General Information

2nd ACM / IEEE International Conference on Distributed Smart Cameras (ICDSC-08)

September 7-11, 2008
Stanford University, California, USA
www.icdsc.org

Email Hotline

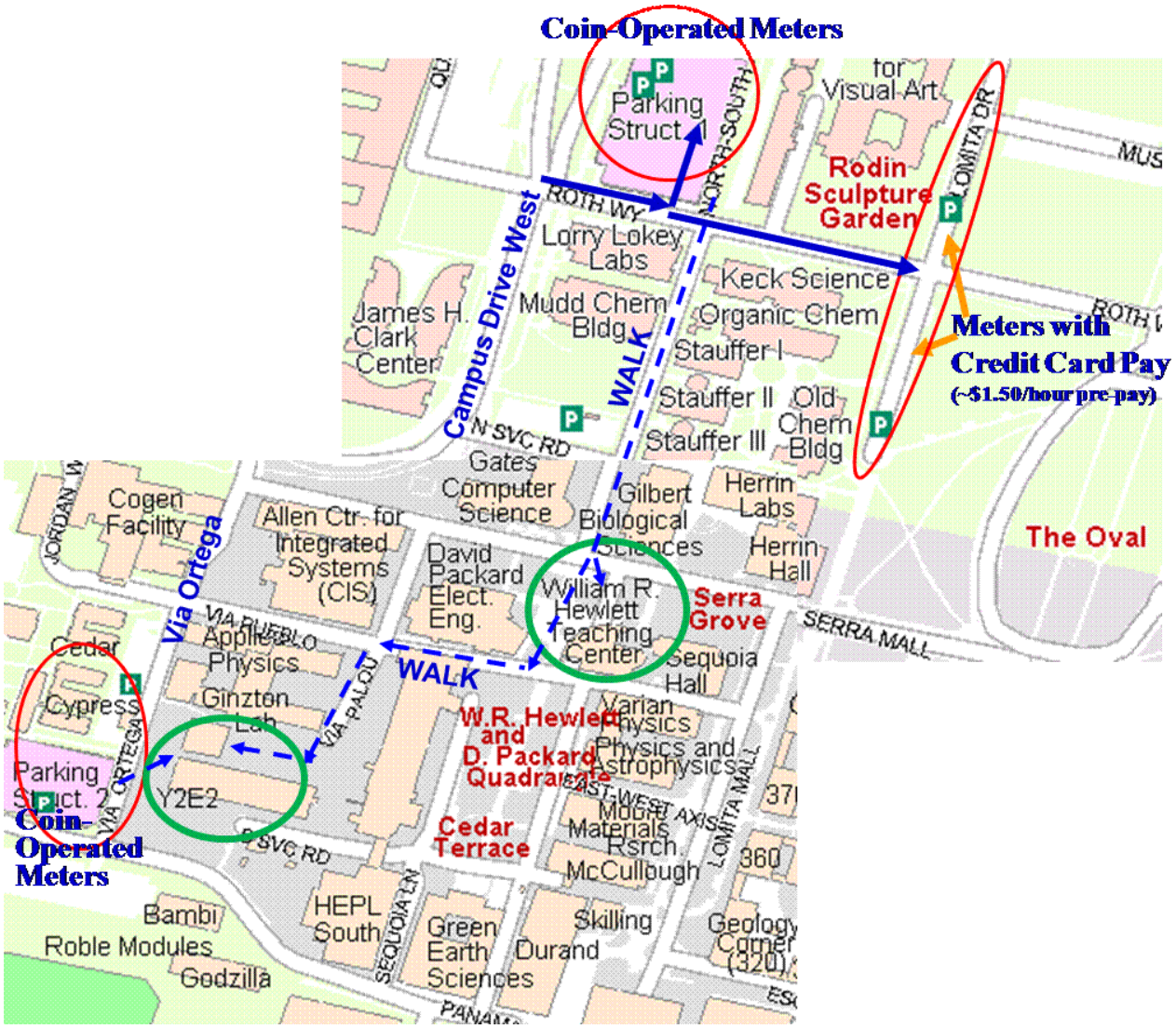
The email address **hotline@icdsc.org** has been set up to help the conference attendees with any questions related to the conference or the venue.

