez\(^3\).

\(^1\)University of Oxford, \(^2\)ETH Zurich, \(^3\)Computer Vision Centre, Bellaterra, Spain

12:00 - 13:30  Lunch
Surveillance and Tracking

**Continuously Evolvable Bayesian Nets for Human Action Analysis in Video**  
Nirmalaya Ghosh, Bir Bhanu and Giovanni Denina.  
*University of California at Riverside*

**Autonomous Real-time Surveillance System with Distributed IP Cameras**  
Kofi Appiah\(^1\), Andrew Hunter\(^2\), Jonathan Owens\(^1\), Philip Aiken\(^2\) and Katrina Lewis\(^2\).  
\(^1\)University of Lincoln, SecuraCorp \(^2\)

**A Random Projections Model for Object Tracking under Variable Pose and Multi-Camera Views**  
Grigoris Tsagkatakis and Andreas Savakis.  
*Rochester Institute of Technology*

**Dependable Integrated Surveillance Systems for the Physical Security of Metro Railways**  
Francesco Flammini\(^1\), Concetta Pragliola\(^1\), Giovanni Bocchetti\(^1\) and Alfio Pappalardo\(^2\).  
\(^1\)Ansaldo STS Italy, \(^2\)CeRICT - Centro Regionale Information Communication Technology S.C.R.l.

**Covariance Descriptors on Moving Regions for Human Detection in Very Complex Outdoor Scenes**  
Giovanni Gualdi, Andrea Prati and Rita Cucchiara.  
*Univ. of Modena and Reggio Emilia*

**An Efficient System for Vehicle Tracking in Multi-Camera Networks**  
Michael Dixon, Nathan Jabobs and Robert Pless.  
*Washington University*

**Online Video Synthesis for Removing Occluding Objects Using Multiple Uncalibrated Cameras via Plane Sweep Algorithm**  
Takahide Hosokawa, Songkran Jarusirisawad and Hideo Saito.  
*Keio University*

**Surveillance of Robots using Multiple Colour or Depth Cameras with Distributed Processing**  
Markus Fischer and Dominik Henrich.  
*Universität Bayreuth*

**Person Tracking in Camera Networks Using Graph-Based Bayesian Inference**  
Florian van de Camp\(^1\), Keni Bernardin\(^2\) and Rainer Stiefelhagen\(^1,2\).  
\(^1\)Fraunhofer IITB, \(^2\)Universität Karlsruhe

Camera Networks

**A 3D Object Model for Wireless Camera Networks with Network Constraints**  
Fanyu Kong and Jindong Tan.  
*Michigan Technological University*

**A Distributed Camera Network Architecture Supporting Video Adaptation**  
Razib Iqbal, Saurabh Ratti and Shervin Shirmohammadi.  
*University of Ottawa*

**A Pervasive Smart Camera Network Architecture applied for Multi-Camera Object Classification**  
Wolfgang Schriebl, Thomas Winkler, Andreas Starzacher and Bernhard Rinner.  
*Klagenfurt University*

Distributed and Collaborative Signal Processing

**Super-resolution Based on Blind Deconvolution using Similarity of Power Spectra**  
Toshihisa Tanaka\(^1\), Ryo Miyamoto\(^2\) and Rachel Mabanag Chong\(^1\).  
\(^1\)Tokyo University of Agriculture and Technology, \(^2\)Nara Advanced Institute of Science and Technology
**Improved View Interpolation for Side Information in Multiview Distributed Video Coding**
Shinya Shimizu, Yoshihide Tonomura, Hideaki Kimata and Yoshimitsu Ohtani.
*Nippon Telegraph and Telephone Corporation*

**Performance Evaluation of Two State of the art DVC Codecs**
N. Anantrasirichai¹, D. Agrafiotis¹, M. Ouaret², F. Dufaux² and T. Ebrahimi².
¹University of Bristol, École Polytechnique Fédérale de Lausanne²

