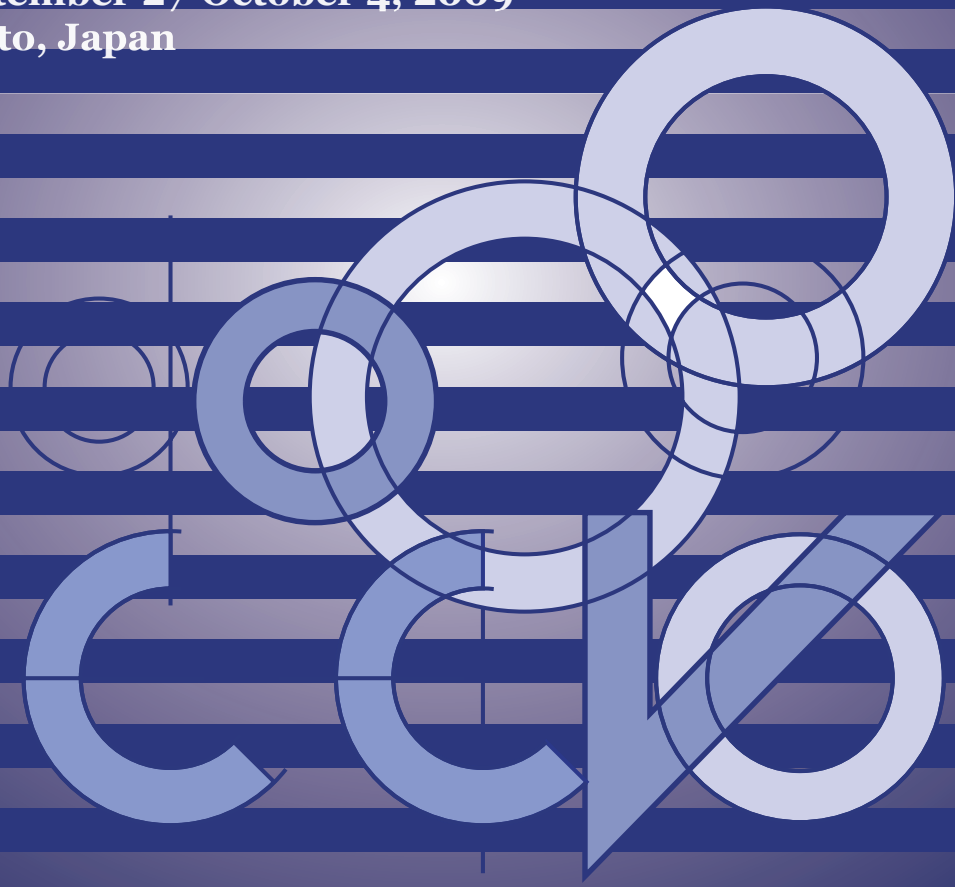


**TWELFTH
IEEE INTERNATIONAL CONFERENCE
ON COMPUTER VISION**

Pocket Guide

**September 27-October 4, 2009
Kyoto, Japan**





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Timetable: Special Event, Workshops and Tutorials at Kyoto University

Location	Sunday, September 27		Monday, September 28	
Centennial Hall (Clock Tower 1F)	T [MAP Inference in Discrete Models] (9:30-) p.7		Special Event [Colloquium on Fundamental Advances in Computer Vision] (9:30-12:25, 14:00-16:40) p.10	
Int.Conf. Hall 2 (Clock Tower 2F)	T [Variational Optical Flow Estimation] (9:30-) p.7		T [Sparse Coding and Dictionary Learning for Image Analysis] (9:30-) p.14	T [Recognizing and Learning Object Categories: Year 2009] (14:00-) p.15
Int.Conf. Hall 3 (Clock Tower 2F)	T [Local Texture Descriptors in Computer Vision] (9:30-) p.7			
Room W1 (Eng.Bldg.#3 1F)	W [Search in 3D and Video (S3DV)] (9:30-12:30, 14:00-17:00) p.3		W [Dynamical Vision] (9:30-13:00, 14:00-17:30) p.13	
Room W2 (Eng.Bldg.#3 2F)	T [Computer Vision in the Analysis of Master Drawings and Paintings] (9:30-) p.8	T [Human-centered Vision Systems] (14:00-) p.8	T [Physics-Based Human Motion Modelling for People Tracking] (9:30-) p.14	T [Numerical Geometry of Non-Rigid Objects] (14:00-) p.15
Room W3 (Eng.Bldg.#3 3F)	W [Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA)] (9:30-12:30, 14:00-18:30) p.6		T [Structured Prediction in Computer Vision] (9:30-) p.14	T [Boosting and Random Forest for Visual Recognition] (14:00-) p.15
Room W4 (Eng.Bldg.#3 4F)	W [Subspace Methods (Subspace 2009)] (9:50-12:50, 14:00-17:40) p.4		W [Machine Learning for Vision-based Motion Analysis (MLVMA'09)] (9:30-12:30, 14:10-17:20) p.10	
Room W201 (Eng.Bldg.#3 2F)	W [Computer Vision for Humanoid Robots in Real Environments] (9:30-12:30, 14:00-18:00) p.3		W [Video-Oriented Object and Event Classification] (9:30-12:10, 14:00-17:15) p.11	
Room W202 (Eng.Bldg.#3 2F)	W(Poster) [Computer Vision for Humanoid Robots in Real Environments]		W [3D Representation for Recognition (3dRR-09)] (9:30-12:00, 13:30-17:45) p.12	
Gallery space (Eng.Bldg.#3 4F)	W(Poster) [Subspace 2009], [NORDIA]			
Room N1 (Eng.Bldg.#3 1F)		T [Modeling Natural Image Statistics for Computer Vision] (14:00-) p.9	T : Tutorial W: Workshop	
Room N2 (Eng.Bldg.#3 2F)		T [Coloring Visual Search] (14:00-) p.9		

Location	Saturday, October 3	Sunday, October 4
Int.Conf. Hall 2 & 3 (Clock Tower 2F)	W [3-D Digital Imaging and Modeling (3DIM2009), Day1] (9:30-12:30, 14:00-18:00) p.35	W [3-D Digital Imaging and Modeling (3DIM2009), Day2] (9:30-12:30, 14:00-17:20) p.37
Room W1 (Eng.Bldg.#3 1F)	W [On-line Learning for Computer Vision] (9:30-12:20, 14:00-17:45) p.34	W [Omnidirectional Vision, Camera Networks and Non-classical Cameras (OMNIVIS2009)] (9:30-12:30, 14:00-18:00) p.41
Room W2 (Eng.Bldg.#3 2F)	W [eHeritage and Digital Art Preservation] (9:30-12:35, 14:15-17:45) p.31	W [Color and Reflectance in Imaging and Computer Vision - CRICV2009] (9:30-12:30, 14:00-17:20) p.38
Room W201 (Eng.Bldg.#3 2F)	W [Tracking Humans for the Evaluation of their Motion in Image Sequences (THEMIS2009)] (9:30-12:30, 14:00-17:45) p.32	W [Emergent Issues in Large Amounts of Visual Data] (9:30-12:30, 14:00-18:00) p.40
Room W202 (Eng.Bldg.#3 2F)	W [Embedded Computer Vision] (9:30-12:30, 14:00-17:50) p.30	W [Human-Computer Interaction (HCI'09)] (9:30-12:30, 14:00-18:00) p.39
Gallery space (Eng.Bldg.#3 4F)	W(Poster) [Embedded Computer Vision], [THEMIS2009],[Visual Surveillance]	
Room N1 (Eng.Bldg.#3 1F)	W [Visual Surveillance] (9:30-13:00, 14:00-17:30) p.33	
Room N2 (Eng.Bldg.#3 2F)	W [PASCAL Visual Object Classes Challenge 2009] (9:30-12:30, 14:00-15:45) p.35	



First IEEE Workshop on Computer Vision for Humanoid Robots in Real Environments

Organizers: *Irfan Essa, Atsushi Nakazawa, Siddhartha Srinivasa, Rahul Sukthankar, Katsu Yamane*

Location: (Oral) Room W201 (Eng.Bldg.#3, 2F)
(Poster) Room W202 (Eng.Bldg.#3, 2F)

Program

9:30-9:40 Opening Remarks: Dr. Katsu Yamane

9:40-10:10 Invited Talk I

Art and Robotics, *Shunsuke Kudo*

10:10-10:40 Invited Talk II

Human Visuomotor Learning for Robot Skill Synthesis,
Erhan Oztop

10:50-11:10 Poster Fast-Forward I

11:10-11:30 Coffee Break

11:30-12:30 Poster Session I

12:30-14:00 Lunch

14:00-14:30 Invited Talk III

Physical Embodiment Makes Vision Meaningful,
Minoru Asada

14:30-15:00 Invited Talk IV

Vision and Planning for Humanoid, *Takeo Kanade*

15:00-15:30 Poster Fast-Forward II

15:30-15:45 Coffee Break

15:45-16:45 Poster Session II

16:45-17:15 Invited Talk V

High Speed Vision and Its Applications in Robotics,
Masatoshi Ishikawa

17:15-17:45 Invited Talk VI

TBD, *Gary Bradski*

17:45-18:00 Closing Remarks: Irfan Essa

IEEE Workshop on Search in 3D and Video (S3DV)

Organizers: *J. Shi, H. Wang, P. Mordohai, R. Swaminathan, L. Ying, A. Basu*

Location: Room W1 (Eng.Bldg.#3, 1F)

Program

9:30-11:00 Session 1: 3D Pose and Action

3D Action Matching with Key-pose Detection, *J. Kilner, J.-Y. Guillemaut, A. Hilton*

Discriminative 3D Human Pose Estimation from Monocular Images via Topological Preserving Hierarchical Affinity Clustering, *Weiwei Guo, Ioannis Patras*

3D Human Pose Search Using Oriented Cylinders, *Selen Pehlivan, Pinar Duygulu*

11:00-11:30 Coffee Break

11:30-12:30 Session 2: Localization and Detection

Geolocalization Using Skylines from Omni-images, *Srikumar Ramalingam, Sofien Bouaziz, Peter Sturm, Matthew Brand*

Pedestrian Detection with Depth-guided Structure Labeling, *Mayank Bansal, Bogdan Matei, Harpreet Sawhney, Sang-Hack Jung, Jayan Eledath*

12:30-14:00 Lunch

14:00-15:30 Session 3: Segmentation and Skeletonization

Min-cut Based Segmentation of Point Clouds, *Aleksey Golovinskiy, Thomas Funkhouser*

Detecting and Segmenting Objects for Mobile Manipulation, *Radu Bogdan Rusu, Andreas Holzbach, Michael Beetz, Gary Bradski*

Valence Normalized Spatial Median for Skeletonization and Matching, *Tao Wang, Irene Cheng, Victor Lopez, Ernesto Bribiesca, Anup Basu*

15:30-16:00 Coffee Break

16:00-17:00 Session 4: Registration and Retrieval

Scale-weighted Dense Bag of Visual Features for 3D Model Retrieval from a Partial View 3D Model, *Ryutarou Ohbuchi, Takahiko Furuya*



A Similarity Measure for 3D Rigid Registration of Point Clouds Using Image-based Descriptors with Low Overlap, *C. Torre-Ferrero, J. R. Llata, S. Robla, E. G. Sarabia*

2nd IEEE International Workshop on Subspace Methods (Subspace 2009)

Organizers: Toru Tamaki, David Suter, Björn Stenger

Location: (Oral) Room W4 (Eng.Bldg.#3, 4F)

(Poster) Gallery space (Eng.Bldg.#3, 4F)

Program

9:50-10:00 Opening

10:00-11:00 Oral Session 1

Nonnegative Matrix Factorization with Gibbs Random Field Modeling, *Shengcai Liao, Zhen Lei, Stan Z. Li*

Learning Invariances with Stationary Subspace Analysis, *Frank C. Meinecke, Paul von Bünow, Motoaki Kawanabe, Klaus-R. Müller*

Mahalanobis Distance Minimization Mapping : M3, *Aiko Oka, Toshikazu Wada*

11:00-11:30 Morning Break

11:30-12:30 Oral Session 2

Large Margin Classifiers Based on Convex Class Models, *Hakan Cevikalp, Bill Triggs*

A General Framework for Approximate Nearest Subspace Search, *Ronen Basri, Tal Hassner, Lihi Zelnik-Manor*

A Strategy of Classification via Sparse Dictionary Learned by Non-negative K-SVD, *Rongguo Zhang, Chunheng Wang, Baihua Xiao*

12:30-12:50 Poster Preview

12:50-14:00 Lunch Break

14:00-15:30 Poster Session / Oral-Poster-Hybrid Session

Identity and Variation Spaces: Revisiting the Fisher Linear Discriminant, *Sheng Zhang, Terence Sim, Mei-Chen Yeh*

Investigating the Spatial Support of Signal and Noise in Face Recognition, *Yun Fu, Simon J. D. Prince*

Robust Faces Manifold Modeling: Most Expressive Vs. Most Sparse Criterion, *Xiaoyang Tan, Lishan Qiao, Wenjuan Gao, Jun Liu*

Nonnegative Matrix Factorization with Gibbs Random Field Modeling, *Shengcai Liao, Zhen Lei, Stan Z. Li*



Learning Invariances with Stationary Subspace Analysis,
Frank C. Meinecke, Paul von Bünau, Motoaki Kawanabe, Klaus-R. Müller

Mahalanobis Distance Minimization Mapping : M3, *Aiko Oka, Toshikazu Wada*

Large Margin Classifiers Based on Convex Class Models,
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A General Framework for Approximate Nearest Subspace Search, *Ronen Basri, Tal Hassner, Lihi Zelnik-Manor*

A Strategy of Classification via Sparse Dictionary Learned by Non-negative K-SVD, *Rongguo Zhang, Chunheng Wang, Baihua Xiao*

Stepwise Correlation Metric Based Discriminant Analysis and Multi-probe Images Fusion for Face Recognition, *Zhen Lei, Shengcai Liao, Stan Z. Li*

Non-linear Generative Embeddings for Kernels on Latent Variable Models, *Anna Carli, Manuele Bicego, Sisto Baldo, Vittorio Murino*

Subset Kernel PCA for Pattern Recognition, *Yoshikazu Washizawa*

Multiple Pattern Classification by Sparse Subspace Decomposition, *Tomoya Sakai*

Visual Category Recognition Using Spectral Regression and Kernel Discriminant Analysis, *M. A. Tahir, J. Kittler, K. Mikolajczyk, F. Yan, Koen van de Sande, T. Gevers*

Spectral Face Clustering, *Biswaroop Palit, Rakesh Nigam, Keren Perlmutter, Sharon Perlmutter*

3D-MAM: 3D Morphable Appearance Model for Efficient Fine Head Pose Estimation from Still Images, *Markus Storer, Martin Urschler, Horst Bischof*

Optimal Feature Selection for Subspace Image Matching, *Gemma Roig, Xavier Boix, Fernando De la Torre*

Learning Good Features for Active Shape Models, *Nuria Brunet, Francisco Perez, Fernando De la Torre*

Multilinear Isometric Embedding for Visual Pattern Analysis, *Yan Liu, Yang Liu, Keith C. C. Chan*

Synthesis of Multiple Pose Facial Images Using Tensor-based Subspace Learning Method, *Xu Qiao, Yen-Wei Chen, Xian-Hua Han, Takanori Igarashi, Keisuke Nakao*

Head Pose Estimation Using Multilinear Subspace Analysis for Robot Human Awareness, *Tonislav Ivanov, Larry Matthies, M. Alex O. Vasilescu*

Median K-flats for Hybrid Linear Modeling with Many Outliers, *Teng Zhang, Arthur Szlam, Gilad Lerman*

Optimization on the Manifold of Multiple Homographies, *Anders Eriksson, Anton van den Hengel*

Curve Fitting by Spherical Least Squares on Two-dimensional Sphere, *Jun Fujiki, Shotaro Akaho*

15:30-16:00 Afternoon Break

16:00-17:30 Oral Session 3

Identity and Variation Spaces: Revisiting the Fisher Linear Discriminant, *Sheng Zhang, Terence Sim, Mei-Chen Yeh*

Investigating the Spatial Support of Signal and Noise in Face Recognition, *Yun Fu, Simon J. D. Prince*

Robust Faces Manifold Modeling: Most Expressive Vs. Most Sparse Criterion, *Xiaoyang Tan, Lishan Qiao, Wenjuan Gao, Jun Liu*

17:30-17:40 Closing

18:00- Reception (TBA)



2nd IEEE Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA)

Organizers: Alexander Bronstein, Michael Bronstein, Guillermo Sapiro

Location: (Oral) Room W3 (Eng.Bldg.#3, 3F)
(Poster) Gallery space (Eng.Bldg.#3, 4F)

Program

9:30-10:30 Keynote talk

Symmetry/Structure Detection and Preservation in 3D Geometry, *Niloy Mitra*

10:30-11:20 Shape similarity and retrieval

Spectral Gromov-wasserstein Distances for Shape Matching, *Facundo Mémoli*

Efficient Retrieval of Deformable Shape Classes Using Local Self-similarities, *Ken Chatfield, James Philbin, Andrew Zisserman*

11:20-11:40 Coffee break

11:40-12:30 Inverse problems

On Reconstruction of Non-rigid Shapes with Intrinsic Regularization, *Yohai S. Devir, Guy Rosman, Alexander M. Bronstein, Michael M. Bronstein, Ron Kimmel*

Detailed Body Shapes from Flash Photographs, *Yusuke Yoshiyasu, Nobutoshi Yamazaki*

12:30-14:00 Lunch

14:00-15:00 Keynote talk

Modeling Deformable Surfaces from Single Videos, *Pascal Fua*

15:00-15:20 Coffee Break

15:20-17:00 Deformable shapes and image alignment

Probabilistic Constrained Adaptive Local Displacement Experts, *Jason M. Saragih, Simon Lucey, Jeffrey F. Cohn*