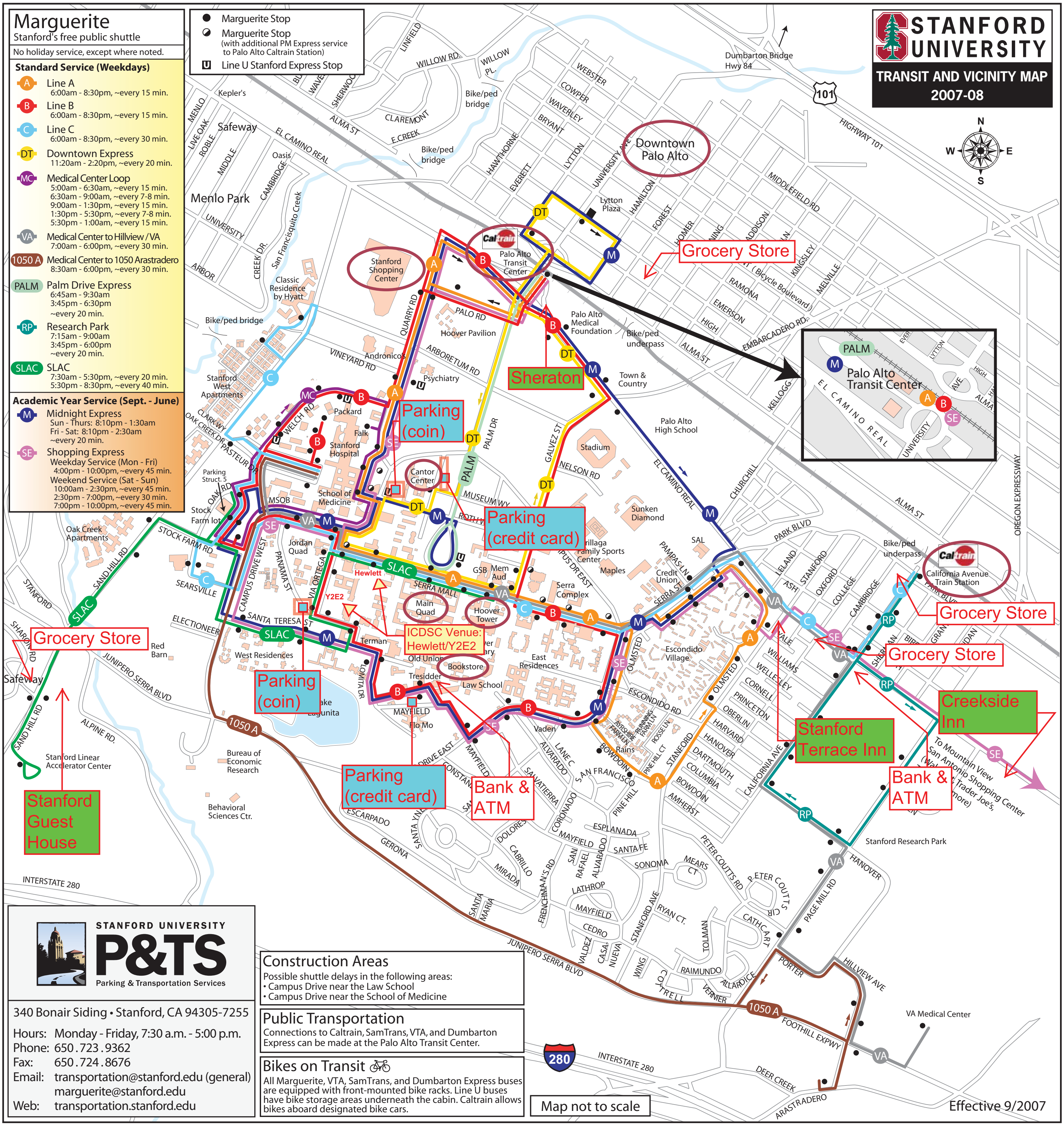
Wireless Internet

To use the internet, open a browser window and type in one of the id and password pairs.

- id: icdsc
  password: icdsc1
- id: icdsc1
  password: icdsc2
- id: icdsc2
  password: icdsc3
- id: icdsc3
  password: icdsc4
- id: icdsc4
  password: icdsc5

LOCAL MAPS


Coin-Operated Meters
Parking Struct. 1
for Visual Art
Rodin Sculpture Garden
LOMITA DR
ROTH WY
NORTH-SOUTH
Campus Drive West
Lorry Lokey Labs
Keck Science
Mudd Chem Bldg
Organic Chem
James H. Clark Center
Stauffer I
WALK
Meters with Credit Card Pay
(~$1.50/hour pre-pay)
Stauffer II
Old Chem Bldg
N SVC RD
Stauffer III
Gates Computer Science
Gilbert Biological Sciences
Herrin Labs
Herrin Hall
The Oval
Cogen Facility
Allen Ctr. for Integrated Systems (CIS)
David Packard Elect. Eng.
William R. Hewlett Teaching Center
Serra Grove
SERRA MALL
Via Ortega
VIA RUEBLO
Cedar
Applied Physics
Sequoia Hall
WALK
Cypress
Ginzton Lab
VIA PALOU
W.R. Hewlett and D. Packard Quadrangle
Varian Physics
Physics and Astrophysics
Parking Struct. 2
VIA ORTEGA
Y2E2
EAST-WEST AXIS
Coin-Operated Meters
Cedar Terrace
Materials Rsrch
McCullough
LOMITA MALL
S SVC RD
HEPL South
SEQUOIA LN
Bambi
Roble Modules
Godzilla
Green Earth Sciences
Durand
Skilling
Geology Corner
PANAMA


Marguerite
Stanford's free public shuttle
No holiday service, except where noted.
Standard Service (Weekdays)
A Line A 6:00am - 8:30pm, ~every 15 min.
B Line B 6:00am - 8:30pm, ~every 15 min.
C Line C 6:00am - 8:30pm, ~every 30 min.
DT Downtown Express 11:20am - 2:20pm, ~every 20 min.
MC Medical Center Loop
5:00am - 6:30am, ~every 15 min.
6:30am - 9:00am, ~every 7-8 min.
9:00am - 1:30pm, ~every 15 min.
1:30pm - 5:30pm, ~every 7-8 min.
5:30pm - 1:00am, ~every 15 min.
VA Medical Center to Hillview / VA 7:00am - 6:00pm, ~every 30 min.
1050 A Medical Center to 1050 Arastradero 8:30am - 6:00pm, ~every 30 min.
PALM Palm Drive Express
6:45am - 9:30am
3:45pm - 6:30pm
~every 20 min.
RP Research Park
7:15am - 9:00am
3:45pm - 6:00pm
~every 20 min.
SLAC SLAC
7:30am - 5:30pm, ~every 20 min.
5:30pm - 8:30pm, ~every 40 min.
Academic Year Service (Sept. - June)
M Midnight Express
Sun - Thurs: 8:10pm - 1:30am
Fri - Sat: 8:10pm - 2:30am
~every 20 min.
SE Shopping Express
Weekday Service (Mon - Fri)
4:00pm - 10:00pm, ~every 45 min.
Weekend Service (Sat - Sun)
10:00am - 2:30pm, ~every 45 min.
2:30pm - 7:00pm, ~every 30 min.
7:00pm - 10:00pm, ~every 45 min.
Marguerite Stop
Marguerite Stop (with additional PM Express service to Palo Alto Caltrain Station)
U Line U Stanford Express Stop
STANFORD UNIVERSITY
TRANSIT AND VICINITY MAP
2007-08
Downtown Palo Alto
Grocery Store
Stanford Shopping Center
Caltrain
Palo Alto Transit Center
Sheraton
Parking (coin)
Parking (credit card)
Cantor Center
Hewlett
Y2E2
ICDSC Venue: Hewlett/Y2E2
Main Quad
Hoover Tower
Bookstore
Tresidder
Bank & ATM
Stanford Terrace Inn
Creekside Inn
Stanford Guest House
California Avenue Train Station
Safeway
Menlo Park
Kepler's
Oasis
Lytton Plaza
Palo Alto Medical Foundation
Town & Country
Palo Alto High School
Stadium
Sunken Diamond
Stanford Hospital
School of Medicine
Packard
Psychiatry
Hoover Pavilion
Andronicos
Classic Residence by Hyatt
Stanford West Apartments
Oak Creek Apartments
Jordan Quad
Escondido Village
East Residences
West Residences
Law School
Terman
Old Union
Lake Lagunita
Red Barn
Stanford Linear Accelerator Center
Bureau of Economic Research
Behavioral Sciences Ctr.
Stanford Research Park
VA Medical Center
To Mountain View San Antonio Shopping Center (Walmart, Trader Joe's, more)
Dumbarton Bridge Hwy 84
EL CAMINO REAL
JUNIPERO SERRA BLVD
INTERSTATE 280
PAGE MILL RD
FOOTHILL EXPWY
OREGON EXPRESSWAY
ALMA ST
MIDDLEFIELD RD
UNIVERSITY AVE
Palo Alto Transit Center
EL CAMINO REAL
STANFORD UNIVERSITY
P&TS
Parking & Transportation Services
340 Bonair Siding • Stanford, CA 94305-7255
Hours: Monday - Friday, 7:30 a.m. - 5:00 p.m.
Phone: 650.723.9362
Fax: 650.724.8676
Email: transportation@stanford.edu (general)
marguerite@stanford.edu
Web: transportation.stanford.edu
Construction Areas
Possible shuttle delays in the following areas:
• Campus Drive near the Law School
• Campus Drive near the School of Medicine
Public Transportation
Connections to Caltrain, SamTrans, VTA, and Dumbarton Express can be made at the Palo Alto Transit Center.
Bikes on Transit
All Marguerite, VTA, SamTrans, and Dumbarton Express buses are equipped with front-mounted bike racks. Line U buses have bike storage areas underneath the cabin. Caltrain allows bikes aboard designated bike cars.
Map not to scale
Effective 9/2007