**Conditioning Multimodal Information for smart environments**
David Looney¹, Tomasz M. Rutkowski², Alla Heidenreich³, Dagmar Beyer³, Naveed Rehman¹ and Danilo Mandic¹.
¹Imperial College London, ²RIKEN Brain Science Institute, ³Siemens AG

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**14:40 - 16:00** Oral Session Mon PM: Surveillance and Tracking

chair: M. Shah

**Target Detection and Counting using a Progressive Certainty Map in Distributed Visual Sensor Networks**
Mahmut Karakaya and Hairong Qi.
*University of Tennessee*

**Metric Learning for Semi-Supervised Clustering of Region Covariance Descriptors**
Ravishankar Sivalingam, Vassilios Morellas, Daniel Boley and Nikolaos Papanikolopoulos.
*University of Minnesota, Twin Cities*

**Efficient Approximate Foreground Detection for Low-Resource Devices**
Linda Tessens¹, Marleen Morbee¹, Richard Kleihorst¹, Hamid Aghajan³ and Wilfried Philips¹.
¹Ghent University, ²VITO NV, ³Stanford University

**Bayesian Formulation of Image Patch Matching Using Cross-correlation**
Hakan Ardo and Kalle Åström.
*Lund University*

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**16:00 - 16:20** Break

**16:20 - 18:00** Challenge Session

chairs: H. Aghajan and C. De Vleeschouwer

**Introduction** (10 mins)

**Multi-camera track-before-detect**
Murtaza Taj and Andrea Cavallaro.
*Queen Mary University of London*

**Sport Players Detection and Tracking With a Mixed Network of Planar and Omnidirectional Cameras**
Alexandre Alahi¹, Yannick Boursier¹, Laurent Jacques² and Pierre Vandergheynst¹.
École ¹Polytechnique Fédérale de Lausanne, ²Université catholique de Louvain

**Detection and Recognition of Sports(wo)men from Multiple Views**
Damien Delannay, Nicolas Danhier and Christophe De Vleeschouwer.
*Université catholique de Louvain*

**Template Matching Based Tracking of Players in Indoor Team Sports**
Emad Monier, Per Wilhelm and Ulrich Rückert.
*University of Paderborn*

**Summary of the challenge** (10 mins)

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18:30 - 21:00 **Welcome Reception at Villa Olmo**
Multi-sensor coordination and control

Prof. Mohan Kankanhalli, National University of Singapore

Abstract: There has been an increasing research interest in a number of multi-sensor applications like surveillance, video ethnography, tele-presence, assisted living, life blogging etc. Unfortunately, in many of these applications, the multiple sensors operate separately in isolation and only the central processing unit fuses the data obtained from the various sensors to accomplish its task. However, if we can coordinate and control these sensors, the system tasks can be achieved more efficiently with a higher accuracy. To demonstrate this, we will discuss one control and coordination strategy from a multimedia observation system perspective. This competitive approach combines the salient features of cooperation and competition with an aim to optimize the overall cooperation among sensors to achieve best results at the system level. We will show the use of a model predictive control based forward state estimation method for counter-acting various delays faced in such multi-sensor environments. We will then briefly present a design methodology for building systems which can explicitly take performance into account. This can aid in optimal selection and placement of multimedia sensors. Finally, we will introduce novel open problems in the area of multi-sensor coordination and control. One such problem is the "best-view" selection in the emerging area of cyber-physical systems that involve sensing, communication, control, and interaction with physical environments. Real-time selection of best viewpoints in a cyber-physical environment is very useful in many applications such as in conferencing systems, surveillance systems and interactive TV. To address this problem, we introduce a new image-based measure, Viewpoint Saliency, for evaluating view qualities of captured cyber-physical environments. And then, based on the new measure, we develop a feedback control based method for generating the best view through guided control of cameras.
13:30 - 15:00  Poster Sessions