Markov Chain Monte Carlo Shape Sampling Using Level Sets, *Siqi Chen, Richard J. Radke*

Fast Nonrigid Mesh Registration with a Data-driven Deformation Prior, *David C. Schneider, Peter Eisert*

Non-rigid Registration between Color Channels Based on Joint-histogram Entropy in Subspace, *Masao Shimizu, Rafael H. C. de Souza, Shin Yoshimura, Masatoshi Okutomi*

9:30-18:00 Poster session

Shape Google: A Computer Vision Approach to Isometry Invariant Shape Retrieval, *Maks Ovsjanikov, Alexander M. Bronstein, Michael M. Bronstein, Leonidas J. Guibas*

Learning Shape Metrics Based on Deformations and Transport, *Guillaume Charpiat*

Unsupervised Learning of Human Body Parts from Video Footage, *Thomas Walthert, Rolf P. Würtz*

Learning Varying Dimension Radial Basis Functions for Deformable Image Alignment, *Di Yang, Hongdong Li*

Uncalibrated Non-rigid Factorisation with Automatic Shape Basis Selection, *Sami S. Brandt, Pekka Koskenkorva, Juho Kannala, Anders Heyden*

Integrating Contour and Skeleton for Shape Classification, *Xiang Bai, Wenyu Liu, Zhuowen Tu*

Online Active Feature Model for Lip Tracking, *Quoc Dinh Nguyen, Maurice Milgram*

Effective and Efficient Interpolation for Mutual Information Based Multimodality Elastic Image Registration, *Eduardo Ardidzone, Roberto Gallea, Orazio Gambino, Roberto Pirrone*

Bending Invariant Meshes and Application to Groupwise Correspondences, *Stefanie Wuhrer, Chang Shu, Jonathan Boisvert, Guy Godin*

Joint Estimation of Deformable Motion and Photometric Parameters in Single View Video, *Anna Hilsmann, Peter Eisert*

A Phase Field Higher-order Active Contour Model of Directed Networks, *Ayten El Ghouli, Ian H. Jermyn, Josiane Zerubia*

18:00-18:30 Best paper prize, conference conclusion

Full Day Tutorial (9:30-)**MAP Inference in Discrete Models**

Lecturers: Pushmeet Kohli, M Pawan Kumar, Carsten Rother

Location: Centennial Hall (Clock Tower, 1F)

Time: 9:30- (Full Day)

URL: <http://research.microsoft.com/en-us/um/cambridge/projects/tutorial/>

Abstract: Many problems in Computer Vision involve computing the most probable values of certain random variables. This problem, known as Maximum a Posteriori (MAP) estimation has been widely studied in Computer Science and the resulting algorithms have led to accurate and reliable solutions for many problems in computer vision and information engineering. This tutorial is aimed at researchers who wish to use and understand these algorithms. The tutorial will answer the following questions: How to formalize and solve some known vision problems using MAP inference of a random field? What are the different genres of MAP inference algorithms, and how do they work? Which algorithm is suitable for which problem? and lastly, what are the recent developments and open questions in this field?

Morning (9:30-)**Variational Optical Flow Estimation**

Lecturers: Thomas Brox, Andrés Bruhn

Location: International Conf. Hall 2 (Clock Tower, 2F)

Time: 9:30- (Half Day)

URL: <http://www.mia.uni-saarland.de/bruhn/iccv2009/index.shtml>

Abstract: Combining dense flow fields and subpixel accuracy within a sound optimization framework,

variational methods are appealing for many computer vision tasks that require optical flow information. This course will provide a comprehensible introduction into the theoretical background of recent state-of-the-art methods and shows the modelling options that will allow the participants to adapt the model to their specific needs. The course will also cover the numerics behind the models which are decisive for implementation. The focus will be on efficiently solving the very large linear or nonlinear systems with multigrid methods, which allow to compute dense flow fields in real-time.

Local Texture Descriptors in Computer Vision

Lecturers: Matti Pietikäinen, Guoying Zhao

Location: International Conf. Hall 3 (Clock Tower, 2F)

Time: 9:30- (Half Day)

URL: <http://www.ee.oulu.fi/~gyzhao/ICCVTutorial/index.htm>

Abstract: This tutorial presents how local texture descriptors can be used for solving various computer vision problems. The local binary patterns (LBP) are used as example descriptors. Part I overviews the milestones of texture research since the 1960's. Part II deals with LBP operators in spatial domain, with applications in recognizing 3D textured surfaces, interest region description, face recognition, and background subtraction. Part III deals with local spatiotemporal operators. A simple spatiotemporal LBP-TOP operator is introduced, and applied to dynamic texture recognition and segmentation, facial expression recognition, visual speech recognition, recognition of actions and gait, and video texture synthesis. Finally, Part IV concludes the tutorial and presents some challenges for future research.



Computer Vision in the Analysis of Master Drawings and Paintings

Lecturer: David G. Stork

Location: Room W2 (Eng.Bldg.#3, 2F)

Time: 9:30- (Half Day)

URL: <http://www.diatrope.com/stork/CourseDescriptions.html>

Abstract: This course is an introduction to the application of computer vision and image analysis to problems in art and art history, specifically realist art. Realist paintings are a rich source of information, both of the scene portrayed and the techniques the artist used to render that scene. Students will learn the principles of perspective and how to apply perspective analysis to paintings to infer vanishing points, locate perspective inconsistencies and to determine whether the artist used perspective constructions or tools. Students will learn how to infer the number, color, and position of light sources based on position, color and blur of cast shadows and highlights along occluding boundaries. Students will learn how to estimate sizes of depicted objects based on perspective and fiducial or reference objects or relationships. Students will learn how to estimate "camera parameters" of the artist (or imaging system), such as the effective magnification, focal length and in some cases aberrations. Some of these methods require no more than ruler and pencil, others require commercial software (e.g., Adobe Illustrator), others were adapted from their use in forensic analysis of digital photographs and require powerful commercial image processing packages (including ones based on C++, Matlab, Mathematica), and yet others require researchers to write special code.

Afternoon (14:00-)

Human-centered Vision Systems

Lecturers: Hamid Aghajan, Nicu Sebe

Location: Room W2 (Eng.Bldg.#3, 2F)

Time: 14:00- (Half Day)

URL: <http://www.science.uva.nl/~nicu/iccv09-tutorial.html>

Abstract: We take a holistic approach to the human-centered vision systems problem. We aim to identify the opportunities in addressing novel applications, and the potentials for fruitful future research directions. In particular, we introduce key concepts, discuss technical approaches and open issues in three areas: multimodal interaction: visual (body, gaze, gesture) and audio (emotion) analysis; smart environments; 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.



Modeling Natural Image Statistics for Computer Vision

Lecturers: Siwei Lyu, Stefan Roth

Location: Room N1 (Eng.Bldg.#3, 1F)

Time: 14:00- (Half Day)

URL: <http://www.gris.informatik.tu-darmstadt.de/teaching/iccv2009/index.en.htm>

Abstract: Though occupying only a tiny fraction of the image space, natural images stand out with particular statistical properties, which play an essential role in low-level computer vision tasks, where corruptions that can affect higher-level vision tasks, such as noise, blur, damage, and low resolution, are reduced and removed. Similar challenges exist for a variety of other dense scene representations and their applications, including scene depth and image motion. Recently, we have witnessed a surge of interest in modeling statistics of natural images in the computer vision community with applications to problems ranging from low-level (e.g., denoising, super-resolution, inpainting, de-blurring), over mid-level (e.g., segmentation, color constancy, scene categorization) to high-level vision (e.g., object recognition). This short course will give an introduction to the basic aspects of natural image statistics, focusing on basic representations and statistical regularities. It will also describe recent developments in modeling natural image statistics and their applications to computer vision tasks.

Coloring Visual Search

Lecturers: Cees G. M. Snoek, Theo Gevers,
Arnold W. M. Smeulders

Location: Room N2 (Eng.Bldg.#3, 2F)

Time: 14:00- (Half Day)

URL: <http://staff.science.uva.nl/~cgmsnoek/coloringvisualesearch/>

Abstract: We focus on the scientific challenges in visual search using color, present methods how to achieve state-of-the-art performance, and indicate how to obtain improvements in the near future. Moreover, we give an overview of the latest developments and future trends in the field of visual search based on the Pascal VOC and TRECVID benchmarks -- the leading benchmarks for image and video retrieval.



Special ICCV2009 Event:
**Colloquium on Fundamental
 Advances in Computer Vision**

Organizers: *Sing Bing Kang, Yoichi Sato, Shree Nayar,
 Martial Hebert, Harry Shum*

Location: Centennial Hall (Clock Tower, 1F)

Program

9:30-9:45 Welcome

9:45-10:20

Research on Vision Algorithm Compiler, *Takeo Kanade*

10:20-10:55

Revisiting the Geometry of Low-level Vision from the Point of
 View of Biological and Machine Vision, *Olivier Faugeras*

10:55-11:15 Break

11:15-11:50

Internet Vision: Challenges and Opportunities, *Harry Shum*

11:50-12:25

Annotation and Retrieval of Pictures, *Makoto Nagao*

12:25-14:00 Lunch

14:00-14:35

Steps Toward Modeling and Understanding a User's
 Environment, *Martial Hebert*

14:35-15:10

Closed Loop System Test for Machine Vision, *Berthold Horn*

15:10-15:45

Robust Computer Vision Techniques and Applications,
In So Kweon

15:45-16:00 Break

16:00-16:35

A Digital Camera for Education, *Shree Nayar*

16:35-16:40 Conclude

**IEEE International Workshop on
 Machine Learning for Vision-based
 Motion Analysis (MLVMA09)**

Organizers: *Matti Pietikäinen, Liang Wang, Li Cheng,
 Guoying Zhao*

Location: Room W4 (Eng.Bldg.#3, 4F)

Program

9:30-9:40 Opening Remarks

9:40-10:30 S1: Keynote Session

Detecting and Recognizing Moving Humans, *Li Fei-Fei*

10:30-11:10 S2: Motion Estimation

Combining Discriminative Appearance and Segmentation
 Cues for Articulated Human Pose Estimation, *Sam
 Johnson, Mark Everingham*

Two-layer Generative Models for Estimating Unknown Gait
 Kinematics, *Xin Zhang, Guoliang Fan, Li-Shan Chou*

11:10-11:30 Coffee Break

11:30-12:30 S3: Learning Methods

Fitting Parametric Road Models to Spatio-temporal
 Derivatives, *Manfred Georg, Robert Pless*
 On-line Learning of the Transition Model for Recursive
 Bayesian Estimation, *Samuele Salti, Luigi Di Stefano*
 Sparse Learning Approach to the Problem of Robust
 Estimation of Camera Locations, *Arnak Dalalyan,
 Renaud Keriven*

12:30-14:00 Lunch

14:10-14:50 S4: Motion tracking

Learning Mixed-state Markov Models for Statistical Motion
 Texture Tracking, *T. Crivelli, P. Bouthemy, B. Cernuschi-
 Frias, J.-F. Yao*

H-APF: Using Hierarchical Representation of Human Body
 for 3-D Articulated Tracking and Action Classification,
Leonid Raskin, Michael Rudzsky, Ehud Rivlin

14:50-15:30 S5: Segmentation

An Improved Local Descriptor and Threshold Learning for
 Unsupervised Dynamic Texture Segmentation, *Jie
 Chen, Guoying Zhao, Matti Pietikäinen*



Randomized Algorithm of Spectral Clustering and Image/
Video Segmentation Using a Minority of Pixels, *Tomoya
Sakai, Atsushi Imiya*

15:30-16:00 Coffee Break

16:00-17:20 S6: Action recognition

Supervised Neighborhood Topology Learning for Human
Action Recognition, *Jinhua Ma, Pong C Yuen, Weiwen
Zou, Jian-Huang Lai*

Human Action Recognition from a Single Clip per Action,
Weilong Yang, Yang Wang, Greg Mori

Evaluation of Threshold Model HMMs and Conditional
Random Fields for Recognition of Spatiotemporal
Gestures in Sign Language, *Daniel Kelly, John Mc
Donald, Charles Markham*

Action Exemplar Based Real-time Action Detection, *Sang-
Hack Jung, Yanlin Guo, Harpreet Sawhney, Rakesh
Kumar*

1st IEEE Workshop on Video- Oriented Object and Event Classification

Organizers: *Shuicheng Yan, Qingshan Liu,
Changsheng Xu*

Location: Room W201 (Eng.Bldg.#3, 2F)

Program

9:30-9:40 Welcome Message

9:40-12:10 Session 1: Action Recognition

Effective Codebooks for Human Action Categorization,
*Lamberto Ballan, Marco Bertini, Alberto Del Bimbo,
Lorenzo Seidenari, Giuseppe Serra*

Trajectons: Action Recognition Through the Motion Analysis
of Tracked Features, *Pyyri Matikainen, Martial Hebert,
Rahul Sukthankar*

Human Action Detection by Boosting Efficient Motion
Features, *Ming Yang, Fengjun Lv, Wei Xu, Kai Yu,
Yihong Gong*

Action Recognition Using Randomised Ferns, *Olusegun
Oshin, Andrew Gilbert, John Illingworth, Richard
Bowden*

(10:40-11:10 Morning Break)

Boosted Exemplar Learning for Human Action Recognition,
Tianzhu Zhang, Jing Liu, Si Liu, Yi Ouyang, Hanqing Lu

Efficient Human Action Recognition by Cascaded Linear
Classification, *Peter M. Roth, Thomas Mauthner,
Inayatullah Khan, Horst Bischof*

Event Detection and Semantic Identification Using
Bayesian Belief Network, *Maheshkumar H. Kolekar, K.
Palaniappan, S. Sengupta, G. Seetharaman*

ICA Mixture Hidden Conditional Random Field Model for
Sports Event Classification, *Xiaofeng Wang, Xiao-Ping
Zhang*

12:10-14:00 Lunch Break

14:00-15:15 Session 2: Applications

Video-based Raindrop Detection for Improved Image
Registration, *Martin Roser, Andreas Geiger*



Automatic Identification of Fusion Events in TIRF Microscopy Image Sequences, *Katarina Mele, Adelle Coster, James G. Burchfield, Jamie Lopez, David E. James, William E. Hughes, Pascal Vallotton*

Workflow Monitoring Based on 3D Motion Features, *N. Padoy, D. Mateus, D. Weinland, M-O. Berger, N. Navab*
Acquiring 3D Motion Trajectories of Large Numbers of Swarming Animals, *Hai Shan Wu, Qi Zhao, Danping Zou, Yan Qiu Chen*

Quantitative Comparison of Metrics for Change Detection in Video Patrolling Applications, *B. Soibam, S. K. Shah, A. Chaudhry, J. Eledath*

15:15-15:45 Coffee Break

15:45-16:45 Session 3: Object and Scene Analysis

Transfer Pedestrian Detector Towards View-adaptiveness and Efficiency, *Junbiao Pang, Qingming Huang, Shuqiang Jiang, Zhipeng Wu*

Feature-Cut: Video Object Segmentation Through Local Feature Correspondences, *Dan Ring, Anil Kokaram*

Semantic Segmentation of Street Scenes by Superpixel Co-occurrence and 3D Geometry, *Branislav Mičušik, Jana Košecká*

(Multiscale) Local Phase Quantisation Histogram Discriminant Analysis with Score Normalisation for Robust Face Recognition, *Chi Ho Chan, Josef Kittler, Norman Poh, Timo Ahonen, Matti Pietikäinen*

16:45-17:15 Best Paper Award

2nd International IEEE Workshop on 3D Representation for Recognition (3dRR-09)

Organizers: Silvio Savarese, Tinne Tuytelaars, Derek Hoiem
Location: Room W202 (Eng.Bldg.#3, 2F)

Program

9:30-9:40 Opening: Silvio Savarese

9:40-10:20 Keynote talk: Rick Szeliski

10:20-11:00 Oral session I: 3D Object Recognition and Pose Estimation

Active View Selection for Object and Pose Recognition, *Zhaoyin Jia, Yao-Jen Chang, Tsuhan Chen*

Shading Cues for Object Class Detection, *Michael Stark, Michael Goesele, Bernt Schiele*

11:00-11:20 Coffee break

11:20-12:00 Oral session II: 3D Representation for Objects and Scene Recognition

Road Scene Labeling Using SfM Module and 3D Bag of Textons, *Yousun Kang, Koichiro Yamaguchi, Takashi Naito, Yoshiki Ninomiya*

Semantic Classification by Covariance Descriptors Within a Randomized Forest, *Stefan Kluckner, Horst Bischof*

12:00-13:30 Lunch Break

13:30-14:10 Keynote talk: Derek Hoiem

14:10-14:50 Keynote talk: LucVan Gool

14:50-15:30 Oral session III: 3D Object Representation and Tracking

3D Pose Estimation for Planes, *Changhai Xu, Benjamin Kuipers, Aniket Murarka*

Image Composition for Object Pop-out, *Hongwen Kang, Alexei A. Efros, Martial Hebert, Takeo Kanade*

15:30-15:50 Coffee Break

15:50-16:30 Keynote talk: Bryan Russell

16:30-17:30 Oral session IV: 3D Representation for Objects Recognition

Intrinsic Shape Signatures: A Shape Descriptor for 3D Object Recognition, *Yu Zhong*



Scale and Orientation Invariant 3D Interest Point Extraction

Using HK Curvatures, *Erdem Akagündüz, İlkey Ulusoy*

2.5D Elastic Graph Matching Algorithms, *Stefanos Zafeiriou,*

Maria Petrou, Vasileios Argyriou

17:30-17:40 Prize presentation. Sponsored by Microsoft Research

17:40-17:45 Conclusions: Silvio Savarese, Derek Hoiem and Tinne Tuytelaars

4th International Workshop on Dynamical Vision

Organizers: *Anders Heyden, Yi Ma, René Vidal, Ying Wu*

Location: Room W1 (Eng.Bldg.#3, 1F)

Program

9:30-11:00 Session 1

Invited talk: *Octavia Camps*

A Stochastic Dynamical System for Optical Flow Estimation,

Volker Willert, Julian Eggert

Combining Spatial and Temporal Priors for Articulated

Human Tracking with Online Learning, *Cheng Chen,*

Guoliang Fan

11:00-11:30 Coffee Break

11:30-13:00 Session 2

Invited talk: *Stefano Soatto*

Motion Segmentation with Occlusions on the Superpixel

Graph, *Alper Ayvaci, Stefano Soatto*

An Iterative Scheme for Motion-based Scene Segmentation,

Alexander Bachmann, Hildegard Kuehne

13:00-14:00 Lunch Break

14:00-15:30 Session 3

Invited talk: *Richard Hartley*

A Vision-based Approach for High Accuracy Assessment of

Satellite Attitude, *Alessandro Bevilacqua, Alessandro*

Gherardi, Ludovico Carozza

Provably Convergent On-line Structure and Motion Estimation

for Perspective Systems, *Anders Heyden, Ola Dahl*

15:30-16:00 Coffee Break

16:00-17:30 Session 4

Invited talk: *Nuno Vasconcelos*

Motion Segmentation by SCC on the Hopkins 155 Database,

Guangliang Chen, Gilad Lerman

Kernel Spectral Curvature Clustering (KSCC), *Guangliang*

Chen, Stefan Atev, Gilad Lerman

Morning (9:30-)**Sparse Coding and Dictionary Learning for Image Analysis**

Lecturers: Francis Bach, Julien Mairal, Jean Ponce, Guillermo Sapiro

Location: Int. Conf. Hall 2&3 (Clock Tower, 2F)

Time: 9:30- (Half Day)

URL: http://www.di.ens.fr/~mairal/tutorial_iccv09/

Abstract: Sparse coding, that is, modelling data vectors as sparse linear combinations of basis elements is widely used in machine learning, neuroscience, signal processing, and statistics. This tutorial focuses on learning the basis set, also called dictionary, to adapt it to specific data, an approach that has recently proven to be very effective for signal reconstruction and classification in the audio and image processing domains. The course will provide an intuitive view of classical sparse decomposition and dictionary learning techniques and present a unique perspective that combines learning theory, optimization, image analysis and computer vision.