PROGRAM IN A GLANCE

ICDSC 2008 Program	Sunday September 7	Monday September 8	Tuesday September 9	Wednesday September 10	Thursday September 11
8:30 - 9:00	Registration [Y2E2]	Registration [Hewlett]	Registration [Hewlett]	Registration [Hewlett]	Registration [Y2E2]
9:00 - 10:00	Tutorial (openCV) [Y2E2]	Plenary (Pentland) [Hewlett]	Plenary (Forsyth) [Hewlett]	Plenary (Aloimonos) [Hewlett]	Plenary (Aggarwal) [Y2E2]
10:00 - 10:20	Break [Y2E2]	Break [Hewlett]	Break [Hewlett]	Break [Hewlett]	Break [Y2E2]
10:20 - 12:00	Tutorial (openCV) (cont'd) [Y2E2]	Oral Session1 [Hewlett]	Oral Session 3 [Hewlett]	Oral Session 4 [Hewlett]	Workshops AMMCSS, eMCAM [Y2E2]
12:00 - 13:30	Lunch [Y2E2]	Lunch [Hewlett]	Lunch [Hewlett]	Lunch [Hewlett]	Group Discussion / Lunch [Y2E2]
13:30 - 15:10	Tutorial (GPU) [Y2E2]	Oral Session 2 [Hewlett]	Panel "Business Opportunities" [Hewlett]	Poster Session 2 + Demos [Y2E2]	
15:10 - 15:30	Break [Y2E2]	Break [Y2E2]		Break [Hewlett]	
15:30 - 16:00	Tutorial (GPU) (cont'd) [Y2E2]	Poster Session 1 + Demos [Y2E2]	Break [Hewlett]	Oral Session 5 [Hewlett]	
16:00 - 16:30			Bus Tour to Banquet Event and Return to Hotels [Hewlett]		
16:30 - 16:50	Break [Y2E2]				
16:50 - 17:30	PhD Forum [Y2E2]	Campus Tour [Memorial Church] and Reception [Hewlett Plaza]		Invited Entrepreneur Talk [Hewlett]	
17:30 - 18:30				Free Evening + Org Comm Mtg [Hewlett]	
18:30 - 19:30	Light Dinner [Y2E2]				
19:30	Shuttles to Hotels [Y2E2]	Shuttles to Hotels [Y2E2]			
22:30					

SOCIAL EVENTS

- **Stanford Memorial Church Tour:**
  - Monday September 8, 2008, 17:00 - 18:00
- **Conference Reception:**
  - Monday September 8, 2008, 18:00 - 19:30
    Hewlett Plaza, Stanford University
- **Bus Tour and Banquet:**
  - Tuesday September 9, 2008, 16:00 - 22:00
    - Guided bus tour to San Francisco
    - Banquet at **McCormick and Kuleto's Seafood Restaurant**, Ghirardelli Square, San Francisco
    - **Magnolia Jazz Band**

GETTING IN AND AROUND

- Shuttle service to/from airport:
  - **Super Shuttle** (650) 558-8500
  - **East and South Bay Shuttle** (800) 548-4664
- County bus service:
  - **SamTrans Bus**: From SFO airport only (Bus #KX): $1.50 one-way. Pick-up locations on lower (arrival) level on center island at Terminal 2, curbside at Terminal 3, and the International Terminal. Take Bus #KX to the Stanford Shopping Center. Bus leaves airport every 30 minutes and takes approximately 55 minutes. From the Stanford Shopping Center , take the free **Marguerite shuttle** Line A to campus (Marguerite runs Monday - Friday only, 6:00 AM - 8:30 PM).
  - **Valley Transit Authority (VTA)**: From SJC airport only: $1.75 adult one-way, $1.50 youth one-way, $5.25 adult day pass, $4.50 youth (5-17 years) day pass. No transfers are issued. Take Bus **#10** to the Santa Clara Caltrain station, and then take **Bus #22** to the Palo Alto Transit Center (Univ. Ave. Caltrain Station). From the Palo Alto Transit Center, take the free **Marguerite shuttle** Line A or B to campus (Marguerite runs Monday - Friday only, 6:00 AM - 8:30 PM).
- Train:
  - **Caltrain**: From SFO ariport take the BART train shuttle (fare $1.50) From SFO to the Millbrae Caltrain station, then take Caltrain to the Palo Alto Transit Center (University Ave. Caltrain station) (fare $4.00).
    From SJC airport take Bus #10 (free of charge) from SJC to the Santa Clara Caltrain station; then take Caltrain to the Palo Alto Transit Center (University Ave. Caltrain station) (fare $4.00).
    From the Palo Alto Transit Center , take the free **Marguerite shuttle** Line A or B to campus (Marguerite runs Monday - Friday only, 6:00 AM - 8:30 PM).
- Taxi service:
  - 1st Bay Area Yellow Cab: (650) 947-1234 or **http://www.1stbayareayellowcab.com**
  - Yellow Cab: (650) 361-1234 or (800) 910-2227 toll-free.
  - Taxi charges approximately range $60-90 for SFO and $40-65 for SJC one-way to Palo Alto (subject to increase with traffic and fuel cost levels).
- Driving to campus:

  From Highway 101 North & South or **from El Camino Real**
  - Take University Avenue west towards Stanford
  - After an underpass you will enter Stanford campus
  - Continue on Palm Drive (street name changes -- you will notice the palms) and take the left lane to go straight on the traffic light
  - At the first stop sign after traffic light turn right on Campus Drive
  - After several stop signs, turn left onto Roth Way
  - After you park the car, walk the North-South Axis toward the water fountain in front of the Hewlett and Packard Buildings
  - For Y2E2 Building, turn right after passing Packard and then left onto Via Palou to the Y2E2 courtyard

  From Highway 280 North & South
  - Take Sand Hill Road Exit east toward Stanford
  - Turn right at traffic light onto Santa Cruz Avenue
  - Turn left at traffic light onto Junipero Serra Boulevard
  - Turn left at traffic light on Campus Drive West

- After several stop signs, turn right onto Roth Way
- After you park the car, walk the North-South Axis toward the water fountain in front of the Hewlett and Packard Buildings
- For Y2E2 Building, turn right after passing Packard and then left onto Via Palou to the Y2E2 courtyard

For Sunday Sept. 7 events in Y2E2 Building

- The parking lot across the street from Y2E2 is the most convenient place to park your car on Sunday. Parking is free on weekends in metered as well as A and C permit spots.