Surveillance and Tracking

**Recognizing Activities from Context and Arm Pose using Finite State Machines**
Thiago Teixeira, Deokwoo Jung, Gershon Dublon and Andreas Savvides.
Yale University

**Tracking in Sparse Multi-Camera Setups using Stereo Vision**
Gwenn Englebienne, Tim van Oosterhout and Ben Kröse.
University of Amsterdam

**Surprisal-aware Scheduling of PTZ Cameras**
Henry Detmold, Anton van den Hengel, Anthony Dick, Christopher Madden, Alex Cichowski and Rhys Hill.
University of Adelaide

**3D Localization of Projected Objects for Surveillance**
Sunghoon Jung, Dowon Jang and Minhwan Kim.
Pusan National University

**Semantic Browsing of Video Surveillance Databases through Online Generic Indexing**
Denis Marraud, Benjamin Cepas and Liver Reithler.
EADS Innovation Works

**Face Tracking and Recognition by using Omnidirectional Sensor Network**
Yuzuko Utsumi and Yoshio Iwai.
Osaka University

**Resolution Mosaic-based Smart Camera for Video Surveillance**
Mohammed Abdel-Mgeed Salem¹, Kristian Klaus², Frank Winkler² and Beate Meffert².
¹Ain Shams University, ²Humboldt-Universitaet zu Berlin

**Color Brightness Transfer Function Evaluation for Non overlapping Multi Camera Tracking**
Tiziana D'Orazio, Pier Luigi Mazzeo and Paolo Spagnolo.
Institute of Intelligent Systems for Automation, Italy

Camera Network Topology

**Unsupervised Camera Network Structure Estimation Based on Activity**
Pierre Clarot¹, Erhan Ermis², Pierre-Marc Jodoin¹ and Saligrama Venkatesh².
¹Université de Sherbrooke, ²Boston University

**A Framework for Determining Overlap in Large Scale Networks**
Anton van den Hengel, Henry Detmold, Christopher Madden, Anthony Dick, Alex Cichowski and Rhys Hill.
University of Adelaide

**Efficient Topology Calibration and Object Tracking with Distributed Pan Tilt Cameras**
Norimichi Ukita, Kunihito Terashita and Masatsugu Kidode.
Nara Institute of Science and Technology

**Joint Spatial-temporal Alignment of Networked Cameras**
Chia-Yeh Lee¹, Tsuhan Chen¹, Ming-Yu Shih² and Shiao-Shian Yu².
¹Cornell University, ²Industrial Technology Research Institute, Taiwan

Embedded Smart Cameras

**Adaptive Power Control for Solar harvesting Multimodal Wireless Smart Camera**
Michele Magno¹, Davide Brunelli¹, Lothar Thiele² and Luca Benini¹.
¹Università di Bologna, ²Swiss Federal Institute of Technology Zurich

**Abnormal Motion Detection in a Real-time Smart Camera System**
Mona Akbarnia Tehrani¹, Richard Kleihorst², Peter Meijer² and Lambert Spaanenburg¹.
¹Lund Technical University, ²NXP Research

**Resource-efficient Acceleration of 2-Dimensional Fast Fourier Transform Computations on FPGAs**
Hojin Kee¹, Shuvra S. Bhattacharyya¹, Newton Petersen² and Jacob Kornerup².
¹University of Maryland, ²National Instruments Corp.
15:00 - 16:00  ICDSC Panel

16:00 - 16:20  Break

16:20 - 18:00  Special Session: Activity Monitoring by Multi-Camera Systems

**Distributed and Lightweight Multi-Camera Human Activity Classification**
Gaurav Srivastava, Hidekazu Iwaki, Johnny Park and Avinash C. Kak.
Purdue University

**Detection of Composite Events Spanning Multiple Camera Views with Wireless Embedded Smart Cameras**
Youlu Wang, Senem Velipasalar and Mauricio Casares.
University of Nebraska-Lincoln