Physics-Based Human Motion Modelling for People Tracking

Lecturers: Marcus A. Brubaker, Leonid Sigal, David J. Fleet

Location: Room W2 (Eng.Bldg.#3, 2F)

Time: 9:30- (Half Day)

URL: <http://www.cs.toronto.edu/~ls/iccv2009tutorial>

Abstract: Physics-based models have proved to be effective in modeling how people move in, and interact with, their environment. In areas such as computer graphics, robotics and biomechanics physics-based models play a central role in modelling human motion.

Recently, physics-based prior models have been successfully illustrated to address issues in human pose tracking such as out-of-plane rotations and foot skate. We posit that physics-based prior models are among the next important steps in developing more robust methods to track human motion over time. However, the models involved are conceptually challenging and carry a high overhead for those unfamiliar with Newtonian mechanics. This tutorial will cover the motivation for the use of physics-based models for tracking of articulated objects (e.g., people), as well as the formalism required for someone unfamiliar with these models to get started. We will provide the slides, notes, and Matlab code that will allow a capable novice to proceed along this innovative research path.

Structured Prediction in Computer Vision

Lecturers: Tibério Caetano, Richard Hartley

Location: Room W3 (Eng.Bldg.#3, 3F)

Time: 9:30- (Half Day)

URL: http://tiberiocaetano.com/iccv_tutorial/

Abstract: This tutorial will review basic methods of structured prediction, i.e., supervised learning of discriminative models when the output domain is extremely high dimensional and the output variables are interdependent. This is the case for many fundamental vision problems such as image labeling and image matching. As learning engines, we cover max-margin and maximum-likelihood estimators, including structured SVMs and CRFs. As inference engines, we cover graph-cuts, variable elimination and junction trees. The effectiveness of learning structured prediction models will be illustrated in real vision problems from several domains, including graph and point-pattern matching, image segmentation, joint object categorization and stereo matching.

Afternoon (14:00-)

Boosting and Random Forest for Visual Recognition

Lecturers: Tae-Kyun Kim, Jamie Shotton, Björn Stenger

Location: Room W3 (Eng.Bldg.#3, 3F)

Time: 14:00- (Half Day)

URL: http://mi.eng.cam.ac.uk/~tkk22/icc09_tutorial

Abstract: The classification speed is not just a matter of time-efficiency but is often crucial to achieve good accuracy in many visual recognition tasks. In this tutorial, we review Boosting, Random Forest and present comparative studies with insightful discussions. A boosting classifier, a standard method in related fields, can be seen as a flat tree structure, which ensures reasonably smooth decision regions. Random Forest, an ensemble of random trees, has many short paths to reach the decision regions for fast classification. We compare the two methods in object detection and segmentation problems and highlight online learning of the methods for adaption and tracking.

Numerical Geometry of Non-Rigid Objects

Lecturers: Michael Bronstein, Alexander Bronstein

Location: Room W2 (Eng.Bldg.#3, 2F)

Time: 14:00- (Half Day)

URL: http://tosca.cs.technion.ac.il/book/course_iccv09.html

Abstract: Non-rigid shapes are ubiquitous in the world surrounding us, at all levels from micro to macro. The need to study such shapes and model their behavior arises in the fields of computer vision, pattern recognition, and graphics in a wide spectrum

of applications ranging from medical imaging to security. The course is a self-contained comprehensive introduction to analysis and synthesis of non-rigid shapes, with a good balance between theory, numeric methods, and applications. One of the main emphases will be on practical methods. Examples of applications from computer vision and pattern recognition, computer graphics, and geometry processing will be shown.

Recognizing and Learning Object Categories: Year 2009

Lecturers: Li Fei-Fei, Rob Fergus, Antonio Torralba

Location: Int. Conf. Hall 2&3 (Clock Tower, 2F)

Time: 14:00- (Half Day)

URL: <http://people.csail.mit.edu/torralba/shortCourseRLOC/index.html>

Abstract: Learning and recognition of object categories have been one of the most important research topics in computer vision in the past decade. This tutorial is the third one offered by the same group of researchers since 2005. We will discuss classical papers in object recognition, as well as the most current advances in this topic.

8:30-10:00 Registration**10:00-10:20 Opening Remarks****10:20-11:15 Award Session**

Announcement of award winners

Speech by Azriel Rosenfeld Life Time Achievement Award winner

Speech by Computer Vision Significant Researcher Award winner

11:15-12:15 Oral Session 1: Segmentation I

- 1 : Decomposing a Scene into Geometric and Semantically Consistent Regions, *Stephen Gould, Richard Fulton, Daphne Koller*
- 2 : Boundary Ownership by Lifting to 2.1D, *Ido Leichter, Michael Lindenbaum*
- 3 : Curvature Regularity for Region-based Image Segmentation and Inpainting: A Linear Programming Relaxation, *Thomas Schoenemann, Fredrik Kahl, Daniel Cremers*

12:15-13:15 Lunch Break**13:15-16:00 Poster Session 1:****Learning and Recognition - 1 (35)**

- 1 : Learning Pedestrian Dynamics from the Real World, *Paul Scovanner, Marshall F. Tappen*
- 2 : Resilient Subclass Discriminant Analysis, *Dijia Wu, Kim L. Boyer*
- 3 : Fast Ray Features for Learning Irregular Shapes, *Kevin Smith, Alan Carleton, Vincent Lepetit*
- 4 : Extending Continuous Cuts: Anisotropic Metrics and Expansion Moves, *Carl Olsson, Martin Byrd, Niels C. Overgaard, Fredrik Kahl*
- 5 : Robust Fitting of Multiple Structures: The Statistical Learning Approach, *Tat-Jun Chin, Hanzi Wang, David Suter*
- 6 : Constrained Clustering by Spectral Kernel Learning, *Zhenguo Li, Jianzhuang Liu*
- 7 : Learning Image Similarity from Flickr Groups Using Stochastic Intersection Kernel Machines, *Gang Wang, Derek Hoiem, David Forsyth*

- 8 : Group-sensitive Multiple Kernel Learning for Object Categorization, *Jingjing Yang, Yuanning Li, Yonghong Tian, Lingyu Duan, Wen Gao*
- 9 : Recognizing Actions by Shape-motion Prototype Trees, *Zhe Lin, Zhuolin Jiang, Larry S. Davis*
- 10 : Simultaneous and Orthogonal Decomposition of Data Using Multimodal Discriminant Analysis, *Terence Sim, Sheng Zhang, Jianran Li, Yan Chen*
- 11 : Fast and Robust Earth Mover's Distances, *Ofir Pele, Michael Werman*
- 12 : Active Segmentation with Fixation, *Ajay Mishra, Yiannis Aloimonos, Cheong L. Fah*
- 13 : Directional Statistics BRDF Model, *Ko Nishino*
- 14 : Multi-scale Object Detection by Clustering Lines, *Björn Ommer, Jitendra Malik*
- 15 : Local Trinary Patterns for Human Action Recognition, *Lahav Yeffet, Lior Wolf*
- 16 : Is That You? Metric Learning Approaches for Face Identification, *Mathieu Guillaumin, Jakob Verbeek, Cordelia Schmid*
- 17 : Semi-supervised Random Forests, *Christian Leistner, Amir Saffari, Jakob Santner, Horst Bischof*
- 18 : Graph Cuts Using a Riemannian Metric Induced by Tensor Voting, *Hyung Il Koo, Nam Ik Cho*
- 19 : Kernel Active Contour, *Shan Tan, Ioannis A. Kakadiaris*
- 20 : Dimensionality Reduction and Principal Surfaces via Kernel Map Manifolds, *Samuel Gerber, Tolga Tasdizen, Ross Whitaker*
- 21 : Joint Learning of Visual Attributes, Object Classes and Visual Saliency, *Gang Wang, David Forsyth*
- 22 : Bayesian Poisson Regression for Crowd Counting, *Antoni B. Chan, Nuno Vasconcelos*
- 23 : Efficient Discriminative Learning of Parts-based Models, *M. Pawan Kumar, Andrew Zisserman, Philip H. S. Torr*
- 24 : Probabilistic Occlusion Boundary Detection on Spatio-temporal Lattices, *Mehmet E. Sargin, Luca Bertelli, Bangalore S. Manjunath, Kenneth Rose*
- 25 : Higher-order Gradient Descent by Fusion-move Graph Cut, *Hiroshi Ishikawa*

- 26 : Active Skeleton for Non-rigid Object Detection, *Xiang Bai, Xinggang Wang, Longin J. Latecki, Wenyu Liu, Zhuowen Tu*
- 27 : Sparse Representation of Cast Shadows via 11-regularized Least Squares, *Xue Mei, Haibin Ling, David W. Jacobs*
- 28 : Robust Multilinear Principal Component Analysis, *Kohei Inoue, Kenji Hara, Kiichi Urahama*
- 29 : Efficient Discriminative Local Learning for Object Recognition, *Yen-Yu Lin, Jyun-Fan Tsai, Tyng-Luh Liu*
- 30 : Multiple Kernels for Object Detection, *Andrea Vedaldi, Varun Gulshan, Manik Varma, Andrew Zisserman*
- 31 : I Know What You Did Last Summer: Object-level Auto-annotation of Holiday Snaps, *Stephan Gammeter, Lukas Bossard, Till Quack, Luc V. Gool*
- 32 : Learning Long Term Face Aging Patterns from Partially Dense Aging Databases, *Jinli Suo, Xilin Chen, Shiguang Shan, Wen Gao*
- 33 : Beyond the Euclidean Distance: Creating Effective Visual Codebooks Using the Histogram Intersection Kernel, *Jianxin Wu, James M. Rehg*
- 34 : Incremental Multiple Kernel Learning for Object Recognition, *Aniruddha Kembhavi, Behjat Siddiquie, Roland Miezianko, Scott McCloskey, Larry S. Davis*
- 35 : Convex Optimization for Multi-class Image Labeling with a Novel Family of Total Variation Based Regularizers, *Jan Lellmann, Florian Becker, Christoph Schnörr*
- Segmentation (30)**
- 36 : The Infinite Hidden Markov Random Field Model, *Sotirios P. Chatzis, Gabriel Tsechpenakis*
- 37 : Convex Multi-region Segmentation on Manifolds, *Amaël Delaunoy, Ketut Fundana, Emmanuel Prados, Anders Heyden*
- 38 : Class Segmentation and Object Localization with Superpixel Neighborhoods, *Brian Fulkerson, Andrea Vedaldi, Stefano Soatto*
- 39 : Spectral Clustering of Linear Subspaces for Motion Segmentation, *Fabien Lauer, Christoph Schnörr*
- 40 : Multiple View Semantic Segmentation for Street View Images, *Jianxiang Xiao, Long Quan*
- 41 : Gradient Domain Layer Separation under Independent Motion, *Yunqiang Chen, Ti-chiun Chang, Chunxiao Zhou, Tong Fang*
- 42 : Image Segmentation with Simultaneous Illumination and Reflectance Estimation: An Energy Minimization Approach, *Chunming Li, Fang Li, Chiu-Yen Kao, Chenyang Xu*
- 43 : Robust Dynamical Model for Simultaneous Registration and Segmentation in a Variational Framework: A Bayesian Approach, *Pratim Ghosh, Mehmet E. Sargin, Bangalore S. Manjunath*
- 44 : Beyond Connecting the Dots: A Polynomial-time Algorithm for Segmentation and Boundary Estimation with Imprecise User Input, *Thomas Windheuser, Thomas Schoenemann, Daniel Cremers*
- 45 : Implicit Color Segmentation Features for Pedestrian and Object Detection, *Patrick Ott, Mark Everingham*
- 46 : Power Watersheds: A New Image Segmentation Framework Extending Graph Cuts, Random Walker and Optimal Spanning Forest, *Camille Couprie, Leo Grady, Laurent Najman, Hugues Talbot*
- 47 : Associative Hierarchical CRFs for Object Class Image Segmentation, *Lúbor Ladický, Chris Russell, Pushmeet Kohli, Philip H. S. Torr*
- 48 : Segmentation, Ordering and Multi-object Tracking Using Graphical Models, *Chaohui Wang, Martin de La Gorce, Nikos Paragios*
- 49 : Joint Optimization of Segmentation and Appearance Models, *Sara Vicente, Vladimir Kolmogorov, Carsten Rother*
- 50 : Level Set Segmentation with Both Shape and Intensity Priors, *Siqi Chen, Richard J. Radke*
- 51 : Scene Shape Priors for Superpixel Segmentation, *Alastair P. Moore, Simon J. D. Prince, Jonathan Warrell, Umar Mohammed, Graham Jones*
- 52 : LIVEcut: Learning-based Interactive Video Segmentation by Evaluation of Multiple Propagated Cues, *Brian L. Price, Bryan S. Morse, Scott Cohen*

- 53 : Non-euclidean Image-adaptive Radial Basis Functions for 3D Interactive Segmentation, *Benoit Mory, Roberto Ardon, Anthony J. Yezzi, Jean-Philippe Thiran*
- 54 : Automatic Ovarian Follicle Quantification from 3D Ultrasound Data Using Global/Local Context with Database Guided Segmentation, *Terrence Chen, Wei Zhang, Sara Good, Kevin S. Zhou, Dorin Comaniciu*
- 55 : Non-rigid Object Localization and Segmentation Using Eigenspace Representation, *Omar Arif, Patricio A. Vela*
- 56 : Robust Graph-cut Scene Segmentation and Reconstruction for Free-viewpoint Video of Complex Dynamic Scenes, *Jean-Yves Guillemaut, Joe Kilner, Adrian Hilton*
- 57 : Saliency Driven Total Variation Segmentation, *Michael Donoser, Martin Urschler, Martin Hirzer, Horst Bischof*
- 58 : FLOSS: Facility Location for Subspace Segmentation, *Nevena Lazic, Inmar Givoni, Brendan Frey, Parham Aarabi*
- 59 : Video Object Segmentation by Tracking Regions, *William Brendel, Sinisa Todorovic*
- 60 : Texel-based Texture Segmentation, *Sinisa Todorovic, Narendra Ahuja*
- 61 : Label Set Perturbation for MRF Based Neuroimaging Segmentation, *Dylan Hower, Vikas Singh, Sterling C. Johnson*
- 62 : Robust Image Segmentation Using Learned Priors, *Ayman El-Baz, Georgy Gimelfarb*
- 63 : Non-negative Matrix Factorization of Partial Track Data for Motion Segmentation, *Anil M. Cheriyyadat, Richard J. Radke*
- 64 : Efficient Segmentation Using Feature-based Graph Partitioning Active Contours, *Filiz Bunyak, Kannappan Palaniappan*
- 65 : Analysis of Orientation and Scale in Smoothly Varying Textures, *Jason Chang, John W. Fisher III*

16:00-17:00 Oral Session 2: Human Detection

- 1 : Human Detection Using Partial Least Squares Analysis, *William R. Schwartz, Aniruddha Kembhavi, David Harwood, Larry S. Davis*

- 2 : An HOG-LBP Human Detector with Partial Occlusion Handling, *XiaoYu Wang, Tony X. Han, Shuicheng Yan*
- 3 : Max-margin Additive Classifiers for Detection, *Subhransu Maji, Alexander C. Berg*

17:00-17:30 Afternoon Break

17:30-18:30 Oral Session 3: Learning

- 1 : Kernel Methods for Weakly Supervised Mean Shift Clustering, *Oncel Tuzel, Fatih Porikli, Peter Meer*
- 2 : Finding Shareable Informative Patterns and Optimal Coding Matrix for Multiclass Boosting, *Bang Zhang, Getian Ye, Yang Wang, Jie Xu, Gunawan Herman*
- 3 : Learning with Dynamic Group Sparsity, *Junzhou Huang, Xiaolei Huang, Dimitris N. Metaxas*