IN CAMPUS

- Stanford's free shuttle Marguerite
  - **http://transportation.stanford.edu/marguerite/MargueriteSched**
- Parking:
  - **Do not park at permit or non-metered parking spaces.** Metered parking is at a quarter dollars for 10 minutes, and is enforced until 4pm. After 4pm or on weekends, parking in metered spots as well as the A and C permit designated areas is permitted without charge.
  - There is a multi-level parking structure on Roth Way, with metered spots (coin-operated) on first floor. Another parking structure with coin-operated meters is on the corner of via Ortega and Panama (This is across the street from the Y2E2 building, one of the two conference venues).
  - To pay with credit card, continue on Roth way from campus drive and park at designated spots on Lomita Drive.
  - For Sunday Sept. 7 events in Y2E2 Building
    - The parking lot across the street from Y2E2 is the most convenient place to park your car on Sunday. Parking is free on weekends in metered as well as A and C permit spots.

HOTEL INFORMATION

Hotel	Reservation info	Rate	Exp. date
Stanford Guest House (SLAC)	2575 Sand Hill Road Menlo Park, CA 94025-7015 (650) 926-2800	$119.00	
Stanford Terrace Inn	531 Stanford Ave, Palo Alto, CA 94306 800.729.0332 650.857.0333	$165.00	8/7/08
Creekside Inn	3400 El Camino Real Palo Alto, CA 94306 Reservations: 800 492-7335 Tel: 650-493-2411	$145.00	8/6/08
Sheraton Palo Alto	625 El Camino Real. Palo Alto, California 94301 Phone: (650) 328-2800	$199.00	

TECHNICAL PROGRAM

SUNDAY, SEPTEMBER 7

08:30 - 09:00 Registration (Y2E2 Bldg.)

09:00 - 10:20 Tutorial AM (Y2E2 conf room)

- **Pre-install OpenCV on your laptop for this tutorial**

- **Gary Bradski, Willow Garage, Stanford**
  Learning OpenCV - Computer Vision with the Open Source Computer Vision Library

Dr. Gary Rost Bradski is a consulting professor in the CS department at Stanford University AI Lab where he mentors robotics, machine learning and computer vision research. He is also Senior Scientist at Willow Garage, a recently founded robotics research institute/incubator. He has a BS degree in EECS from U.C. Berkeley and a PhD from Boston University. He has 21 years of industrial experience applying machine learning and computer vision spanning option trading operations at First Union National Bank, to computer vision at Intel Research to machine learning in Intel Manufacturing and several startup companies in between. Gary started the Open Source Computer Vision Library (OpenCV), the statistical Machine Learning Library (MLL comes with OpenCV), and the Probabilistic Network Library (PNL). OpenCV is used around the world in research, government and commercially. The vision libraries helped develop a notable part of the commercial Intel performance primitives library (IPP). Gary also organized the vision team for Stanley, the Stanford robot that won the DARPA Grand Challenge autonomous race across the desert for a $2M team prize and helped found the Stanford AI Robotics project at Stanford working with Professor Andrew Ng. Gary has over 50 publications and 13 issued patents with 18 pending. He lives in Palo Alto with his wife and 3 daughters and bikes road or mountains as much as he can.

10:20 - 10:40 Break (Y2E2 patio)

10:40 - 12:00 Tutorial AM (cont'd) (Y2E2 conf room)

12:00 - 13:30 Lunch (Y2E2 patio)

13:30 - 15:10 Tutorial PM (Y2E2 conf room)

- **James Fung, Nvidia**
  Accelerating Computer Vision on the GPU

Dr. Fung's work has been in the area of applying GPU Hardware for parallel general purpose computing, including implementing Computer Vision on the GPU. He is lead author of the OpenVIDIA project, which won the ACM Multimedia 2005 Open Source Software Award. "Computer Vision on the GPU" in the popular GPU Gems 2 series of graphics programming books. This work has achieved implementation of vision algorithms on the GPU, including projective image stitching, Chirplet detection, Radon Transforms and natural feature processing and matching. He has authored over a dozen peer reviewed papers in IEEE and ACM conferences in the areas of parallel GPU Computer Vision and Mediated Reality. He currently works at NVIDIA examining computer vision and image processing on graphics hardware.

15:10 - 15:30 Break (Y2E2 patio)

15:30 - 16:30 Tutorial PM (cont'd) (Y2E2 conf room)

16:30 - 16:50 Break (Y2E2 patio)
16:50 - 18:30 PhD Forum (Y2E2 iRoom)
18:30 - 19:30 Light Dinner (Y2E2 patio)
19:30 Shuttles to hotels

PhD Forum: Sunday, September 7

16:45 - 18:30 PhD Forum (Student PhD Spot Presentations and Posters)
(Y2E2 iRoom)

Panel

A panel of academic faculty will participate in Q/A with each presenter and offers feedback on the research topic:

- Prof. Alex (Sandy) Pentland, MIT
- Prof. David Forsyth, UIUC
- Prof. Yiannis Aloimonos, Univ. of Maryland
- Prof. Bir Bhanu, UC Riverside
- Prof. Tsuhan Chen, CMU
- Prof. Rich Radke, RPI

PhD Forum Organizer:

- Prof. Andrea Prati, Univ. di Modena e Reggio Emilia, Italy

PhD Forum Chair:

- Prof. Andrea Cavallaro, Queen Mary Univ. of London, UK

PhD Forum Program

- **Self-organisation in distributed vision networks.**
  Martin Hoffmann
  PTZ cameras which auto-adjust to maximize the scene coverage.

- **Towards smart camera networks of mobile internet devices.**
  Michael Wittke
  A software architecture for using mobile Internet devices as smart cameras.

- **A belief-desire-intention multi-agent visual sensor networks.**
  Federico Castanedo
  Use of software agents for efficient, flexible and adaptable visual sensor networks.

- **Feature selection for activity recognition from video via multiobjective optimization.**
  Rodrigo Cilla Ugarte
  A method for automatically select the best set of features for activity recognition.

- **Camera selection in distributed vision networks for shape approximation.**
  Marleen Morbee
  A method to select the best camera views for human shape approximation in a network of cameras.

- **Multi-person tracking from sparse 3D trajectories in a camera sensor network.**
  Kyle Heath
  Network of stereo cameras for tracking on consistent 3D trajectories.

- **Real-time 3D model reconstruction from uncalibrated cameras in a video network.**

  Hoang Nguyen

  3D face reconstruction from a multi-camera system.

- **Vision-Based Human Intent and Cognitive State Estimation.**
  Anup Doshi

  Multi-modal sensor fusion for Driver Assistance Systems.

- **Generalized behavior understanding from trajectory analysis.**
  Brendan T. Morris

  A framework for behavior analysis from trajectory analysis.

- **Scene analysis in a large camera network.**
  Bi Song

  A complete system for multi-camera surveillance with tracking, camera control, and distributed video coding.

- **Human-centred environment discovery in camera sensor networks.**
  Chen Wu

  A system for extracting and analyzing contextual information from a human-centred perspective.