**Human Interaction Analysis Based on Walking Pattern Transitions**
Hitoshi Habe, Kazuhiro Honda and Masatsugu Kidode.
Nara Institute of Science and Technology

**Multi-Camera Tracking on a Graph Using Markov Chain Monte Carlo**
Honggab Kim, Justin Romberg and Wayne Wolf.
Georgia Institute of Technology

**Automatic Camera Selection for Activity Monitoring in a Multi-camera System for Tennis**
Philip Kelly, Ciarán Ó Conaire, Chanyul Kim and Noel O'Connor.
Dublin City University

18:00 - 23:00  Banquet

Boat trip on Lake Como followed by a dinner with regional specialties at "Il Vapore" in Torno

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**Banquet**

Boat trip on Lake Como followed by a dinner with regional specialties at "Il Vapore" in Torno
PANOPTIC: An Omnidirectional Multi-Aperture Visual Sensor
Prof. Pierre Vandergheynst, Swiss Federal Institute of Technology

Abstract: A 2007 digital photography market study by IDC recently showed two interesting trends. First, global digital camera shipments have grown by about 15 percent in 2007, doubling the previous forecast of 7.5 percent and reversing a trend of declining growth seen over the past four years. Moreover, the imaging sensor market is booming mostly under the influence of camera phone sales. This all proves that imaging devices have become an integral part of our daily lives. But with high resolution sensors becoming cheaper (Nokia's current offering includes a 5 mega pixels camera phone) what future advances in imaging sensor technology could possibly help keep up the innovation pace?

We claim that integrating innovative imaging sensor designs and image processing technologies will enable radically new applications and will unleash the full potential of vision based systems. We propose and study a breakthrough visual sensor we call the panoptic camera. It is realized by layering CMOS sensors on the facets of an icosahedron-like surface: it is thus an array of micro-cameras, with a particular geometry. As an optical system, the panoptic camera has two distinguishing features. First it is an omnidirectional camera, in the sense that it is able to record light information coming from any direction around its centre. Second it is a polydyptric system: each CMOS facet is a tiny camera with a distinct focal plane, hence the whole system is a multiple aperture camera. The layering is designed such that the field of view of each facet is overlapping with that of its neighbours. We will review why such an omnidirectional polydyptric camera is ideal for certain inverse vision problems like ego-motion estimation or structure from motion. Moreover because of the overlapping fields of view of each aperture facet, the panoptic system is also a plenoptic camera: light rays coming from the same scene point will strike neighbouring sensors and carry information about the underlying plenoptic function that can be used to infer fine information about the scene itself, for example the depth map. We will derive, as an illustrative application, a correspondence-less algorithm for depth estimation that uses the unique properties of our system. Finally, we will highlight some of the future milestones we intend to reach with the next prototypes.
Wednesday, September 2, 2009

12:00 - 13:30  Lunch

13:30 - 15:10  Special Session: *Embedded Techniques for Smart Cameras*  
**chairs: R. Kleihorst and F. Berry**

**Implementation of Canny Edge Detection on the WiCa SmartCam Architecture**  
Bert Geelen¹,², Francis Deboeverie² and Peter Veeelaert².  
¹SSET, Interuniversity Microelectronics Center, ²University College Ghent, ³IBBT

**Mapping Schemes of Image Recognition Tasks onto Highly Parallel SIMD/MIMD Processors**  
Shorin Kyo, Shohei Nomoto and Shin’ichiro Okazaki.  
NEC Corporation

**DSPcam: A Camera Sensor System for Surveillance Networks**  
Arvind Kandhalu, Anthony Rowe and Raganathan (Raj) Rajkumar.  
Carnegie Mellon University

**An Efficient Background Estimation Algorithm for Embedded Smart Cameras**  
Vikas Reddy, Conrad Sanderson, Brian Lovell and Abbas Bigdeli.  
NICTA, The University of Queensland