19:00-20:30 Reception (Prince Hall at Grand Prince Hotel)

Walking Map: See page 26 (Oct. 1, Banquet)

8:30-9:00 Registration**9:00-10:20 Oral Session 4: Geometry**

- 1 : Building Rome in a Day, *Sameer Agarwal, Noah Snavely, Ian Simon, Steven M. Seitz, Richard Szeliski*
- 2 : Reconstructing Building Interiors from Images, *Yasutaka Furukawa, Brian Curless, Steven M. Seitz, Richard Szeliski*
- 3 : Is Dual Linear Self-calibration Artificially Ambiguous?, *Pierre Gurdjos, Adrien Bartoli, Peter Sturm*
- 4 : Globally Optimal Affine Epipolar Geometry from Apparent Contours, *Gang Li, Yanghai Tsin*

10:20-10:50 Morning Break**10:50-12:10 Oral Session 5: Activity**

- 1 : Activity Recognition Using the Velocity Histories of Tracked Keypoints, *Ross Messing, Chris Pal, Henry Kautz*
- 2 : Quasi-periodic Event Analysis for Social Game Retrieval, *Ping Wang, Gregory D. Abowd, James M. Rehg*
- 3 : Modelling Activity Global Temporal Dependencies Using Time Delayed Probabilistic Graphical Model, *Chen Change Loy, Tao Xiang, Shaogang Gong*
- 4 : Action Detection in Complex Scenes with Spatial and Temporal Ambiguities, *Yuxiao Hu, Liangliang Cao, Fengjun Lv, Shuicheng Yan, Yihong Gong, Thomas S. Huang*

12:10-13:15 Lunch Break**13:15-16:00 Poster Session 2:****Learning and Recognition - 2 (37)**

- 1 : Learning Based Digital Matting, *Yuanjie Zheng, Chandra Kambhampettu*
- 2 : The One-shot Similarity Kernel, *Lior Wolf, Tal Hassner, Yaniv Taigman*
- 3 : A Theory of Active Object Localization, *Alexander Andreopoulos, John K. Tsotsos*

- 4 : Active Subspace Learning, *Xiaofei He, Deng Cai*
- 5 : Automatic Learning and Extraction of Multi-local Features, *Oscar Danielsson, Stefan Carlsson, Josephine Sullivan*
- 6 : Fast Realistic Multi-action Recognition Using Mined Dense Spatio-temporal Features, *Andrew Gilbert, John Illingworth, Richard Bowden*
- 7 : Quantifying Contextual Information for Object Detection, *Wei-Shi Zheng, Shaogang Gong, Tao Xiang*
- 8 : Feature-centric Efficient Subwindow Search, *Alain Lehmann, Bastian Leibe, Luc V. Gool*
- 9 : A Latent Model of Discriminative Aspect, *Ali Farhadi, Mostafa Kamali Tabrizi, Ian Endres, David Forsyth*
- 10 : Unlabeled Data Improves Word Prediction, *Nicolas Loeff, Ali Farhadi, Ian Endres, David Forsyth*
- 11 : A Probabilistic Framework for Partial Intrinsic Symmetries in Geometric Data, *Ruxandra Lasowski, Art Tevs, Hans-Peter Seidel, Michael Wand*
- 12 : Bayesian Selection of Scaling Laws for Motion Modeling in Images, *Patrick Héas, Etienne Mémín, Dominique Heitz, Pablo D. Mininni*
- 13 : Top-down Color Attention for Object Recognition, *Fahad Shahbaz Khan, Joost van de Weijer, Maria Vanrell*
- 14 : Detecting Objects in Large Image Collections and Videos by Efficient Subimage Retrieval, *Christoph H. Lampert*
- 15 : Learning Actions from the Web, *Nazli Ikizler-Cinbis, Ramazan Gokberk Cinbis, Stan Sclaroff*
- 16 : Active Appearance Models with Rotation Invariant Kernels, *Onur C. Hamsici, Aleix M. Martinez*
- 17 : Incremental Action Recognition Using Feature-tree, *Kishore K. Reddy, Jingen Liu, Mubarak Shah*
- 18 : RankBoost with L1 Regularization for Facial Expression Recognition and Intensity Estimation, *Peng Yang, Qingshan Liu, Dimitris N. Metaxas*
- 19 : Optimal Multiple Surfaces Searching for Video/image Resizing - A Graph-theoretic Approach, *Dongfeng Han, Xiaodong Wu, Milan Sonka*
- 20 : Face Alignment through Subspace Constrained Mean-shifts, *Jason M. Saragih, Simon Lucey, Jeffrey F. Cohn*

- 21 : Evaluating Information Contributions of Bottom-up and Top-down Processes, *Xiong Yang, Tianfu Wu, Song-Chun Zhu*
- 22 : Face Recognition with Contiguous Occlusion Using Markov Random Fields, *Zihan Zhou, Andrew Wagner, Hossein Mobahi, John Wright, Yi Ma*
- 23 : Which Faces to Tag: Adding Prior Constraints into Active Learning, *Ashish Kapoor, Gang Hua, Amir Akbarzadeh, Simon Baker*
- 24 : Is a Detector Only Good for Detection?, *Quan Yuan, Stan Sclaroff*
- 25 : Consensus Set Maximization with Guaranteed Global Optimality for Robust Geometry Estimation, *Hongdong Li*
- 26 : Efficient Subset Selection via the Kernelized Rényi Distance, *Balaji Vasan Srinivasan, Ramani Duraiswami*
- 27 : A Near Optimal Acceptance-rejection Algorithm for Exact Cross-correlation Search, *Haim Schweitzer, Robert F. Anderson, Rui A. Deng*
- 28 : Heterogeneous Feature Machines for Visual Recognition, *Liangliang Cao, Jiebo Luo, Feng Liang, Thomas S. Huang*
- 29 : Efficient Indexing for Large Scale Visual Search, *Xiao Zhang, Zhiwei Li, Lei Zhang, Wei-Ying Ma, Heung-Yeung Shum*
- 30 : Spectral Error Correcting Output Codes for Efficient Multiclass Recognition, *Xiao Zhang, Lin Liang, Heung-Yeung Shum*
- 31 : Kernel Map Compression Using Generalized Radial Basis Functions, *Omar Arif, Patricio A. Vela*
- 32 : Patch-based Within-object Classification, *Jania Aghajanian, Jonathan Warrell, Simon J. D. Prince, Peng Li, Jennifer L. Rohn, Buzz Baum*
- 33 : An Algorithm for Minimizing the Mumford-shah Functional, *Thomas Pock, Daniel Cremers, Horst Bischof, Antonin Chambolle*
- 34 : A Biased Sampling Strategy for Object Categorization, *Lei Yang, Nanning Zheng, Jie Yang, Mei Chen, Hong Cheng*
- 35 : On Optimizing Subspaces for Face Recognition, *Jilin Tu, Xiaoming Liu, Peter Tu*
- 36 : Structural SVM for Visual Localization and Continuous State Estimation, *Catalin Ionescu, Liefeng Bo, Cristian Sminchisescu*
- 37 : A Markov Clustering Topic Model for Mining Behaviour in Video, *Timothy Hospedales, Shaogang Gong, Tao Xiang*
- Camera (11)**
- 38 : A Branch-and-bound Algorithm for Globally Optimal Calibration of a Camera-and-rotation-sensor System, *Yongduek Seo, Young-Ju Choi, Sang Wook Lee*
- 39 : Simultaneous Camera Pose and Correspondence Estimation in Cornerless Images, *Wen Yan Lin, Guo Dong, Ping Tan, Loong Fah Cheong, Chye Hwang Yan*
- 40 : Jointly Estimating Demographics and Height with a Calibrated Camera, *Andrew C. Gallagher, Andrew C. Blose, Tsuhan Chen*
- 41 : Plane-based Calibration of Central Catadioptric Cameras, *Simone Gasparini, Peter Sturm, João P. Barreto*
- 42 : Static Multi-camera Factorization Using Rigid Motion, *Roland Angst, Marc Pollefeys*
- 43 : Shadow Cameras: Reciprocal Views from Illumination Masks, *Sanjeev J. Koppal, Srinivasa G. Narasimhan*
- 44 : Background Subtraction for Freely Moving Cameras, *Yaser Sheikh, Omar Javed, Takeo Kanade*
- 45 : Display-camera Calibration from Eye Reflections, *Christian Nitschke, Atsushi Nakazawa, Haruo Takemura*
- 46 : A Hand-held Photometric Stereo Camera for 3-D Modeling, *Tomoaki Higo, Yasuyuki Matsushita, Neel Joshi, Katsushi Ikeuchi*
- 47 : Body-relative Navigation Guidance Using Uncalibrated Cameras, *Olivier Koch, Seth Teller*
- 48 : Non-iterative Approach for Fast and Accurate Vanishing Point Detection, *Jean-Philippe Tardif*
- Matching and Alignment (11)**
- 49 : Robust Matching of Building Facades under Large Viewpoint Changes, *Jimmy A. Lee, Kin-Choong Yow, Alex Y. S. Chia*

- 50 : Unsupervised Face Alignment by Robust Nonrigid Mapping, *Jianke Zhu, Luc V. Gool, Steven C.H. Hoi*
- 51 : Coarse Registration of 3D Surface Triangulations Based on Moment Invariants with Applications to Object Alignment and Identification, *Michael Trummer, Herbert Suesse, Joachim Denzler*
- 52 : Feature Correspondence and Deformable Object Matching via Agglomerative Correspondence Clustering, *Minsu Cho, Jungmin Lee, Kyoung Mu Lee*
- 53 : Subspace Matching: Unique Solutions to Point Matching with Geometric Constraints, *Manuel Marques, Marko Stošić, João P. Costeira*
- 54 : Optimal Correspondences from Pairwise Constraints, *Olof Enqvist, Klas Josephson, Fredrik Kahl*
- 55 : Deformation Invariant Image Matching by Spectrally Controlled Diffeomorphic Alignment, *Christopher M. Yang, Sai Ravela*
- 56 : Wide-baseline Image Matching Using Line Signatures, *Lu Wang, Ulrich Neumann, Suya You*
- 57 : Matching as a Non-cooperative Game, *Andrea Albarelli, Samuel Rota Bulò, Andrea Torsello, Marcello Pelillo*
- 58 : Simultaneous Alignment and Clustering for an Image Ensemble, *Xiaoming Liu, Yan Tong, Fred W. Wheeler*
- 59 : An Algebraic Approach to Affine Registration of Point Sets, *Jeffrey Ho, Adrian Peter, Anand Ranganranjan, Ming-Hsuan Yang*
- Pose (6)**
- 60 : Constructing Implicit 3D Shape Models for Pose Estimation, *Mica Arie-Nachimson, Ronen Basri*
- 61 : Efficient Human Pose Estimation via Parsing a Tree Structure Based Human Model, *Xiaoqin Zhang, Changcheng Li, Xiaofeng Tong, Weiming Hu, Steve Maybank, Yimin Zhang*
- 62 : Human Pose Estimation Using Consistent Max-covering, *Hao Jiang*
- 63 : Poselets: Body Part Detectors Trained Using 3D Human Pose Annotations, *Lubomir Bourdev, Jitendra Malik*
- 64 : Joint Pose Estimator and Feature Learning for Object Detection, *Karim Ali, François Fleuret, David Hasler, Pascal Fua*
- 65 : Estimating Human Shape and Pose from a Single Image, *Peng Guan, Alexander Weiss, Alexandru O. Bălan, Michael J. Black*
- 13:15-16:00 Demo Session:**
- D-01 : On-Site 3D Video Capture System, *Shohei Nobuhara, Hiromasa Yoshimoto, Hidetoshi Nakayama, Tony Tung, Takeshi Takai, Takashi Matsuyama*
- D-02 : Dense 3D Reconstruction System for Fast Moving Object Using Single Pattern, *Ryo Furukawa, Hiroshi Kawasaki, Masahiro Ishikawa, Ryusuke Sagawa, Yuya Ohta, Yasushi Yagi*
- D-03 : GelSight: Retrographic Sensing for Touch, Texture, and Shape, *Micah K. Johnson, Edward H. Adelson, Alvin Raj*
- D-04 : Body-relative Navigation Guidance Using Uncalibrated Cameras, *Olivier Koch, Seth Teller*
- D-05 : Detecting and Tracking Faces with Stereo-camera and Adaptive Color Model, *Kazuma Suzuki, Qian Chen, Haiyuan Wu, Toshikazu Wada*
- D-06 : NOKIA Face Technology: Real-time and Multi-view Face Tracking on Mobile Platform, *Lei Xu, Jiangwei Li, Kongqiao Wang, Wah-Tung Wan, Jiunn Bay, Jianwei Niu*
- D-07 : A Vision-based Demographic Advertisement System, *Bingbing Ni, Shuicheng Yan, Guangyu Zhu, Zheng Song, Dong Guo, Yongning Lu, Jun Yan*
- D-08 : Jointly Estimating Demographics and Height with a Calibrated Camera Demonstration, *Andrew C. Gallagher, Andrew C. Blose, Tsuhan Chen*
- D-09 : Realtime Variational Motion Estimation, *Thomas Pock, Horst Bischof, Manuel Werlberger, Daniel Cremers, Andreas Wedel*
- D-10 : KEYS - Incremental Action Recognition Using Feature-Tree, *Kishore K. Reddy, Jingen Liu, Jonathan Pook, Mubarak Shah*

- D-11 : A Macro-observation Approach for Real-time Unusual Event Detection in Video, *Du-Ming Tsai, Wei-Yao Chiu*
- D-12 : Multiple Head Tracking and Gesture Recognition for Museum Guide Robots, *Yoshinori Kobayashi, Takashi Shibata, Yosuke Hoshi, Yoshinori Kuno*
- D-13 : 3D Video System for Archiving Japanese Traditional Performing Art, *Yuichi Iwadate, Miwa Katayama, Kimihiro Tomiyama, Kensuke Hisatomi*
- D-14 : Demonstration of an Embedded AER Dynamic Vision Sensor for Low-Latency Pole Balancing, *Jorg Conradt, Raphael Berner, Matthew Cook, Tobi Delbruck*
- D-15 : Learning to Match Features in Real-time, *Hideaki Uchiyama, Julien Pilet, Hideo Saito*
- D-16 : Complete Camera Self-calibration, Plane Segmentation and 3D Reconstruction in Real-Time from Image Sequences of Polyhedral Scenes, *Mario Santes, Flavio Viguera, Jean-Bernard Hayet, Claudia Esteves*
- D-17 : Video SnapCut - A Robust Video Object Cutout System, *Xue Bai, Jue Wang, David Simons, Daniel Wilk, Guillermo Sapiro*
- D-18 : Real-time Retrieval of Documents Images in Various Languages, *Masakazu Iwamura, Koichi Kise, Tomohiro Nakai*
- D-19 : Real-time Recognition of Low Quality Images with a Database of 1 Million Images, *Masakazu Iwamura, Koichi Kise, Kazuto Noguchi*
- D-20 : Demonstration: MPEG-7 Image Signature, *Paul Brasnett, Mirosław Bober*
- D-21 : Large Scale Surveillance System Using Similarity-based Image Retrieval, *Daisuke Matsubara, Naoto Akira, Yasuhiro Asa, Masahito Togami, Tatsuhiko Kagehiro, Atsushi Hiroike*
- D-22 : Large-scale Content-based Organization of Image Search Results for a Commercial Search Engine, *Yushi Jing, Henry Rowley, Jingbin Wang, Chuck Rosenberg, Michele Covell*
- D-23 : PhotoContext: An Objectlevel Autoannotation System for Your Holiday Snaps, *Stephan Gammeter, Till Quack*

- D-24 : Fast and Robust Video Super-resolution, *Dabi Wei, Masayuki Tanaka, Masatoshi Okutomi*
- D-25 : Reconstructing Building Interiors from Images, *Yasutaka Furukawa, Brian Curless, Steven M. Seitz, Richard Szeliski*
- D-26 : Building Rome in a Day, *Sameer Agarwal, Noah Snavely, Ian Simon, Richard Szeliski, Steven M. Seitz*
- D-27 : 3D City Modeling from Street View Images, *Akihiko Torii, Michal Havlena, Michal Jancosek, Jan Knopp, Tomas Pajdla*
- D-28 : Biologically-inspired 3D Vision for People Tracking, *Ahmed Nabil Belbachir, Stephan Schraml*

16:00-17:00 Oral Session 6: Image and Video Editing

- 1 : Semi-automatic Stereo Extraction from Video Footage, *Moshe Guttman, Lior Wolf, Daniel Cohen-Or*
- 2 : Filter Flow, *Steven M. Seitz, Simon Baker*
- 3 : Shift-map Image Editing, *Yael Pritch, Eitam Kav-Venaki, Shmuel Peleg*

17:00-17:30 Afternoon Break

17:30-18:30 Oral Session 7: Sensing I

- 1 : Looking Around the Corner Using Transient Imaging, *Ahmed Kirmani, Tyler Hutchison, James Davis, Ramesh Raskar*
- 2 : Modeling Deformable Objects from a Single Depth Camera, *Miao Liao, Qing Zhang, Huamin Wang, Ruigang Yang, Minglun Gong*
- 3 : A Prism-based System for Multispectral Video Acquisition, *Hao Du, Xin Tong, Xun Cao, Stephen Lin*

18:45-20:45 PAMI-TC Meeting (Main Hall)