- **Opportunistic behavior understanding from multiple cameras.**
  Itai Katz

  A technical framework for identifying human behaviors from multiple embedded camera nodes.

- **Activity analysis with duration modelling.**
  Murtaza Taj

  Multi-camera scene analysis using an object-centric Continuous Distribution Hidden Markov Model (CDHMM).

- **Toward Scalable Information Processing in Visual Sensor Networks.**
  Erhan Ermis

  Abnormal Behavior Detection and Behavior Matching for Networked Cameras.

MONDAY, SEPTEMBER 8

08:30 - 09:00 Registration (Hewlett Bldg.)

09:00 - 09:10 Welcome (Hewlett 201)

09:10 - 10:00 Plenary (Hewlett 201)

- **Alex (Sandy) Pentland, MIT**
  Sensible Organizations: how distributed sensor data is allowing organizations to reinvent themselves

Professor Alex ("Sandy") Pentland is a pioneer in organizational engineering, mobile information systems, and perceptual computing. Sandy's focus is the development of human-centered technology, and the creation of ventures that take this technology into the real world. His work provides people with a clearer picture of their social environment, and helps companies and communities to reinvent themselves to be both more human and productive.

He directs the Digital Life Consortium within the MIT Media Laboratory, a group of more than twenty multinational corporations exploring new ways to innovate, and is Founder of MIT's Legatum Center for Development and Entrepreneurship, established to support aspiring entrepreneurs in emerging markets. In 1997, Newsweek magazine named him one of the 100 Americans likely to shape this century.

10:00 - 10:20 Break (Hewlett patio)

10:20 - 12:00 Oral session 1 - **Smart Cameras** (Hewlett 201)

- **The Evolution from Single to Pervasive Smart Cameras** Bernhard Rinner [1]; Thomas Winkler [1]; Wolfgang Schriebl [1]; Markus Quaritsch [1]; Wayne Wolf [2]
  [1] Klagenfurt University, Austria
  [2] Georgia Tech, USA
- **CITRIC: A Low-Bandwidth Wireless Camera Network Platform** Phoebus Chen [1]; Parvez Ahammad [2]; Colby Boyer [1]; Shih-I Huang [3]; Leon Lin [3]; Edgar Lobaton [1]; Marci Meingast [1]; Songhwai Oh [1]; Simon Wang [3]; Posu Yan [1]; Allen Yang [1]; Chuohao Yeo [1]; Lung-Chung Chang [3]; Justin Douglas Tygar [1]; Shankar Sastry [1]
  [1] University of California, Berkeley, USA
  [2] Howard Hughes Medical Institute, USA
  [3] Industrial Technology Research Institute, Taiwan
- **Model-based Robust and Precise Tracking Embedded in Smart Cameras - The PFAAM-Cam** McElory Hoffmann [1]; Albert Swart [1]; Karin Hunter [1]; Ben Herbst [1]; Sven Fleck [2]; Wolfgang Strasser [2]
  [1] University of Stellenbosch, South Africa
  [2] University of Tübingen, Germany
- **Utility-Based Dynamic Camera Assignment and Hand-off in a Video Network** Yiming Li [1]; Bir Bhanu [1]
  [1] University of California at Riverside, USA
- **Automated Visual Analysis in Large Scale Sensor Networks** Zeeshan Rasheed [1]; Xiaochun Cao [1]; Khurram Shafique [1]; Haiying Liu [1]; Li Yu [1]; Mun Wai Lee [1]; Krishnan Ramnath [1]; Tae Eun Choe [1]; Omar Javed [1]; Niels Haering [1]

[1] Objectvideo, USA

12:00 - 13:30 Lunch (Hewlett patio)

13:30 - 15:10 Oral session 2 - **Surveillance** (Hewlett 201)

- **Multi-Person Tracking from Sparse 3D Trajectories in a Camera Sensor Network** Kyle Heath [1]; Leonidas Guibas[1]
  [1] Stanford University, USA
- **A Distributed Solution to Detect Targets in Crowds Using Visual Sensor Networks** Cheng Qian [1]; Hairong Qi [2]
  [1] Viatronix. Inc, USA
  [2] the University of Tennessee, USA
- **A Novel Evidence Accumulation Framework for Robust Multi-Camera Person Detection** Hidekazu Iwaki [1] ; Gaurav Srivastava [2]; Akio Kosaka [1]; Johnny Park [2]; Avinash Kak [2]
  [1] Olympus Corporation, Japan
  [2] Purdue University, USA
- **Multi-Target Tracking Through Opportunistic Camera Control In A Resource Constrained Multimodal Sensor Network** Jayanth Nayak [1]; Luis Gonzalez-Argueta [2]; Bi Song [2]; Amit Roy-Chowdhury [2]; Ertem Tuncel [2]
  [1] Mayachitra, Inc, USA
  [2] University of California Riverside, USA
- **Modeling Background Activity for Behavior Subtraction** Pierre-Marc Jodoin [1]; Janusz Konrad [2]; Venkatesh Saligrama [2]
  [1] University of Sherbrooke, Canada
  [2] Boston University, USA

15:10 - 15:30 Break (Hewlett patio)

15:30 - 16:50 Demo session 1 (Y2E2 iRoom)

- **Demonstration of an automated visual event detection, tracking, and data management system for cabled-observatory video** Danelle Cline [1]; Brian Schlining [1]; Edgington R. Duane [1]
  [1] Monterey Bay Aquarium Research Institute, USA
- **Semantic Queries on a Video Surveillance Database for Investigation Purposes** Denis Marraud [1]; Benjamin Cepas [1]; Livier Reithler [1]
  [1] EADS Innovation Works, France
- **Smart Camera Localization Using the Projection Matrix** John Kassebaum [1]; Nirupama Bulusu [1]; Wu-Chi Feng [1]
  [1] Portland State University, USA
- **WaveScape interactive display** Matt Bell [1]
  [1] Reactrix, USA
- **3D Tracking System** John Woodfill [1]; Gaile Gordon [1]; Ron Buck [1]

[1] TYZX, Inc.

- **TMS320DM355 IP Network Camera Reference Design** Dipa Rao [1]; Chrisann Lambert [1]
  [1] Texas Instruments, Inc.
- **Canesta's Time-of-Flight Depth Camera** Abbas Rafii [1]; Chris Dunlap [1]
  [1] Canesta, Inc.