**Face Detection System Design For Real Time High Resolution Smart Camera**  
Yasir Mohd Mustafah¹,², Abbas Bigdeli¹, Amelia Wong Azman¹,² and Brian Lovell¹,².  
¹The University of Queensland, ²National ICT Australia

15:10 - 15:30  Break

15:30 - 16:30  Special Session: *Advances in Coding for Distributed Camera Networks*  
**chairs: C. Abhayaratne, M. Mrak and F. Dufaux**

**An extension of the AVC file format for Video Surveillance**  
James Annesley¹, Gero Bäse², James Orwell¹ and Houari Sabirin³.  
¹Kingston University, ²Siemens AG, ³Korea Advanced Institute of Science and Technology

**Image Interpolation with Dense Disparity Estimation in MultiView Distributed Video Coding**  
Wided Miled, Thomas Maugey, Marco Cagnazzo and Béatrice Pesquet-Popescu.  
Télécom ParisTech

**Compressed Domain Aided Analysis of Traffic Surveillance Videos**  
Christian Kaes¹, Mathieu Brulin¹,², Henri Nicolas¹ and Christophe Maillet¹,².  
¹University of Bordeaux I, ²ADACIS Sarl

16:30 - 17:30  Special Session: *Collaborative Signal Processing for Distributed Systems*  
**chair: D. Mandic**

**A Comparison of Techniques for Camera Selection and Handoff in a Video Network**  
Yiming Li and Bir Bhanu.  
University of California at Riverside

**A Multi Camera System for Soccer Player Performance Evaluation**  
Marco Leo¹, Tiziana D'Orazio¹ and Mohan Trivedi².  
¹Institute of Intelligent Systems for Automation, Italy, ²University of California San Diego

**Joint Estimation of Offset Parameters and High-resolution Images via L1-norm Minimization Principle**  
Akira Hirabayashi.  
Yamaguchi University
Venue
Teatro Sociale
(Piazza Giuseppe Verdi, Como)

Teatro Sociale 1st Floor

Lunch & Coffee break
(Sala Turca)
Conference Room
(Sala Bianca)
Poster room
(Sala Pasta)

Registration
(Sala Conversazione)
(Sala Bar)
(Sala Lettura)

Contact Information
Teatro Sociale: +39 031 579814

Note: In case of need call/sms +39 328 1213538
Getting Around

The centre of Como is rather compact and can be covered easily on foot.

**Buses**

The local public transport network counts 10 urban (within city limits) lines and 'extra-urban' (crossing city limits) (C) lines connecting Como with most of its province centres. They are provided by SPTLinea.

**Urban Lines**

Line 1: Chiasso FS - S.Fermo  
Line 3: Lora - Grandate  
Line 4: S.Giovanni FS - Camnago V.  
Line 5: S.Giovanni FS - Civiglio  
Line 6: Maslianico - Albate  
Line 7: Sagnino - Lora  
Line 8: S.Giovanni FS - Casnate  
Line 9: P.za Cavour - Cimitero  
Line 10: Albate - Navedano  
Line 11: P.Chiasso - Bassone  
Line 12: Camerlata-S.Fermo-Tavernola

*Note*: Urban bus tickets have to be bought before boarding the bus in news-stands or bars

Ferrovie Nord Milano also provides other bus lines connecting Como to Varese in substitution of the original railway line that was dismissed in the 1960s.

The funicolare (funicular) connects the centre of Como with Brunate, a small village (1800 inhabitants) on a mountain at 715 meters above sea level. The journey takes about 7 minutes and the view is worth the trip: it can also be the starting point for a stroll on the mountains.

**Boats**

The boats and aliscafi of Navigazione Lago di Como connect the town with most of the villages sitting on the shores of the lake, the former are slower and right for sightseeing, the latter are faster and make less stops.

**Taxi**

A taxi service is provided by the Comune di Como, local phone numbers are +39 031-2772, and +39 031-261515.