8:30-9:00 Registration**9:00-10:20 Oral Session 8: Shading and Color**

- 1 : Estimating Natural Illumination from a Single Outdoor Image, *Jean-François Lalonde, Alexei A. Efros, Srinivasa G. Narasimhan*
- 2 : A Linear Formulation of Shape from Specular Flow, *Guillermo D. Canas, Yuriy Vasilyev, Yair Adato, Todd Zickler, Steven Gortler, Ohad Ben-Shahar*
- 3 : Landmark-based Sparse Color Representations for Color Transfer, *Tzu-Wei Huang, Hwann-Tzong Chen*
- 4 : Stereo from Flickering Caustics, *Yohay Swirski, Yoav Y. Schechner, Ben Herzberg, Shahriar Negahdaripour*

10:20-10:50 Morning Break**10:50-12:10 Oral Session 9: Recognition**

- 1 : Learning a Dense Multi-view Representation for Detection, Viewpoint Classification and Synthesis of Object Categories, *Hao Su, Min Sun, Li Fei-Fei, Silvio Savarese*
- 2 : On Feature Combination for Multiclass Object Classification, *Peter Gehler, Sebastian Nowozin*
- 3 : Discriminative Models for Multi-class Object Layout, *Chaitanya Desai, Deva Ramanan, Charles Fowlkes*
- 4 : Combining Efficient Object Localization and Image Classification, *Hedi Harzallah, Frédéric Jurie, Cordelia Schmid*

12:10-13:15 Lunch Break**13:15-16:00 Poster Session 3:****Video and Tracking (37)**

- 1 : Tracking in Unstructured Crowded Scenes, *Mikel Rodriguez, Saad Ali, Takeo Kanade*
- 2 : Video Stabilization Using Robust Feature Trajectories, *Ken-Yi Lee, Yung-Yu Chuang, Bing-Yu Chen, Ming Ouhyoung*

- 3 : Complex Volume and Pose Tracking with Probabilistic Dynamical Models and Visual Hull Constraints, *Norimichi Ukita, Michiro Hirai, Masatsugu Kidode*
- 4 : Absolute Scale in Structure from Motion from a Single Vehicle Mounted Camera by Exploiting Nonholonomic Constraints, *Daive Scaramuzza, Friedrich Fraundorfer, Marc Pollefeys, Roland Siegwart*
- 5 : Domain Adaptive Semantic Diffusion for Large Scale Context-based Video Annotation, *Yu-Gang Jiang, Jun Wang, Shih-Fu Chang, Chong-Wah Ngo*
- 6 : Stabilizing Motion Tracking Using Retrieved Motion Priors, *Andreas Batak, Bodo Rosenhahn, Meinard Müller, Hans-Peter Seidel*
- 7 : Robust Visual Tracking Using L1 Minimization, *Xue Mei, Haibin Ling*
- 8 : The Normalized Subspace Inclusion: Robust Clustering of Motion Subspaces, *Nuno Pinho da Silva, João P. Costeira*
- 9 : LabelMe Video: Building a Video Database with Human Annotations, *Jenny Yuen, Bryan Russell, Ce Liu, Antonio Torralba*
- 10 : A Robust Boosting Tracker with Minimum Error Bound in a Co-training Framework, *Rong Liu, Jian Cheng, Hanqing Lu*
- 11 : Using Individuality to Track Individuals: Clustering Individual Trajectories in Crowds Using Local Appearance and Frequency Trait, *Daisuke Sugimura, Kris M. Kitani, Takahiro Okabe, Yoichi Sato, Akihiro Sugimoto*
- 12 : Tracking a Hand Manipulating an Object, *Henning Hamer, Konrad Schindler, Esther Koller-Meier, Luc V. Gool*
- 13 : Robust Facial Feature Tracking Using Selected Multi-resolution Linear Predictors, *Eng-Jon Ong, Yuxuan Lan, Barry Theobald, Richard Harvey, Richard Bowden*
- 14 : Automatic Annotation of Human Actions in Video, *Olivier Duchenne, Ivan Laptev, Josef Sivic, Francis Bach, Jean Ponce*
- 15 : Detection and Removal of Chromatic Moving Shadows in Surveillance Scenarios, *Ivan Huerta, Michael Holte, Thomas Moeslund, Jordi González*

- 16 : Learning Deformable Action Templates from Cluttered Videos, *Benjamin Yao, Song-Chun Zhu*
- 17 : Robust Tracking-by-detection Using a Detector Confidence Particle Filter, *Michael D. Breitenstein, Fabian Reichlin, Bastian Leibe, Esther Koller-Meier, Luc V. Gool*
- 18 : An Information Theoretic Approach for Tracker Performance Evaluation, *Edward K. Kao, Matthew P. Daggett, Michael B. Hurley*
- 19 : Adaptive Fragments-based Tracking of Non-rigid Objects Using Level Sets, *Prakash Chockalingam, Nalin Pradeep, Stan Birchfield*
- 20 : Keyframe-based Real-time Camera Tracking, *Zilong Dong, Guofeng Zhang, Jiaya Jia, Hujun Bao*
- 21 : Tracking a Large Number of Objects from Multiple Views, *Zheng Wu, Nickolay I. Hristov, Tyson L. Hedrick, Thomas H. Kunz, Margrit Betke*
- 22 : Detection Driven Adaptive Multi-cue Integration for Multiple Human Tracking, *Ming Yang, Fengjun Lv, Wei Xu, Yihong Gong*
- 23 : Optical Flow Estimation on Coarse-to-fine Region-trees Using Discrete Optimization, *Cheng Lei, Yee-Hong Yang*
- 24 : A New Multiview Spacetime-consistent Depth Recovery Framework for Free Viewpoint Video Rendering, *Cheng Lei, Xi Da Chen, Yee-Hong Yang*
- 25 : Reconstructing 3D Motion Trajectories of Particle Swarms by Global Correspondence Selection, *Danping Zou, Qi Zhao, Hai Shan Wu, Yan Qiu Chen*
- 26 : SURF Tracking, *Wei He, Takayoshi Yamashita, Hongtao Lu, Shihong Lao*
- 27 : Spatio-temporal Relationship Match: Video Structure Comparison for Recognition of Complex Human Activities, *M. S. Ryoo, J. K. Aggarwal*
- 28 : Robust Motion Estimation Using Trajectory Spectrum Learning: Application to Aortic and Mitral Valve Modeling from 4D TEE, *Razvan Ioan Ionasec, Yang Wang, Bogdan Georgescu, Ingmar Voigt, Nassir Navab, Dorin Comaniciu*
- 29 : Large Displacement Optical Flow Computation without Warping, *Frank Steinbrücker, Thomas Pock, Daniel Cremers*
- 30 : A Direct Approach for Efficiently Tracking with 3D Morphable Models, *Enrique Muñoz, José M. Buenaposada, Luis Baumela*
- 31 : Illumination Aware MCMC Particle Filter for Long-term Outdoor Multi-object Simultaneous Tracking and Classification, *François Bardet, Thierry Chateau, Datta Ramadasan*
- 32 : Real-time Visual Tracking via Incremental Covariance Tensor Learning, *Yi Wu, Jian Cheng, Jinqiao Wang, Hanqing Lu*
- 33 : Efficient Privacy Preserving Video Surveillance, *Maneesh Upmanyu, Anoop M. Namboodiri, Kannan Srinathan, C. V. Jawahar*
- 34 : Correlated Probabilistic Trajectories for Pedestrian Motion Detection, *Frank Perbet, Atsuto Maki, Björn Stenger*
- 35 : Video Scene Categorization by 3D Hierarchical Histogram Matching, *Paritosh Gupta, Sai Sankalp Arrabolu, Mathew Brown, Silvio Savarese*
- 36 : Structure- and Motion-adaptive Regularization for High Accuracy Optic Flow, *Andreas Wedel, Daniel Cremers, Thomas Pock, Horst Bischof*
- 37 : Video Scene Understanding Using Multi-scale Analysis, *Yang Yang, Jingen Liu, Mubarak Shah*
- 3D: Shape, Geometry, and Stereo (28)**
- 38 : Superresolution Texture Maps for Multiview Reconstruction, *Bastian Goldluecke, Daniel Cremers*
- 39 : BLOGS: Balanced Local and Global Search for Non-degenerate Two View Epipolar Geometry, *Aveek S. Brahmachari, Sudeep Sarkar*
- 40 : Attached Shadow Coding: Estimating Surface Normals from Shadows under Unknown Reflectance and Lighting Conditions, *Takahiro Okabe, Imari Sato, Yoichi Sato*
- 41 : Factorizing Scene Albedo and Depth from a Single Foggy Image, *Louis Kratz, Ko Nishino*

- 42 : Complete Multi-view Reconstruction of Dynamic Scenes from Probabilistic Fusion of Narrow and Wide Baseline Stereo, *Tony Tung, Shohei Nobuhara, Takashi Matsuyama*
- 43 : Hierarchical 3D Diffusion Wavelet Shape Priors, *Salma Essafi, Georg Langs, Nikos Paragios*
- 44 : A New Minimal Solution to the Relative Pose of a Calibrated Stereo Camera with Small Field of View Overlap, *Brian Clipp, Christopher Zach, Jan-Michael Frahm, Marc Pollefeys*
- 45 : Improving Accuracy of Geometric Parameter Estimation Using Projected Score Method, *Takayuki Okatani, Koichiro Deguchi*
- 46 : Moving in Stereo: Efficient Structure and Motion Using Lines, *Manmohan Chandraker, Jongwoo Lim, David Kriegman*
- 47 : Color Constancy Using 3D Scene Geometry, *Rui Lu, Arjan Gijsenij, Theo Gevers, Vladimir Nedović, De Xu, Jan-Mark Geusebroek*
- 48 : Simultaneous Photometric Invariance and Shape Recovery, *Cong Phuoc Huynh, Antonio Robles-Kelly*
- 49 : Component Analysis Approach to Estimation of Tissue Intensity Distributions of 3D images, *Arridhana Ciptadi, Cheng Chen, Vitali Zagorodnov*
- 50 : Simultaneous Color Consistency and Depth Map Estimation for Radiometrically Varying Stereo Images, *Yong Seok Heo, Kyoung Mu Lee, Sang Uk Lee*
- 51 : Dense 3D Reconstruction Method Using a Single Pattern for Fast Moving Object, *Ryusuke Sagawa, Yuichi Ota, Yasushi Yagi, Ryo Furukawa, Naoki Asada, Hiroshi Kawasaki*
- 52 : High-resolution Shape Reconstruction from Multiple Range Images Based on Simultaneous Estimation of Surface and Motion, *Yoshihiro Watanabe, Takashi Komuro, Masatoshi Ishikawa*
- 53 : Single View Reconstruction Using Shape Grammars for Urban Environments, *Panagiotis Koutsourakis, Loïc Simon, Olivier Teboul, Georgios Tziritas, Nikos Paragios*
- 54 : 3D Reconstruction from Image Collections with a Single Known Focal Length, *Martin Bujnak, Zuzana Kukelova, Tomas Pajdla*
- 55 : Template-free Monocular Reconstruction of Deformable Surfaces, *Aydin Varol, Mathieu Salzmann, Engin Tola, Pascal Fua*
- 56 : Seeing 3D Objects in a Single 2D Image, *Diego Rother, Guillermo Sapiro*
- 57 : Multiperspective Stereo Matching and Volumetric Reconstruction, *Yuanyuan Ding, Jingyi Yu, Peter Sturm*
- 58 : Structure and Kinematics Triangulation with a Rolling Shutter Stereo Rig, *Omar Ait-Aider, François Berry*
- 59 : The Self-aware Matching Measure for Stereo, *Philippos Mordohai*
- 60 : Recovering the Spatial Layout of Cluttered Rooms, *Varsha Hedau, Derek Hoiem, David Forsyth*
- 61 : 3D Open-surface Shape Correspondence for Statistical Shape Modeling: Identifying Topologically Consistent Landmarks, *Pahal Dalal, Lili Ju, Michael McLaughlin, Xiangrong Zhou, Hiroshi Fujita, Song Wang*
- 62 : Diagram Techniques for Multiple View Geometry, *Alberto Ruiz, Pedro E. Lopez-de-Teruel*
- 63 : Modeling 3D Human Poses from Uncalibrated Monocular Images, *Xiaolin K. Wei, Jinxiang Chai*
- 64 : Piecewise Planar Stereo for Image-based Rendering, *Sudipta N. Sinha, Drew Steedly, Richard Szeliski*
- 65 : Radiometric Compensation Using Stratified Inverses, *Tian-Tsong Ng, Ramanpreet S. Pahwa, Jiamin Bai, Tony Q. S. Quek, Kar-Han Tan*

13:15-16:00 Demo Session:**[See Demo Session on Sept. 30 \(page 21\)](#)****16:00-17:00 Oral Session 10: Video and Image Sequences**

- 1 : Storyboard Sketches for Content Based Video Retrieval, *John Collomosse, Graham McNeill, Yu Qian*


- 2 : Image Sequence Geolocation with Human Travel Priors, *Evangelos Kalogerakis, Olga Vesselova, James Hays, Alexei A. Efros, Aaron Hertzmann*
- 3 : You'll Never Walk Alone: Modeling Social Behavior for Multi-target Tracking, *Stefano Pellegrini, Andreas Ess, Konrad Schindler, Luc V. Gool*

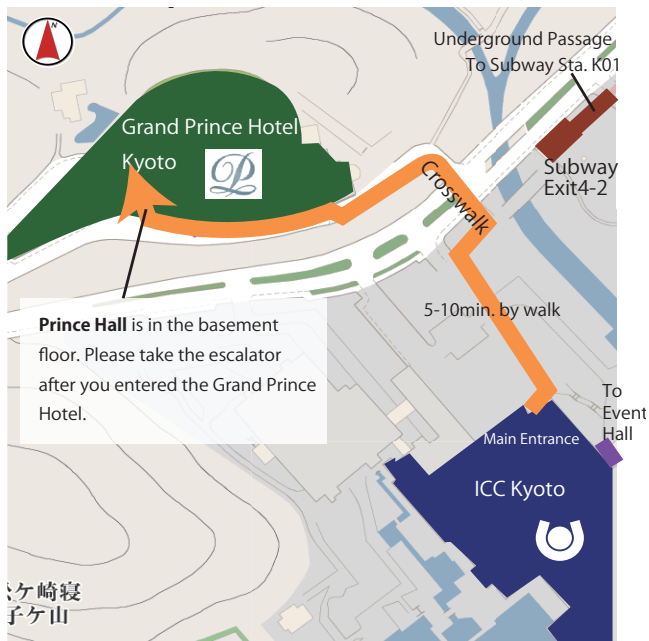
17:00-17:30 Afternoon Break

17:30-18:30 Oral Session 11: Segmentation II

- 1 : An Efficient Algorithm for Co-segmentation, *Dorit S. Hochbaum, Vikas Singh*
- 2 : Image Segmentation with a Bounding Box Prior, *Victor Lempitsky, Pushmeet Kohli, Carsten Rother, Toby Sharp*
- 3 : Globally Optimal Segmentation of Multi-region Objects, *Andrew Delong, Yuri Boykov*

19:00-21:00 Banquet (Prince Hall at Grand Prince Hotel)

Walking Map from ICC Kyoto to Grand Prince Hotel Kyoto Reception (Sept. 29) and Banquet (Oct. 1) 



8:30-9:00 Registration**9:00-10:20 Oral Session 12: Similarity Metrics and Nearest Neighbors**

- 1 : Similarity Metrics for Categorization: From Monolithic to Category Specific, *Boris Babenko, Steve Branson, Serge Belongie*
- 2 : Local Distance Functions: A Taxonomy, New Algorithms, and an Evaluation, *Deva Ramanan, Simon Baker*
- 3 : TagProp: Discriminative Metric Learning in Nearest Neighbor Models for Image Auto-annotation, *Mathieu Guillaumin, Thomas Mensink, Jakob Verbeek, Cordelia Schmid*
- 4 : Sparsity Induced Similarity Measure for Label Propagation, *Hong Cheng, Zicheng Liu, Jie Yang*

10:20-10:50 Morning Break**10:50-12:10 Oral Session 13: Sensing II**

- 1 : Coded Aperture Pairs for Depth from Defocus, *Changyin Zhou, Stephen Lin, Shree K. Nayar*
- 2 : Time-constrained Photography, *Samuel W. Hasinoff, Kiriakos N. Kutulakos, Frédo Durand, William T. Freeman*
- 3 : Light Field Video Stabilization, *Brandon M. Smith, Li Zhang, Hailin Jin, Aseem Agarwala*
- 4 : Super-resolution from a Single Image, *Daniel Glasner, Shai Bagon, Michal Irani*

12:10-13:15 Lunch Break**13:15-16:30 Poster Session 4:****Learning and Recognition - 3 (35)**

- 1 : Computation Complexity of Branch-and-bound Model Selection, *Ninad Thakoor, Venkat Devarajan, Jean Gao*
- 2 : A Novel Approach to Expression Recognition from Non-frontal Face Images, *Wenming Zheng, Hao Tang, Zhouchen Lin, Thomas S. Huang*