15:30 - 16:50 Poster session 1
(Y2E2 iRoom - paperless posters)

- **DMCtrac: Distributed Multi Camera Tracking** Martin Hoffmann [1]; Michael Wittke [2]; Yvonne Bernard [1]; Ramin Soleymani [1]; Jörg Hähner [1]
  [1] Leibniz Universität Hannover, Germany
  [2] University of Hannover, Germany
- **Coordinate-Free Calibration of an Acoustically Driven Camera Pointing System** Evan Ettinger [1]; Yoav Freund [1]
  [1] University of California, San Diego, USA
- **Cooperative Surveillance in Video Sensor Networks** Alex Fridman [1]; Richard Primerano [1]; Steven Weber [1]; Moshe Kam [1]
  [1] Drexel University, USA
- **Bypassing BigBackground: An Efficient Hybrid Background Modeling Algorithm for Embedded Video Surveillance** Brian Valentine [1]; Jee Choi [1]; Senyo Apewokin [1]; Linda Wills [1]; Scott Wills [1]
  [1] Georgia Institute of Technology, USA
- **Real-time estimation of geometrical transformation between views in distributed smart-cameras systems** Liliana Lo Presti [1]; Marco La Cascia [1]
  [1] University of Palermo, Italy
- **Person re-identification in multi-camera system by signature based on interest point descriptors collected on short video sequences** Omar Hamdoun [1]; Fabien Moutarde [1]; Bogdan Stanciulescu [1]; Bruno Steux [1]
  [1] MinesParis, France
- **Color-Based 3D Particle Filtering for Robust Tracking in Heterogeneous Environments** Carlos del-Blanco [1]; Raúl Mohedano [1]; Narciso Garcia [1]; Luis Salgado [1]; Fernando Jaureguizar [1]
  [1] Universidad Politécnica de Madrid, Spain
- **A Markerless Approach for Consistent Action Recognition in a Multi-camera System** Simone Calderara [1]; Andrea Prati [1]; Rita Cucchiara [1]
  [1] University of Modena and Reggio Emilia, Italy
- **Light-Weight Salient Foreground Detection for Embedded Smart Cameras** Mauricio Casares [1]; Senem Velipasalar [1]
  [1] University of Nebraska-Lincoln, USA
- **Head Pose and Trajectory Recovery in Uncalibrated Camera Networks -- Region of Interest Tracking in Smart Home Applications** Chen Wu [1]; Hamid Aghajan [1]
  [1] Stanford University, USA

17:00 - 19:30	Campus tour and reception
19:30	Shuttles to hotels

TUESDAY, SEPTEMBER 9

08:30 - 09:00 Registration (Hewlett Bldg.)

09:00 - 10:00 Plenary (Hewlett 201)

- **David Forsyth, UIUC**
  Looking at People

David Forsyth holds a BSc and an MSc in Electrical Engineering from the University of the Witwatersrand, Johannesburg, and an MA and D.Phil from Oxford University. He is currently a full professor at U. Illinois Urbana-Champaign, having served 10 years on the faculty at UC Berkeley. He has published over 100 papers on computer vision, computer graphics and machine learning. He served as program co-chair for IEEE Computer Vision and Pattern Recognition in 2000, general co-chair for CVPR 2006, program co-chair for ECCV 2008, and is a regular member of the program committee of all major international conferences on computer vision. He has received best paper awards at the International Conference on Computer Vision and at the European Conference on Computer Vision, and an IEEE Technical Achievement award.

10:00 - 10:20 Break (Hewlett patio)

10:20 - 12:00 Oral session 3 - **Multicamera Geometry** (Hewlett 201)

- **Estimating Camera Overlap in Large and Growing Networks** Henry Detmold [1]; Anton van den Hengel [1]; Anthony Dick [1]; Rhys Hill [1]; Alex Cichowski [1]; Ekim Kocadag [1]; Yuval Yarom [1]; Katrina Falkner [1]; David Munro [1]
  [1] The University of Adelaide, Australia
- **Wide-Area External Multi-Camera Calibration Using Vision Graphs and Virtual Calibration Object** Gregorij Kurillo [1]; Zeyu Li [1]; Ruzena Bajcsy [1]
  [1] University of California, Berkeley, USA
- **Decentralized Discovery of Camera Network Topology** Ryan Farrell [1]; Larry Davis [1]
  [1] University of Maryland, USA
- **Global trajectory reconstruction from distributed visual sensors** Gabin-Wilfried Kayumbi-Kabeya [1]; Nadeem Anjum [1]; Andrea Cavallaro [1]
  [1] Queen Mary University of London, United Kingdom
- **Online Distributed Calibration of a Large Network of Wireless Cameras Using Dynamic Clustering** Henry Medeiros [1]; Hidekazu Iwaki [2]; Johnny Park [1]
  [1] Purdue University, USA
  [2] Olympus Corporation, Japan

12:00 - 13:30 Lunch (Hewlett patio)

13:30 - 15:30 Panel - *Business opportunities in multi-camera and embedded vision* (Hewlett 201)

15:30 - 16:00 Break (Hewlett patio)

16:00 - 22:30 Bus tour to banquet event and return to hotels

WEDNESDAY, SEPTEMBER 10

08:30 - 09:00 Registration (Hewlett Bldg.)

09:00 - 10:00 Plenary (Hewlett 201)

- **Yiannis Aloimonos, Univ. of Maryland**
  Languages of Human Activity

Yiannis Aloimonos (PhD 1987, Univ. of Rochester) is a Professor of Computational Vision and Intelligence in the Dept. of Computer Science at the University of Maryland, College Park and the Director of the Computer Vision Laboratory at the Institute for Advanced Computer Studies. He is also affiliated with the Cognitive Science Program. He is known for his work on Active Vision and his study of vision as a dynamic process. He has contributed to the theory of Computational Vision in various ways, including the discovery of the trilinear constraints (with M. Spetsakis), and the mathematics of stability in motion analysis as a function of the field of view (with C. Fermuller), which led to the development of omni-directional sensors. He has received several awards for his work (including the Marr Prize for his work on Active Vision, the Presidential Young Investigator Award from President Bush (1990) and the Bodossaki Prize in Artificial Intelligence). He has coauthored four books, including Active Perception and Visual Navigation. He is interested in cognitive systems, specifically the integration of visual cues and the integration of vision, action and language.

10:00 - 10:20 Break (Hewlett patio)

10:20 - 12:00 Oral session 4 - **Camera Network Algorithms** (Hewlett 201)

- **Principal view determination for camera selection in distributed smart camera networks** Linda Tessens [1]; Marleen Morbee [1]; Huang Lee [2]; Wilfried Philips [1]; Hamid Aghajan [2]
  [1] Ghent University, Belgium
  [2] Stanford University, USA
- **Visual On-line Learning in Distributed Camera Networks** Christian Leistner [1]; Peter Roth [1]; Helmut Grabner [1]; Horst Bischof [1]; Andreas Starzacher [2]; Bernhard Rinner [2]
  [1] Graz University of Technology, Austria
  [2] Klagenfurt University, Austria
- **Distributed pose averaging in camera networks using consensus on manifolds** Roberto Tron [1]; Andreas Terzis [1]; Rene Vidal [1]
  [1] Johns Hopkins University, USA
- **Implementation and Evaluation of a Reaction-Diffusion based Coding Rate Control Mechanism for Camera Sensor Networks** Hiroshi Yamamoto [1]; Katsuya Hyodo [1]; Naoki Wakamiya [1]; Murata Masayuki [1]
  [1] Osaka University, Japan
- **Content-aware ranking of video segments** Fahad Daniyal [1]; Andrea Cavallaro [1]; Murtaza Taj [1]
  [1] Queen Mary, University of London, United Kingdom