- 3 : Mode-detection via Median-shift, *Lior Shapira, Shai Avidan, Ariel Shamir*
- 4 : The Dimensionality of Scene Appearance, *Rahul Garg, Hao Du, Steven M. Seitz, Noah Snavely*
- 5 : Weakly Supervised Discriminative Localization and Classification: A Joint Learning Process, *Minh Hoai Nguyen, Lorenzo Torresani, Fernando De la Torre, Carsten Rother*
- 6 : Selection and Context for Action Recognition, *Dong Han, Liefeng Bo, Cristian Sminchisescu*
- 7 : Time Series Prediction by Chaotic Modeling of Nonlinear Dynamical Systems, *Arslan Basharat, Mubarak Shah*
- 8 : Least-squares Congealing for Large Numbers of Images, *Mark Cox, Sridha Sridharan, Simon Lucey, Jeffrey F. Cohn*
- 9 : Landmark Classification in Large-scale Image Collections, *Yunpeng Li, David J. Crandall, Daniel P. Huttenlocher*
- 10 : Detection of Human Actions from a Single Example, *Hae Jong Seo, Peyman Milanfar*
- 11 : Hierarchical Gaussianization for Image Classification, *Xi Zhou, Na Cui, Zhen Li, Feng Liang, Thomas S. Huang*
- 12 : Context by Region Ancestry, *Joseph J. Lim, Pablo Arbeláez, Chunhui Gu, Jitendra Malik*
- 13 : A Study on Automatic Age Estimation Using a Large Database, *Guodong Guo, Guowang Mu, Yun Fu, Charles Dyer, Thomas S. Huang*
- 14 : A Multi-sample, Multi-tree Approach to Bag-of-words Image Representation for Image Retrieval, *Zhong Wu, Qifa Ke, Jian Sun, Heung-Yeung Shum*
- 15 : Discriminative Generalized Hough Transform for Object Detection, *Ryuzo Okada*
- 16 : Untangling Fibers by Quotient Appearance Manifold Mapping for Grayscale Shape Classification, *Yoshihisa Shinagawa, Yuping Lin*
- 17 : Building Recognition Using Sketch-based Representations and Spectral Graph Matching, *Yu-Chia Chung, Tony X. Han, Zhihai He*
- 18 : Hierarchical Learning for Tubular Structure Parsing in Medical Imaging: A Study on Coronary Arteries Using 3D CT Angiography, *Le Lu, Jinbo Bi, Shipeng Yu, Zhigang Peng, Arun Krishnan, Xiang Zhou*

- 19 : Image Annotation Using Multi-label Correlated Green's Function, *Hua Wang, Heng Huang, Chris Ding*
- 20 : Incremental Discriminative-analysis of Canonical Correlations for Action Recognition, *Xinxiao Wu, Wei Liang, Yunde Jia*
- 21 : Minimizing Energy Functions on 4-connected Lattices Using Elimination, *Peter Carr, Richard Hartley*
- 22 : A Riemannian Analysis of 3D Nose Shapes for Partial Human Biometrics, *Hassen Drira, Boulbaba Ben Amor, Anuj Srivastava, Mohamed Daoudi*
- 23 : A Hybrid Generative/discriminative Classification Framework Based on Free-energy Terms, *Alessandro Perina, Marco Cristiani, Umberto Castellani, Vittorio Murino, Nebojsa Jojic*
- 24 : Realtime Background Subtraction from Dynamic Scenes, *Li Cheng, Minglun Gong*
- 25 : Exploiting Uncertainty in Random Sample Consensus, *Rahul Raguram, Jan-Michael Frahm, Marc Pollefeys*
- 26 : A Robust Elastic and Partial Matching Metric for Face Recognition, *Gang Hua, Amir Akbarzadeh*
- 27 : SCRAMSAC: Improving RANSAC's Efficiency with a Spatial Consistency Filter, *Torsten Sattler, Bastian Leibe, Leif Kobbelt*
- 28 : Efficient Multi-label Ranking for Multi-class Learning: Application to Object Recognition, *Serhat S. Bucak, Pavan Kumar Mallapragada, Rong Jin, Anil K. Jain*
- 29 : Learning to Predict Where Humans Look, *Tilke Judd, Krista Ehinger, Frédo Durand, Antonio Torralba*
- 30 : Tensor Completion for Estimating Missing Values in Visual Data, *Ji Liu, Przemyslaw Musialski, Peter Wonka, Jieping Ye*
- 31 : Unsupervised Learning of High-order Structural Semantics from Images, *Jizhou Gao, Yin Hu, Jinze Liu, Ruigang Yang*
- 32 : Kernelized Locality-sensitive Hashing for Scalable Image Search, *Brian Kulis, Kristen Grauman*
- 33 : Actionable Information in Vision, *Stefano Soatto*
- 34 : What is the Best Multi-stage Architecture for Object Recognition?, *Kevin Jarrett, Koray Kavukcuoglu, Marc' Aurelio Ranzato, Yann LeCun*
- 35 : Shape-based Recognition of 3D Point Clouds in Urban Environments, *Aleksey Golovinskiy, Vladimir G. Kim, Thomas Funkhouser*
- Low Level Vision and Others (30)**
- 36 : Multiscale Symmetric Part Detection and Grouping, *Alex Levinstein, Cristian Sminchisescu, Sven Dickinson*
- 37 : Recovering Planar Homographies between 2D Shapes, *Jozsef Nemeth, Csaba Domokos, Zoltan Kato*
- 38 : Multimodal Partial Estimates Fusion, *Jiang Xu, Junsong Yuan, Ying Wu*
- 39 : Image Saliency by Isocentric Curvedness and Color, *Roberto Valenti, Nicu Sebe, Theo Gevers*
- 40 : GroupSAC: Efficient Consensus in the Presence of Groupings, *Kai Ni, Hailin Jin, Frank Dellaert*
- 41 : Fast Visibility Restoration from a Single Color or Gray Level Image, *Jean-Philippe Tarel, Nicolas Hautière*
- 42 : Scale Invariance and Noise in Natural Images, *Daniel Zoran, Yair Weiss*
- 43 : Image Restoration Using Online Photo Collections, *Kevin Dale, Micah K. Johnson, Kalyan Sunkavalli, Wojciech Matusik, Hanspeter Pfister*
- 44 : Finding Good Composition in Panoramic Scenes, *Yuan-Yang Chang, Hwann-Tzong Chen*
- 45 : A Framework for Visual Saliency Detection with Applications to Image Thumbnailing, *Luca Marchesotti, Claudio Cifarelli, Gabriela Csurka*
- 46 : Optimizing Parametric Total Variation Models, *Petter Strandmark, Fredrik Kahl, Niels C. Overgaard*
- 47 : Deformable Model Fitting with a Mixture of Local Experts, *Jason M. Saragih, Simon Lucey, Jeffrey F. Cohn*
- 48 : Detecting Interpretable and Accurate Scale-Invariant Keypoints, *Wolfgang Förstner, Timo Dickscheid, Falko Schindler*
- 49 : The Swap and Expansion Moves Revisited and Fused, *Ido Leichter*
- 50 : Non-local Sparse Models for Image Restoration, *Julien Mairal, Francis Bach, Jean Ponce, Guillermo Sapiro, Andrew Zisserman*

- 51 : Weighted Graph Characteristics from Oriented Line Graph Polynomials, *Peng Ren, Richard C. Wilson, Edwin R. Hancock*
- 52 : Shape Guided Contour Grouping with Particle Filters, *ChengEn Lu, Longin J. Latecki, Nagesh Adluru, Xingwei Yang, Haibin Ling*
- 53 : An Algebraic Model for Fast Corner Detection, *Andrew Willis, Yunfeng Sui*
- 54 : Seeing through Water: Image Restoration Using Model-based Tracking, *Yuandong Tian, Srinivasa G. Narasimhan*
- 55 : Piecewise-consistent Color Mappings of Images Acquired under Various Conditions, *Sefy Kagarlitsky, Yael Moses, Yacov Hel-Or*
- 56 : A Global Perspective on MAP Inference for Low-level Vision, *Oliver J. Woodford, Carsten Rother, Vladimir Kolmogorov*
- 57 : Riemannian Bayesian Estimation of Diffusion Tensor Images, *Kai Krajssek, Marion I. Menzel, Hanno Schar*
- 58 : Ground Truth Dataset and Baseline Evaluations for Intrinsic Image Algorithms, *Roger Grosse, Micah K. Johnson, Edward H. Adelson, William T. Freeman*
- 59 : Image Compression with Anisotropic Triangulations, *Sébastien Bougleux, Gabriel Peyré, Laurent D. Cohen*
- 60 : Shape Analysis with Multivariate Tensor-based Morphometry and Holomorphic Differentials, *Yalin Wang, Tony F. Chan, Arthur W. Toga, Paul M. Thompson*
- 61 : Packing Bag-of-features, *Hervé Jégou, Matthijs Douze, Cordelia Schmid*
- 62 : Studying Brain Morphometry Using Conformal Equivalence Class, *Yalin Wang, Wei Dai, Yi-Yu Chou, Xianfeng Gu, Tony F. Chan, Arthur W. Toga, Paul M. Thompson*
- 63 : Large-scale Privacy Protection in Google Street View, *Andrea Frome, German Cheung, Ahmad Abdulkader, Marco Zennaro, Bo Wu, Alessandro Bissacco, Hartwig Adam, Hartmut Neven, Luc Vincent*
- 64 : Efficient, High-quality Image Contour Detection, *Bryan Catanzaro, Bor-Yiing Su, Narayanan Sundaram, Yunsup Lee, Mark Murphy, Kurt Keutzer*
- 65 : Estimating Contact Dynamics, *Marcus A. Brubaker, Leonid Sigal, David J. Fleet*
- 16:30-17:30 Oral Session 14: Recognition, Detection and Matching**
- 1 : Compact Signatures for High-speed Interest Point Description and Matching, *Michael Calonder, Vincent Lepetit, Pascal Fua, Kurt Konolige, James Bowman, Patrick Mihelich*
- 2 : Attribute and Simile Classifiers for Face Verification, *Neeraj Kumar, Alexander C. Berg, Peter N. Belhumeur, Shree K. Nayar*
- 3 : A Shape-based Object Class Model for Knowledge Transfer, *Michael Stark, Michael Goesele, Bernt Schiele*
- 17:30- Closing**



5th IEEE Workshop on Embedded Computer Vision

Organizers: Nikos Bellas, Ahmed Nabil Belbachir

Location: (Oral) Room W202 (Eng.Bldg.#3, 2F)
(Poster) Gallery space (Eng.Bldg.#3, 4F)

Program

9:30-9:35 Welcome

9:35-10:20 Keynote Session 1

GPU - Accelerating Computer Vision, *Khanh Vo Duc*

10:20-11:00 S2: Applications with Real-time Vision

RACKET: Real-time Autonomous Computation of Kinematic Elements in Tennis, *Julien Pansiot, Ahmed Elsaify, Benny Lo, Guang-Zhong Yang*

An Embedded AER Dynamic Vision Sensor for Low-latency Pole Balancing, *Jorg Conradt, Raphael Berner, Matthew Cook, Tobj Delbruck*

11:00-11:30 Morning Break

11:30-12:30 S3: Real-time Stereo Vision

A Very Fast Census-based Stereo Matching Implementation on a Graphics Processing Unit, *Michael Weber, Martin Humenberger, Wilfried Kubinger*

Real-time Accurate Stereo with Bitwise Fast Voting on CUDA, *Ke Zhang, Jiango Lu, Gauthier Lafrait, Rudy Lauwewereins, Luc Van Gool*

Geodesic Tree-based Dynamic Programming for Fast Stereo Reconstruction, *Chin-Hong Sin, Chia-Ming Cheng, Shang-Hong Lai, Shan-Yung Yang*

12:30-14:00 Lunch Break

14:00-14:45 S4: Keynote Session 2

Multiresolution Analysis for Computer Vision: From Algorithms to Low Power Reconfigurable Architectures, *Abbes Amira*

14:45-15:45 S5: Poster Session

Efficient Keypoint Matching for Robot Vision Using GPUs, *Michael Schweitzer, Hans-Joachim Wuensche*

Probabilistic Model of Error in Fixed-point Arithmetic Gaussian Pyramid, *Antoine Meler, John A. Ruiz-Hernandez, James L. Crowley*

Efficient Systolic Architecture and Power Modeling for Finite Ridgelet Transform, *Abdul N. Sazish, Shrutisagar Chandrasekaran, Abbes Amira*

MCMC-based Feature-guided Particle Filtering for Tracking Moving Objects from a Moving Platform, *Chung-Ching Lin, Wayne Wolf*

Flexible Clustering in Networks of Smart Cameras, *Bernhard Dieber, Bernhard Rinner, Nikolaus Viertl*

A Self-calibration Method for Smart Video Cameras, *Georg Nebehay, Roman Pflugfelder*

Towards Complex Visual Surveillance Algorithms on Smart Cameras, *Oliver Sidla, Norbert Brandle, Wanda Benesova, Marcin Rosner, Yuriy Lypetsky*

Fast Image Segmentation and Texture Feature Extraction for Image Retrieval, *Tse-Wei Chen, Yi-Ling Chen, Shao-Yi Chien*

Parallel Algorithms to a Parallel Hardware: Designing Vision Algorithms for a GPU, *Jun-Sik Kim, Myung Hwangbo, Takeo Kanade*

15:45-16:00 Coffee Break

16:00-17:50 S6: Real-time Detection & Tracking

GPU-based Non-parametric Background Subtraction for a Practical Surveillance System, *David Schreiber, Michael Rauter*

An FPGA-based Stream Processor for Embedded Real-time Vision with Convolutional Networks, *Clement Farabet, Cyril Poulet, Yann LeCun*

Realtime Affine-photometric KLT Feature Tracker on GPU in CUDA Framework, *Jun-Sik Kim, Myung Hwangbo, Takeo Kanade*

Hardware Architecture for High-accuracy Real-time Pedestrian Detection with CoHOG Features, *Masayuki Hiromoto, Ryusuke Miyamoto*

Parallel Implementation of Pedestrian Tracking Using Multiple Cues on GPGPU, *Hiroki Sugano, Ryusuke Miyamoto*

Paper Award & Closing Remarks



IEEE Workshop on eHeritage and Digital Art Preservation

Organizers: Michael S. Brown, Ryusuke Sagawa,
Moshe Ben-Ezra

Location: Room W2 (Eng.Bldg.#3, 2F)

Program

9:30-9:35 Opening

9:35-9:50 Welcome: Katsushi Ikeuchi

9:50-12:35 S1 - Morning Session

3D Line Drawing for Archaeological Illustration, *Tao Luo, Renju Li, Hongbin Zha*

Prominent Field for Shape Processing of Archaeological Artifacts, *Michael Kolomenkin, Ilan Shimshoni, Ayellet Tal*

Method of 3D Reconstruction Using Graph Cuts, and its Application to Preserving Intangible Cultural Heritage, *Kensuke Hisatomi, Kimihiro Tomiyama, Miwa Katayama, Yuichi Iwadata*

(11:05-11:20 Morning Break)

Image-based Network Rendering System for Large Sized Meshes, *Yasuhide Okamoto, Takeshi Oishi, Katsushi Ikeuchi*

Image Guided Reconstruction of Un-sampled Data: A Coherent Filling for Uncomplete Cultural Heritage Models, *Matteo Dellepiane, Andrea Venturi, Roberto Scopigno*

Capturing Village-level Heritages with a Hand-held Camera-laser Fusion Sensor, *Yunsu Bok, Donggul Choi, Yekeun Jeong, In So Kweon*

12:35-14:15 Lunch

14:15-17:00 S2 - Afternoon Session

Unsupervised Ink Type Recognition in Ancient Manuscripts, *Aaron Licata, Alexandra Psarrou, Vassiliki Kokla*

Weave Pattern Modeling of Silk-like Fabrics from Multi-illuminated HDR Image Analysis, *Ryo Ozaki, Yasuhiro Nishiwaki, Yuki Yakeda, Takahiro Yuhara, Hiromi T. Tanaka*

A Lightness Recovery Algorithm for the Multispectral Acquisition of Frescoed Environments, *Anna Paviotti, David A. Forsyth*

(15:30-15:45 Break)

Automatically Identifying Join Candidates in the Cairo Genizah, *Lior Wolf, Rotem Littman, Naama Mayer, Nachum Dershowitz, Roni Shweta, Yaacov Choueka*

Enhancing Color Texture Quality of 3D Models for Digital Preservation of Indigenous Ceramic Artworks, *Beatriz T. Andrade, Olga R. P. Bellon, Luciano Silva, Alexandre Vrabel*

Retrieving Ancient Maya Glyphs with Shape Context, *Edgar Roman-Rangel, Carlos Pallan, Jean-Marc Odobez, Daniel Gatica-Perez*

17:00-17:05 Break

17:05-17:10 Best Paper Award

17:10-17:20 Next Year Organizing Team

17:20-17:45 Free Discussion



2nd IEEE International Workshop on Tracking Humans for the Evaluation of their Motion in Image Sequences (THEMIS2009)

Organizers: *Jordi González, Thomas B. Moeslund, Liang Wang*

Location: (Oral) Room W201 (Eng.Bldg.#3, 2F)
(Poster) Gallery space (Eng.Bldg.#3, 4F)

Program

9:30-9:35 Welcome by the Organizers

9:35-10:35 S1: Keynote Session

Keynote Address: *Dimitrios Makris*

10:35-11:00 S2: Poster Fast Forward

3D Body-part Tracking of Two Persons Using a Hierarchical Body Model, *Leonid Raskin, Michael Rudzsky, Ehud Rivlin*

User-centric Speaker Report: Ranking-based Effectiveness Evaluation and Feedback, *Tianshi Gao, Chen Wu, Hamid Aghajan*

A Regression-based Approach to Recover Human Pose from Voxel Data, *Laetitia Gond, Patrick Sayd, Thierry Chateau, Michel Dhome*

Tracking of Humans and Estimation of Body/Head Orientation from Top-view Single Camera for Visual Focus of Attention Analysis, *Ovgu Ozturk, Toshihiko Yamasaki, Kiyoharu Aizawa*

A Framework for Human Tracking Using Kalman Filter and Fast Mean Shift Algorithms, *A. Ali, K. Terada*

11:00-11:30 Morning Break (and Poster Session)

11:30-12:30 S3: Oral Session I: Motion tracking

Modeling the Product Manifold of Posture and Motion, *Ankur Datta, Yaser Sheikh, Takeo Kanade*

3D Model-based Marker-less Human Motion Tracking in Cluttered Environment, *Andre Gagalowicz, Chee Kwang Quah*

12:30-14:00 Lunch

14:00-15:30 S4: Oral Session II: Pose estimation

Monocular 3D Human Pose Estimation Using Sparse Motion

Features, *Ben Daubney, David Gibson, Neill Campbell*

Multiple Views Gait Recognition Using View Transformation

Model Based on Optimized Gait Energy Image,

Worapan Kusakunniran, Qiang Wu, Hongdong Li, Jian Zhang

Summarised Hierarchical Markov Models for Speed-invariant

Action Matching, *J. Kilner, J-Y. Guillemaut, A. Hilton*

15:30-16:00 Afternoon Break (and Poster Session)

16:00-17:30 S5: Oral Session III: Event understanding

Continuous Recognition of Motion Based Gestures in Sign

Language, *Daniel Kelly, John Mc Donald, Charles Markham*

Trajectory Based Primitive Events for Learning and

Recognizing Activity, *Guido Pusiol, Francois Bremond, Monique Thonnat*

The TUM Kitchen Data Set of Everyday Manipulation

Activities for Motion Tracking and Action Recognition, *Moritz Tenorth, Jan Bandouch, Michael Beetz*

17:30-17:45 S6: Closing remarks



9th IEEE International Workshop on Visual Surveillance 2009

Organizers: *Tieniu Tan, James Orwell, Rama Chellappa, Graeme Jones*

Location: (Oral) Room N1 (Eng.Bldg.#3, 1F)
(Poster) Gallery space (Eng.Bldg.#3, 4F)

Program

9:30-11:00 Paper Session 1: including the invited talk

Opening Remarks

Invited Talk: Combining SLAM and Visual Surveillance: Problems and Benefits, *Dr Ian Reid*

Boosting Associated Pairing Comparison Features for Pedestrian Detection, *Genquan Duan, Chang Huang, Haizhou Ai, Shihong Lao*

11:00-11:30 Morning Break

11:30-13:00 Paper Session 2: Object Tracking

Multi-object Tracking via Species Based Particle Swarm Optimization, *Xiaoqin Zhang, Weiming Hu, Wei Li, Wei Qu, Steve Maybank*

Tracker Trees for Unusual Event Detection, *Fabian Nater, Helmut Grabner, Tobias Jaeggli, Luc van Gool*

Scale Invariant 3D Multi-person Tracking Using a Base Set of Bundle Adjusted Visual Landmarks, *Alberto Del Bimbo, Giuseppe Lisanti, Federico Pernici*

13:00-14:00 Lunch

14:00-15:30 Poster Session

Detection and Tracking of Objects with Direct Integration of Perception and Expectation, *Kai Jüngerling, Michael Arens*
A Simple and Efficient Saliency Detector for Background Subtraction, *Esa Rahtu, Janne Heikkilä*

Spatio-temporal Nonparametric Background Modeling and Subtraction, *Raviteja Vemulapalli, R. Aravind*

Pyramidal Statistics of Oriented Filtering for Robust Pedestrian Detection, *Min Li, Zhaoxiang Zhang, Kaiqi Huang, Tieniu Tan*

Efficient Tracking of Many Objects in Structured Environments, *Nathan Jacobs, Michael Dixon, Scott Satkin, Robert Pless*

Object Detection by Joint Features Based on Two-stage Boosting, *Tomokazu Mitsui, Hironobu Fujiyoshi*

Multi-class Multi-instance Boosting for Part-based Human Detection, *Yu-Ting Chen, Chu-Song Chen, Yi-Ping Hung, Kuang-Yu Chang*

Human Segmentation by Fusing Visible-light and Thermal Imaginary, *Jian Zhao, Sen-ching S. Cheung*

Active Shape Model and Linear Predictors for Face Association Refinement, *David Hurych, Tomáš Svoboda, Jana Trojanová, Yadhunandan US*

Accurate Camera Calibration Using Iterative Refinement of Control Points, *Ankur Datta, Jun-Sik Kim, Takeo Kanade*

A Particle Swarm Optimization Approach for Multi-objects Tracking in Crowded Scene, *Myo Thida, Paolo Remagnino, How-Lung Eng*

Combining Low-level Segmentation with Relational Classification, *Alexander Bachmann, Irina Lulcheva*

Active Background Modeling: Actors on a Stage, *Raphael Sznitman, Henry Lin, Manaswi Gupta, Gregory Hager*

Modelling Pedestrian Trajectory Patterns with Gaussian Processes, *David Ellis, Eric Sommerlade, Ian Reid*

Full Body Image Feature Representations for Gender Profiling, *Matthew Collins, Jianguo Zhang, Paul Miller, Hongbin Wang*

Hunting Nessie - Real-time Abnormality Detection from Webcams, *Michael D. Breitenstein, Helmut Grabner, Luc Van Gool*

Multitarget Tracking with a Corner-based Particle Filter, *Alessio Dore, Andrea Beoldo*

A Simplified Error Model for Height Estimation Using a Single Camera, *P. Viswanath, I. A. Kakadiaris, S. K. Shah*

A Portable Geo-aware Visual Surveillance System for Vehicles, *Geoffrey Taylor, Atul Kanaujia, Krishnan Ramnath, Niels Haering*

Using Location and Motion Statistics for the Localization of Moving Objects in Multiple Camera Surveillance Videos, *László Havasi, Zoltán Szlávik*

What Are They Doing? : Collective Activity Classification Using Spatio-temporal Relationship among People, *Wongun Choi, Khuram Shahid, Silvio Savarese*



Accurate Fusion of Robot, Camera and Wireless Sensors for Surveillance Applications, *Andrew Gilbert, John Illingworth, Richard Bowden*

People Detection and Tracking Using the Explorative Particle Filtering, *Jamal Sabouné, Robert Laganère*

Cell-based Object Tracking Method for 3D Shape Reconstruction Using Multi-viewpoint Active Cameras, *Tatsuhisa Yamaguchi, Shohei Nobuhara, Takashi Matsuyama*

Automatic Configuration of Spectral Dimensionality Reduction Methods for 3D Human Pose Estimation, *Michał Lewandowski, Dimitrios Makris, Jean-Christophe Nebel*

15:30-16:00 Coffee

16:00-17:30 Paper Session 4: Events, Activity and Behaviour

Simultaneous Video Synchronization and Rare Event Detection via Cross-entropy Monte Carlo Optimization, *Junseok Kwon, Kyoung Mu Lee*

Discovering Multi-camera Behaviour Correlations for On-the-fly Global Activity Prediction and Anomaly Detection, *Jian Li, Shaogang Gong, Tao Xiang*

Topic Models for Scene Analysis and Abnormality Detection, *Jagannadan Varadarajan, Jean-Marc Odobez*

3rd IEEE On-line Learning for Computer Vision Workshop

Organizers: Fatih Porikli, Horst Bischof, Helmut Grabner

Location: Room W1 (Eng.Bldg.#3, 1F)

Program

9:30-9:45 Welcome and Opening

9:45-11:00 Session 1: Theory (On-line Boosting)

A Family of Online Boosting Algorithms, *Boris Babenko, Ming-Hsuan Yang, Serge Belongie*

Online Coordinate Boosting, *Raphael Pelossof, Michael Jones, Iliia Vovsha, Cynthia Rudin*

On Robustness of On-line Boosting - A Competitive Study, *Christian Leistner, Amir Saffari, Peter M. Roth, Horst Bischof*

11:00-11:30 Coffee Break

11:30-12:20 Session 2: Active Learning

Inter-active Learning of Randomized Tree Ensembles for Object Detection, *Thomas J. Fuchs, Joachim M. Buhmann*

Generalized Query by Transduction for Online Active Learning, *Vineeth Balasubramanian, Shayok Chakraborty, Sethuraman Panchanathan*

12:20-14:00 Lunch Break

14:00-14:45 Invited Talk :Pietro Perona

14:45-15:35 Session 3: Tracking I

Online Learning of Robust Facial Feature Trackers, *Tim Sheerman-Chase, Eng-Jon Ong, Richard Bowden*

On-line Random Forests, *Amir Saffari, Christian Leistner, Jakob Santner, Martin Godec, Horst Bischof*

15:35-16:05 Coffee Break

16:05-17:20 Session 4: Tracking II

Combining Online and Offline Learning for Tracking a Talking Face in Video, *Quoc Dinh Nguyen, Maurice Milgram*

Beyond Semi-supervised Tracking: Tracking Should Be as Simple as Detection, but not Simpler than Recognition, *Severin Stalder, Helmut Grabner, Luc van Gool*

Online Learning of Robust Object Detectors During Unstable Tracking, *Zdenek Kalal, Jiri Matas, Krystian Mikolajczyk*

17:20-17:45 Closing and Discussion



The PASCAL Visual Object Classes Challenge 2009

Organizers: Mark Everingham, Luc van Gool,
Chris Williams, John Winn, Andrew Zisserman

Location: Room N2 (Eng.Bldg.#3, 2F)

Program

9:30-10:00 Overview + Detection

10:00-11:00 Detection methods (invited talks)

11:00-11:30 Coffee Break

11:30-12:30 Classification methods (invited talks)

12:30-14:00 Lunch Break

14:00-14:20 Segmentation + Person Layout

14:20-15:00 Segmentation methods (invited talks)

15:00-15:20 Person Layout methods (invited talks)

15:20-15:45 Discussion

The 2009 IEEE International Workshop on 3-D Digital Imaging and Modeling (3DIM2009), Day1

Organizers: Adrian Hilton, Takeshi Masuda, Chang Shu,
Guy Godin

Location: (Oral and Poster)

International Conf. Hall 2&3 (Clock Tower, 2F)

Program

9:30-9:35 Welcome

9:35-10:25 Oral Session 1: Shape and Learning

Learning Shape Priors for Single View Reconstruction, Yu
Chen, Roberto Cipolla

Training Many-parameter Shape-from-shading Models Using
a Surface Database, Nazar Khan, Lam Tran, Marshall
Tappen

10:25-11:10 Invited Speaker 1

Isometry, Symmetry and Biometry: The Gromov-Hausdorff
Distance in Action, Ron Kimmel

11:10-11:30 Break

11:30-12:30 Poster Session 1

LiDAR inpainting from a Single Image, Jacob Becker,
Charles Stewart, Richard J. Radke

A High Speed Iterative Closest Point Tracker on an FPGA
Platform, Michael S. Belshaw, Michael A. Greenspan

Fully Automatic Calibration of LIDAR and Video Streams
from a Vehicle, Stanley Bileschi

Iterative Mesh Deformation for Dense Surface Tracking,
Cedric Cagniard, Edmond Boyer, Slobdodan Ilic

Measuring 3D Shape Similarity by Matching the Medial
Scaffolds, Ming-Ching Chang, Benjamin B. Kimia

Consistency and Confidence: A Dual Metric for Verifying 3D
Object Detections in Multiple LiDAR Scans, David L.
Doria, Richard J. Radke

Structure-and-motion Pipeline on a Hierarchical Cluster Tree,
Michela Farenzena, Andrea Fusiello, Riccardo Gherardi

Automatic Bootstrapping of a Morphable Face Model Using
Multiple Components, Frank B. ter Haar, Remco C.
Velkamp



3D-color Video Camera, *O. Rubinstein, Y. Honen, A. M. Bronstein, M. M. Bronstein, R. Kimmel*

Shape-colour Histograms for Matching 3D Video Sequences, *Peng Huang, Adrian Hilton*

Real-time Photo-realistic Visualization of 3D Environments for Enhanced Tele-operation of Vehicles, *Daniel Huber, Herman Herman, Alonzo Kelly, Pete Rander, Jason Ziglar*

Scalable Multi-view Stereo, *Michal Jancosek, Alexander Shekhovtsov, Tomas Pajdla*

Environment Modelling Using Spherical Stereo Imaging, *Hansung Kim, Adrian Hilton*

Multi-view Image and ToF Sensor Fusion for Dense 3D Reconstruction, *Young Min Kim, Christian Theobalt, James Diebel, Jana Kosecka, Branislav Miscusik, Sebastian Thrun*

Shape from Depth Discontinuities under Orthographic Projection, *Douglas Lanman, Daniel Cabrini Hauagge, Gabriel Taubin*

Elastic Convolved ICP for the Registration of Deformable Objects, *Ryusuke Sagawa, Kiyotaka Akasaka, Yasushi Yagi, Henning Hamer, Luc Van Gool*

Color Matching and Illumination Estimation for Urban Scenes, *Mingxuan Sun, Grant Schindler, Greg Turk, Frank Dellaert*

Posture Invariant Correspondence of Triangular Meshes in Shape Space, *Stefanie Wuhrer, Chang Shu, Prosenjit Bose*

A Minimum Cover Approach for Extracting the Road Network from Airborne LIDAR Data, *Qihui Zhu, Philippos Mordohai*

Freeform Shape Clustering for Customized Design Automation, *Alexander Zouhar, Sajjad Baloch, Sergei Azernikov, Claus Bahlmann, Gozde Unal, Tong Fang, Siegfried Fuchs*

12:30-14:00 Lunch Break

14:00-15:40 Oral Session 2: Multi-view Stereo

Hierarchical Shape-based Surface Reconstruction for Dense Multi-view Stereo, *Patrick Labatut, Jean-Philippe Pons, Renaud Keriven*

Self-correction of 3D Reconstruction from Multi-view Stereo Images, *Xiangyang Ju, J Paul Siebert, Balvinder S Khambay, Ashraf F Ayoub*

Robust Multi-view Stereo without Matching, *Philippe Lambert, Patrick Hébert*

Plenoptic Depth Estimation from Multiple Aliased Views, *Tom E. Bishop, Paolo Favaro*

15:40-16:00 Break

16:00-16:45 Invited Speaker 2

Modeling Dynamic Scenes Using Meshes, *Edmond Boyer*

16:45-18:00 Oral Session 3: Dynamic and Online Modeling

In-hand Scanning with Online Loop Closure, *Thibaut Weise, Thomas Wismer, Bastian Leibe, Luc Van Gool*

Online Segmentation of Free-viewpoint Video, *Masato Ishii, Keita Takahashi, Takeshi Naemura*

Spatio-temporal Image-based Texture Atlases for Dynamic 3-D Models, *Zsolt Jankó, Jean-Philippe Pons*



The 2009 IEEE International Workshop on 3-D Digital Imaging and Modeling (3DIM2009), Day2

Organizers: *Adrian Hilton, Takeshi Masuda, Chang Shu, Guy Godin*

Location: (Oral and Poster)
International Conf. Hall 2&3 (Clock Tower, 2F)

Program

9:30-9:35 Announcements

9:35-10:25 Oral Session 4: Registration

Robust Range Image Registration Using Local Distribution of Albedo, *Diego Thomas, Akihiro Sugimoto*

Complex 3D Shape Recovery Using Hybrid Geometric Shape Features in a Hierarchical Shape Segmentation Approach, *Hongwei Zheng, Dietmar Saupe*

10:25-11:10 Invited Speaker 3

Multi-view Stereo: Out of the Petri Dish and into the Wild, *Brian Curless*

11:10-11:30 Break

11:30-12:30 Poster Session 2

Fast 3D Surface Reconstruction by Unambiguous Compound Phase Coding, *Andrea Albarelli, Emanuele Rodolà, Samuel R. Bulò, Andrea Torsello*

A Probabilistic Approach to Camera Pose and Calibration from a Small Set of Point and Line Correspondences, *Thomas Chaperon, Jacques Droulez, Guillaume Thibault*

Tackling the Coplanarity Problem in 3D Camera Calibration by Means of Fuzzy Landmarks: A Performance Study in Forensic Craniofacial Superimposition, *J. Santamaría, O. Cerdón, S. Damas, O. Ibáñez*

Context-consistent Stereo Matching, *Shufei Fan, Frank P. Ferrie*

Monocular Structure from Motion for Near to Long Ranges, *John Fields, Garbis Salgian, Supun Samarasekera, Rakesh Kumar*

Automation of 3D View Acquisition for Geometric Tolerances Verification, *Michele Germani, Maura Mengoni, Roberto Raffaelli*

Creating Compact Architectural Models by Geo-registering Image Collections, *Radek Grzeszczuk, Jana Košečka, Ramakrishna Vedantham, Harlan Hile*

Local Potential Well Space Embedding, *Yani Ioannou, Limin Shang, Robin Harrap, Michael Greenspan*

On-line 3-D Inspection of Deformable Parts Using FEM Trained Radial Basis Functions, *Andrés E. Jaramillo, Pierre Boulanger, Flavio Prieto*

Real-time Free Viewpoint Video from Uncalibrated Cameras Using Plane-sweep Algorithm, *Songkran Jarusirisawad, Hideo Saito, Vicent Nozick*

Improving Photometric Stereo with Laser Sectioning, *Junyu Dong, G. McGunnigle, Liyuan Su, Yanxia Fang, Yuliang Wang*

Mobile Phone-based 3D Modeling Framework for Instant Interaction, *Wonwoo Lee, Kiyoung Kim, Wootack Woo*

A Locally Global Approach to Stereo Correspondence, *Stefano Mattocia*

An Efficient Data-driven Tissue Deformation Model, *Thomas H. Mosbech, Bjarne K. Ersbøll, Lars B. Christensen*

Markerless Reconstruction of Dynamic Facial Expressions, *Dominik Sibbing, Martin Habbecke, Leif Kobbelt*

One-shot Scanning Using De Bruijn Spaced Grids, *Ali Osman Ulusoy, Fatih Calakli, Gabriel Taubin*

A Compact Representation for Scanned 3D Objects, *Bing Wang, Holly Rushmeier*

Region Extraction in Large-scale Urban LIDAR Data, *Alexandri Zavodny, Patrick Flynn, Xin Chen*

Virtual 3D Bone Fracture Reconstruction via Inter-fragmentary Surface Alignment, *Beibei Zhou, Andrew Willis, Yunfeng Sui, Donald D. Anderson, Thomas D. Brown, Thaddeus P. Thomas*

Optimal Consensus Set for Digital Plane Fitting, *Rita Zrour, Yukiko Kenmochi, Hugues Talbot, Lilian Buzer, Yskandar Hamam, Ikuko Shimizu, Akihiro Sugimoto*