12:00 - 13:30 Lunch (Hewlett patio)

13:30 - 15:10 Demo session 2
(Y2E2 iRoom)

- **Estimation of activity topology of large surveillance networks** Henry Detmold [1]; Anthony Dick [1]; Anton Van Den Hengel [1]; Rhys Hill [1]
  [1] University of Adelaide, Australia
- **CITRIC Mote Demo** Phoebus W. Chen [1]
  [1] UC Berkeley, USA
- **A Large Scale Automated Video Analysis System** Zeeshan Rasheed [1]
  [1] ObjectVideo, USA
- **3D Vision and Vision-based graphics** Christian Theobalt [1]
  [1] Stanford University, USA
- **Modeling background activity for behavior subtraction** Pierre-Marc Jodoin [1]
  [1] University of Sherbrooke, Canada

13:30 - 15:10 Poster session 2
(Y2E2 atrium)

- **Feature-Based Calibration of Distributed Smart Stereo Camera Networks** Aaron Mavrinac [1]; Xiang Chen [1]; Kemal Tepe [1]
  [1] University of Windsor, Canada
- **Probabilistic Camera Hand-off for Visual Surveillance** Jiman Kim [1]; Dai-Jin Kim [1]
  [1] Pohang University of Science and Technology, Korea
- **A Decision and Communication Management Methodology for embedded Multi- Smart Camera systems, applied to real-time inspection in lamps production.** Norberto Flores-Guzmán [1]; Juan Sossa [2]; Rocky Bizuet [1]
  [1] Center for Mathematical Research, Mexico
  [2] National Politechnic Institute, Mexico
- **VISNET: A Distributed Vision Testbed** Michael Quinn [1]; Raghuraman Mudumbai [1]; Thomas Kuo [1]; Zefeng Ni [1]; Carter De Leo [1]; Bangalore Manjunath [1]
  [1] University of California Santa Barbara, USA
- **Design and Implementation of a Cluster based Smart Camera Array Application Framework** Cheng Lei [1]; Yee-Hong Yang [1]
  [1] University of Alberta, Canada
- **Image Matching Robust to Changes in Imaging Conditions with a Car-mounted Camera** Naoko Enami [1]; Norimichi Ukita [1]; Masatsugu Kidode [1]
  [1] Nara Institute of Science and Technology, Japan
- **Efficiency Improvement of Human Body Detection with Histograms of Oriented Gradients** Jordi Baranda Hortigüela [1]; Vincent Jeanne [2]; Ralph Braspenning [2]
  [1] Technical University of Catalonia, Spain
  [2] Philips Research, The Netherlands
- **A High Resolution Smart Camera with GigE Vision Extension for Surveillance Applications** Ehsan Norouznezhad [1]; Abbas Bigdeli [2]; Adam Postula [1]; Brian Lovell [2]

[1] University of Queensland, Australia
[2] National ICT Australia, Australia

- **Scallop : An open peer-to-peer framework for distributed sensor networks** Pekka Saastamoinen [1]; Sami Huttunen [1]; Valtteri Takala [2]; Marko Heikkilä [2]; Janne Heikkilä [2]
  [1] University of Oulu, Finland
  [2] University of Oulu, Machine Vision Group, Finland
- **MIDSCA: Towards a Smart Camera Architecture of Mobile Internet Devices** Michael Wittke [1]; Martin Hoffmann [1]; Jörg Hähner [1]; Christian Müller-Schloer [2]
  [1] Leibniz Universität Hannover, Germany
  [2] SRA, Uni-Hannover, Germany
- **An Efficient Algorithm for the Extraction of Contours and Curvature Scale Space on SIMD-Powered Smart Cameras** Paul Shin [1]; Xinting Gao [2]; Richard Kleihorst [2]; Johnny Park [1]; Avinash Kak [1]
  [1] Purdue University, USA
  [2] NXP Semiconductors, The Netherlands
- **A Multi-Agent Architecture to Support Active Fusion in a Visual Sensor Network** Federico Castanedo [1]; Jesus Garcia [1]; Miguel Patricio [1]; Jose Molina [1]
  [1] Universidad Carlos III de Madrid, Spain
- **Real-Time Implementations of Hough Transform on SIMD Architecture** Yifan He [1]; Zoran Zivkovic [2]; Richard Kleihorst [2]; Alexander Danilin [2]; Henk Corporaal [1]
  [1] Technical University Eindhoven, The Netherlands
  [2] NXP Semiconductor Research, The Netherlands
- **Multi-Camera Collision Detection Between Known and Unknown Objects** Dominik Henrich [1]; Thorsten Gecks [1]
  [1] University of Bayreuth, Germany
- **Fusion-Based Localization for a Heterogeneous Camera Network** Marci Meingast [1]; Manish Kushwaha [2]; Songhwai Oh [3]; Xenofon Koutsoukos [2]; Akos Ledeczi [2]; Shankar Sastry [1]
  [1] UC Berkeley, USA
  [2] Vanderbilt University, USA
  [3] University of California, Merced, USA
- **A Measurement Study on Wireless Camera Networks** Nan Li [1]; Bo Yan [1]; Guanling Chen [1]
  [1] University of Massachusetts Lowell, USA
- **FPGA-based Smart Camera for 3D Wavelet-based Image Segmentation** Mohammed Salem [1]; Markus Appel [1]; Frank Winkler [1]; Beate Meffert [1]
  [1] Humboldt-Universitaet zu Berlin, Germany
- **Self-Rectification and Depth Estimation of Stereo Video in a Real-time Smart Camera System** Xinting Gao [1]; Richard Kleihorst [1]; Peter Meijer [1]; Ben Schueler [1]
  [1] NXP Semiconductors, The Netherlands
- **Fusion of Visual and Thermal Images using Complex Extensions of EMD** David Looney [1]; Danilo Mandic [1]

[1] Imperial College London, United Kingdom

- **Empirical Evaluation of the Exclusion Approach to Estimating Camera Overlap** Rhys Hill [1]; Anton van den Hengel [1]; Anthony Dick [1]; Alex Cichowski [1]; Henry Detmold [1]
  [1] The University of Adelaide, Australia
- **Hive: A Distributed System for Vision Processing** Amir Afrah [1]; Gregor Miller [1]; Donovan Parks [1]; Martin Matthias Finke [1]; Sidney Fels [1]
  [1] University of British Columbia, Canada

15:10 - 15:30 Break (Hewlett patio)

15:30 - 16:50 Oral session 5 - **Human Analysis** (Hewlett 201)

- **3D Tracking and Dynamic Analysis of Human Head Movements and Attentional Targets** Erik Murphy-Chutorian [1]; Mohan Trivedi [2]
  [1] Google, Inc., USA
  [2] University of California, USA
- **Mapping Facial Expression Recognition Algorithms on a Low-Power Smart Camera** Anteneh Abbo [1]; Abhiram Ganesh [2]; Vincent Jeanne [1]; Caifeng Shan [1]; Ralph Braspenning [1]; Martin Ouwerkerk [1]; Henk Corporaal [2]
  [1] Philips Research, The Netherlands
  [2] Technical University Eindhoven, The Netherlands
- **Real-Time Clothes Comparison Based on Multi-View Vision** Wei Zhang [1]; James Begole [2]; Maurice Chu [2]; Juan Liu [2]; Nicholas Yee [2]
  [1] Oregon State University, USA
  [2] Palo Alto research Center, USA
- **Abnormal Behavior Detection and Behavior Matching for Networked Cameras** Erhan Ermis [1]; Venkatesh Saligrama [1]; Pierre-Marc Jodoin [2]; Janusz Konrad [1]
  [1] Boston University, USA
  [2] University of Sherbrooke, Canada

16:50 - 17:30 Invited talk - *Lessons from a vision startup founder* (Hewlett 201)

- **Matt Bell, Founder of Reactrix**
  The Reactrix Story: Vision, Interface, and Product

Reactrix founder Matt Bell invented the company's core technology as an art project. After observing the fascination and hours of fun it inspired at a party, he was determined to bring the experience to a larger audience - much larger. He quit his job at Google and launched Reactrix. Bell now leads Reactrix' applied research and advanced product development efforts. He has a keen interest in the uses of computer visioning, machine learning and artificial intelligence, as well as in developing creative new methods of human-computer interaction. At Google, Bell was a software engineer specializing in using machine learning techniques to improve search engine quality. He also has conducted published research at Mitsubishi Electric Research Labs.

17:30 Free evening -- organizing committee meeting at 18:00

THURSDAY, SEPTEMBER 11

08:30 - 09:00 Registration (Y2E2 Bldg.)

09:00 - 10:00 Plenary (Y2E2 Auditorium)

- **J. K. Aggarwal, Univ. of Texas at Austin**
  Computer Recognition of Human Activities and Objects

J.K. Aggarwal has served on the faculty of The University of Texas at Austin College of Engineering in the Department of Electrical and Computer Engineering since 1964. He is currently one of the Cullen Professors of Electrical and Computer Engineering. Professor Aggarwal earned his B.Sc. from University of Bombay, India in 1957, B. Eng. from University of Liverpool, Liverpool, England, 1960, M.S. and Ph.D. from University of Illinois, Urbana, Illinois, in 1961 and 1964 respectively. His research interests include image processing, computer vision and pattern recognition. The current focus of research is on the automatic recognition of human activity and interactions in video sequences, and on the use of perceptual grouping for the automatic recognition and retrieval of images and videos from databases.

A fellow of IEEE (1976) and IAPR (1998), Professor Aggarwal received the Best Paper Award of the Pattern Recognition Society in 1975, the Senior Research Award of the American Society of Engineering Education in 1992 and the IEEE Computer Society Technical Achievement Award in 1996. He is the recipient of the 2004 K. S. Fu Prize of the IAPR and the 2005 Leon K. Kirchmayer Graduate Teaching Award of the IEEE. He is the author or editor of 7 books and 52 book chapters, author of over 200 journal papers, as well as numerous proceeding papers and technical reports. He has served as the Chairman of the IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence (1987-1989), Director of the NATO Advanced Research Workshop on Multisensor Fusion for Computer Vision, Grenoble, France (1989), Chairman of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (1993), and the President of the International Association for Pattern Recognition (1992-1994). He is a life fellow of IEEE and Golden Core Member of IEEE Computer Society.

10:00 - 10:20 Break (Y2E2 patio)

10:20 - 12:00 Workshop I (Y2E2 conf room)

- **Workshop on Activity Monitoring by Multi-camera Surveillance Systems (AMMCSS)**
  Workshop Chairs: **Tiziana D'Orazio (National Research Council, Italy) and Mohan Trivedi (UCSD, USA)**

- **Real-Time Multi-view Event Detection in Soccer Games** Marco Leo [1]; Nicola Mosca [1]; Paolo Spagnolo [1]; Pier Luigi Mazzeo [1]; Arcangelo Distante [1]
  [1] Istituto di studi sui sistemi intelligenti per l'automazione – CNR, Italy
- **ViHASi: Virtual Human Action Silhouette Data for the Performance Evaluation of Silhouette-Based Action Recognition Methods** Hossein Ragheb [1]; Sergio Velastin [1]; Paolo Remagnino [1]; Tim Ellis [1]
  [1] Kingston University London, United Kingdom
- **Applying Multi Layer Homography for Multi Camera tracking** Dejan Arsic [1]; Nicolas Lehment [1]; Encho Hristov [1]; Benedikt Hörnler [1]; Björn Schuller [1]; Gerhard Rigoll [1]
  [1] Technische Universität München, Germany
- **Abnormal Behavior-Detection Using Sequential Syntactical Classification in a Network of Clustered Cameras** Rachel Goshorn [1]; Deborah Goshorn [2]; Joshua Goshorn [3]; Lawrence Goshorn [3]

[1] Naval Postgraduate School, USA
[2] University of California, San Diego, USA
[3] JLG Technologies, Inc.

- **Human Body Modeling and Tracking Using Volumetric Representation: Selected Recent Studies And Possibilities for Extensions** Cuong Tran; [1] Mohan Trivedi [1]
  [1] University of California, San Diego, USA
- **Multiple Camera Based Chamfer Matching for Pedestrian Detection** Itai Katz;[1] Hamid Aghajan [1]
  [1] Stanford University, USA

10:20 - 12:00 Workshop II (Y2E2 conf room)

- **Workshop on Embedded Middleware for Smart Camera and Visual Sensor Networks (eMCAM)**
  Workshop Chairs: **Bernhard Rinner (Klagenfurt University, Austria) and Wayne Wolf (Georgia Tech, USA)**

- **Decentralized Camera Network Control Using Game Theory** Amit Roy-Chowdhury [1]; Bi Song [1]; Cristian Soto [1]; Jay Farrell[1]
  [1] University of California, Riverside, USA
- **Design of a Wireless Vision Sensor for Object Tracking in Wireless Vision Sensor Networks** Mauricio Casares [1]; Mehmet Can Vuran [1]; Senem Velipasalar [1]
  [1] University of Nebraska-Lincoln, USA
- **DSCAgents: A Lightweight Middleware for Distributed Smart Cameras** Markus Quaritsch [1]; Bernhard Rinner [1]
  [1] Klagenfurt University, Austria
- **Optimising Resource Allocation for Background Modeling Using Algorithm Switching** Radha Krishna [1]; Kealan McCusker [1]; Noel E O'Connor [1]
  [1] Dublin City University, Ireland

12:00 - 13:30 Discussion - *Is Middleware for Smart Cameras and Visual Sensor Networks Required at All?*

12:00 - 13:30 Lunch (Y2E2 patio)