12:30-14:00 Lunch Break



14:00-15:40 Oral Session 5: Human and Environment Modeling

Tracking Human Joint Motion for Turntable-based Static Model Reconstruction, *Neil Birkbeck, Dana Cobzas, Martin Jagersand*

Shade Face: Multiple Image-based 3D Face Recognition, *Ajmal S. Mian*

Robust 3D Street-view Reconstruction Using Sky Motion Estimation, *Taehee Lee*

Large-scale Urban Environment Modeling from Videos Using Image Content Segmentation and Alignment, *Xiang Zhang, Jonathan T. Blockson, Dale D. Miller*

15:40-16:00 Break

16:00-17:15 Oral Session 6: Geometric Signal Processing

Sampled Medial Loci and Boundary Differential Geometry, *Sveltana Stolpner, Sue Whitesides, Kaleem Siddiqi*

Fast Computation of 3D Spherical Fourier Harmonic Descriptors - A Complete Orthonormal Basis for a Rotational Invariant Representation of Three-dimensional Objects, *Henrik Skibbe, Marco Reisert*

Disparity Map Refinement and 3D Surface Smoothing via Directed Anisotropic Diffusion, *Atsuhiko Banno, Katsushi Ikeuchi*

17:15-17:20 Closing Remarks

IEEE Color and Reflectance in Imaging and Computer Vision Workshop 2009 - CRICV 2009

Organizers: Theo Gevers, Carsten Rother, Shoji Tominaga, Joost van de Weijer, Todd Zickler

Location: Room W2 (Eng.Bldg.#3, 2F)

Program

9:30-10:10 S1: Keynote Session 1

Keynote: Photometric Issues in E-heritage, *Katsushi Ikeuchi*

10:10-11:10 S2: Oral session 1

Compact Local Color Descriptor Based on Rank Correlations, *Xiaohu Song, Damien Muselet, Alain Trémeau*

Color Harmony for Image Indexing, *Martin Solli, Reiner Lenz*
Perceptually Motivated Automatic Color Contrast Enhancement, *Anustup Choudhury, Gérard Medioni*

11:10-11:30 Morning Break

11:30-12:30 Oral Session 2

Color from Black-and-white Surveillance Cameras, *Naoya Ohta, Yusaku Fujii, Tadashi Ito*

Multispectral Imaging for Material Analysis in an Outdoor Environment Using Normalized Cuts, *Tetsuro Morimoto, Katsushi Ikeuchi*

Temporal Reflectance Changes in Vegetables, *Bjørn S. Dissing, Line H. Clemmesen, Hanne Løje, Bjarne K. Ersbøll, Jens Adler-Nissen*

12:30-14:00 Lunch Break

14:00-14:40 S4: Keynote Session 2

Keynote: Gradient Field Reintegration for Colour-based Problems, *Graham Finlayson*

14:40-15:40 S5: Oral Session 3

An Invariant Metric on the Manifold of Second Order Moments, *Reiner Lenz, Satoshi Oshima, Rika Mochizuki, Jinhui Chao*

Lightness Recovery for Pictorial Surfaces, *Anna Paviotti, David A. Forsyth*

A Common Framework for Ambient Illumination in the Dichromatic Reflectance Model, *Christian Riess, Johannes Jordan*



15:40-16:00 Afternoon Break

16:00-17:20 S6: Oral Session 4

- Single Image Focus Editing, *Wei Zhang, Wai-Kuen Cham*
 Reducing Integrability Artefacts for Data Fusion through
 Colour Space Manipulation, *Roberto Montagna, Graham D. Finlayson*
 Pixel-based Correspondence and Shape Reconstruction for
 Moving Objects, *Chia-Ping Chen, Chu-Song Chen, Yi-Ping Hung*
 Diamond Color Grading Based on Machine Vision, *Zhiguo Ren, Jiarui Liao, Lilong Cai*

IEEE International Workshop on Human-Computer Interaction (HCI'09)

Organizers: Hamid Aghajan, Thomas S. Huang, Nicu Sebe, Caifeng Shan

Location: Room W202 (Eng.Bldg.#3, 2F)

Program

9.30-11.05 Oral Session I: Face Analysis and Gesture

Recognition

- Incorporating Facial Features into a Multi-channel Gesture Recognition System for the Interpretation of Irish Sign Language Sequences, *Daniel Kelly, Jane R. Delannoy, John Mc Donald, Charles Markham*
 Feature Selection of Facial Displays for Detection of Non Verbal Communication in Natural Conversation, *Tim Sheerman-Chase, Eng-Jon Ong, Richard Bowden*
 Automatic Detection of Facial Actions from 3D Data, *Arman Savran, Bülent Sankur*
 Automatic Sign Segmentation from Continuous Signing via Multiple Sequence Alignment, *Pinar Santemiz, Oya Aran, Murat Saraclar, Lale Akarun*

11:05-11:30 Coffee Break

11.30-12.30 Keynote presentation

- Understanding How People Communicate With Each Other:
 Multimodal Approach for Modeling and Recognizing
 Multiparty Face-to-Face Conversations, *Kazuhiro Otsuka*

12.30-14.00 Lunch Break

14.00-15.35 Oral Session II: Applications

- Learning to Rank Images from Eye Movements, *Kitsuchart Pasupa, Craig J. Saunders, Sandor Szedmak, Arto Klami, Samuel Kaski, Steve R. Gunn*
 The Use of Tongue Protrusion Gestures for Video-based Communication, *Luis R. Sapaico, Hamid Laga, Masayuki Nakajima*
 Object Recognition in Service Robots: Conducting Verbal Interaction on Color and Spatial Relationship, *Yoshinori Kuno, Katsutoshi Sakata, Yoshinori Kobayashi*



Is Gender Recognition Affected by Age?, *Guodong Guo, Charles R. Dyer, Yun Fu, Thomas S. Huang*

15:35-16:00 Coffee Break

16:00-17:15 Oral Session III: Tracking

Tracking Humans Interacting with the Environment Using Efficient Hierarchical Sampling and Layered Observation Models, *Jan Bandouch, Michael Beetz*

Shoulder Gesture Interface for Operating Electric Wheelchair, *Nobuhiko Sato, Ikushi Yoda, Takenobu Inoue*

Real-time Motion Control Using Pose Space Probability Density Estimation, *Dumebi Okwechime, Eng-Jon Ong, Richard Bowden*

17.15 - 18.00 Panel

IEEE International Workshop on Emergent Issues in Large Amounts of Visual Data

Organizers: Toshikazu Wada, Koichi Kise, Shin'ichi Sato

Location: Room W201 (Eng.Bldg.#3, 2F)

Program

9:30-9:40 Opening Remarks

9:40-10:55 Session: Segmentation and Clustering

Applying Incremental Learning to Parallel Image Segmentation, *Cyril Charron, Yulia Hicks, Peter Hall*

BUBL: An Effective Region Labeling Tool Using a Hexagonal Lattice, *Carolina Galleguillos, Peter Faymonville, Serge Belongie*

Spectral Camera Clustering, *Alexander Ladikos, Slobodan Ilic, Nassir Navab*

10:55-11:15 Coffee Break

11:15-12:30 Session: Machine Learning and NN Search

Discriminative Structured Outputs Prediction Model and Its Efficient Online Learning Algorithm, *Yang Wu, Zejian Yuan, Yuanliu Liu, Nanning Zheng*

Error-correcting Semi-supervised Learning with Mode-filter on Graphs, *Weiwei Du, Kiichi Urahama*

Approximate Nearest Neighbor Search on HDD, *Noritaka Himeji, Toshikazu Wada*

12:30-14:00 Lunch Break

14:00-15:40 Keynote Session

Keynote: Recent Advances in Image Representation for Image Segmentation, Object Class Detection and Image Classification, *Frederic Jurie*

Keynote: Internet Multimedia: Challenges and Opportunities, *Xian-Sheng Hua*

15:40-16:00 Afternoon Break

16:00-17:40 Session: Object Recognition

Better Matching with Fewer Features: The Selection of Useful Features in Large Database Recognition Problems, *Panu Turcot, David G. Lowe*

Scaling Object Recognition: Benchmark of Current State of the Art Techniques, *Mohamed Aly, Peter Welinder, Mario Munich, Pietro Perona*

Robust and Efficient Recognition of Low-quality Images by Cascaded Recognizers with Massive Local Features, *Koichi Kise, Kazuto Noguchi, Masakazu Iwamura*

Compressed Representation of Feature Vectors Using a Bloomier Filter and Its Application to Specific Object Recognition, *Katsufumi Inoue, Koichi Kise*

17:40-18:00 Closing Remarks



9th IEEE Workshop on Omnidirectional Vision, Camera Networks and Non-classical Cameras (OMNIVIS2009)

Organizers: Hajime Nagahara, Ryusuke Sagawa,
Pascal Vasseur, Shree K. Nayar

Location: Room W1 (Eng.Bldg.#3, 1F)

Program

9:30-9:35 Opening

9:35-11:05 S1: Omnidirectional Cameras: Applications

Projection through Quadric Mirrors Made Faster, *Nuno*

Gonçalves, Ana C. Nogueira

Direct Approach to the Self-calibration of Omnidirectional Cameras, *A. Salazar-Garibay, E. Malis*

Featuring' Optical Rails: View-based Robot Guidance Using Orientation Features on the Sphere, *David Dederscheck, Holger Friedrich, Christine Lenhart, Martin Zahn, Rudolf Mester*

11:05-11:30 Morning Break

11:30-12:30 S2: Camera Networks

Self-calibration of Asynchronized Camera Networks, *Michael Nischt, Rahul Swaminathan*

Face Tracking by Using Omnidirectional Sensor Network, *Yuzuko Utsumi, Yosio Iwai, Hiroshi Ishiguro*

12:30-14:00 Lunch Break

14:00-15:30 S3: Omnidirectional Cameras: Structure-from-Motion and Image processing

Building Consistent Local Submaps with Omnidirectional SLAM, *Cyril Joly, Patrick Rives*

From Google Street View to 3D City Models, *Akihiko Torii, Michal Havlena, Tomáš Pajdla*

Experiments in Place Recognition Using Gist Panoramas, *A. C. Murillo, J. Kosecka*

15:30-15:45 Afternoon Break

15:45-17:45 S4: Non-Classical Sensors

Krill-eye : Superposition Compound Eye for Wide-angle Imaging via GRIN Lenses, *Shinsaku Hiura, Ankit Mohan, Ramesh Raskar*

Image Reconstruction in the Gigavision Camera, *Feng Yang, Luciano Sbaiz, Edoardo Charbon, Sabine Süsstrunk, Martin Vetterli*

Generalized Stereo for Hybrid Omnidirectional and Perspective Imaging, *Huei-Yung Lin, Min-Liang Wang*

A Novel Non-Central Catadioptric Auto-calibration Approach, *Abd E. Rahman Shabayek, David Fofi, Olivier Morel*

17:45-18:00 Closing and Discussion of Next OMNIVIS



Lunch Map (Main Conference: Sept. 29 - Oct. 2) around Kyoto International Conference Center

- 1 Main Building, ICC Kyoto
- 2 Event Hall, ICC Kyoto
- 3 Grand Prince Hotel Kyoto

Most of the restaurants have very small capacities (E, L, N, O, and S is relatively large).

Other restaurants can be found around Subway Sta. K03 (Kitayama).

The nearest shopping mall "VIVRE" is located at Subway Sta. K04 (Kitajoi).



	Restaurants, food store	category	hours	estimated cost
A	Kura (宝ヶ池蔵)	Japanese	11:30-14:30, 17:30-20:30	¥ 6,000~
B	FOODIES CAFE NIFTY (ニフティ)	Coffee Shop	11:00-24:00	¥1,000
C	Dorf (ドルフ)	Coffee Shop	9:00-24:00	¥1,000
D	Beaux Séjours (ボーセジュール)	Western	7:00-10:30, 11:45-14:30, 17:30-21:00	¥ 2,000~¥ 3,000
	Tohen (中国料理 桃園)	Chinese	11:30-14:30, 17:30-21:00	¥ 2,000~¥ 3,000
	Takaragaikae (日本料理 宝ヶ池)	Japanese	11:30-14:30, 17:30-21:00	¥ 6,000~¥ 8,000
	Pond Café (ポンドカフェ)	Coffee Shop	7:00-20:30	¥ 1,000~¥ 2,000
E	Ohsho (餃子の王将 宝ヶ池店)	Chinese	11:00 - 22:00	¥1,000
F	Restaurant "Grill" (レストラングリル)	Western/Japanese	10:00-17:00	¥ 1500~
G	Life (ライフ)	Supermarket	9:30-20:00	
H	LA RICHELLE (ラ・リシェス)	Café	11:00-19:00 (L.O. 18:30), Close:Wed	¥1,000
I	Jyunsai (グリルじゅんさい)	Japanese	11:30-14:30 (L.O. 14:00), 17:00-22:00 (L.O. 21:10), Close:Wed	¥ 1,000~¥ 2,000
J	Ventre de Paris (ヴァントル・ドゥ・パリ)	French	11:30-16:00 (L.O. 15:30), 17:30-22:00 (L.O. 21:00), Close : Thu	¥2,000
K	Restaurant takara (ランチレストランtakara)	Western/Japanese		
L	McDonald's (マクドナルド宝ヶ池店)	Fast Foods	6:00-24:00	~¥ 1,000
M	Yuba-sen (宝ヶ池ゆば泉)	Japanese	Lunch : 11:00-16:00 (L.O. 15:00) Dinner : 17:00-22:00 (L.O. 21:00)	¥2,500
N	Gusto (ガスト京都宝ヶ池店)	Western/Japanese	9:00-5:00	¥800
O	Zakuro (ざくろダイニング)	Japanese	11:30-15:00 (L.O. 14:30), 17:00-23:00 (L.O. 22:30)	¥1,200
P	Kawagen (河玄)	Japanese	17:00-21:30, Close:Thu	
Q	Trattoria VIN SANTO (トラットリアヴィンサント)	Western	11:30-14:00, 17:30-21:00, Close: Mon, 3rdTue	¥2,000
R	Sandaya (三田屋本店 宝ヶ池店)	Steak House	11:30-14:30, 17:00-21:30	¥2,000
S	Don (ステーキのどん宝ヶ池店)	Steak House	11:00~24:00	¥1,000



Lunch Map (Sept. 27,28, Oct. 3, 4) @ Kyoto University

- 1 Clock Tower**
- 2 Faculty of Engineering Bldg.#3**

Participants who have purchased the lunchbox ticket of the day will receive a lunchbox at the International Conference Hall 1 (Clock Tower 2F).



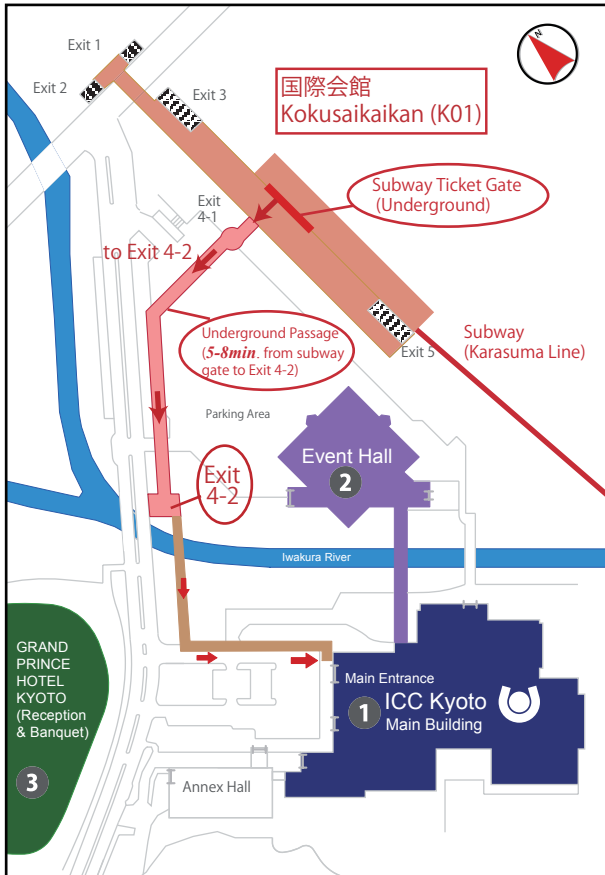
Convenience stores



	Restaurant	Category	Hours	Estimated cost
1	ジェイムスキッチン (James Kitchen)	Western	11:30~23:30 (L.O. 23:00)	¥800
2	華祥 (Kashoh)	Chinese Noodle	11:00~14:30, 17:00~22:30, Close:Wed	¥1,000
3	琢磨 (Takuma)	Japanese	11:45~13:00, 17:00~23:00 (L.O.)	¥1,000~¥2,000
4	学士堂 (Gakushi-doh)	Coffee shop	7:00~18:00, Close: Sun, Holiday	¥1,000
5	たく味 (Takumi)	Chinese Noodle	11:00~AM 2:00	~¥1,000
6	モスバーガー 京都百万遍店 (MOS BURGER)	Fast Foods	8:00~24:00	~¥1,000
7	マクドナルド 百万遍店 (McDonald's)	Fast Foods	6:30~23:00	~¥1,000
8	松屋フーズ 百万遍店 (Matsuya)	Beef Bowl	24h	~¥1,000
9	レストランまどい (Restaurant Madoi)	Western	12:00~14:00, 18:00~21:30, Close:Sat, Sun, Holiday	
	ルヴェゾンヴェール (Lever Son Verre)	French	12:00~14:30, 18:00~21:30, Close:Sun, Mon	
10	銀華 (Ginka)	Japanese Noodle	11:30~15:00, 17:00~21:00, Close: Sun	¥1,000
11	あやとり (Ayatori)	Japanese	11:30~14:00 (L.O.), 17:30~21:30 (L.O.), Close: Sun	¥1,000
12	ハイライト食堂 百万遍店 (Highlight)	Japanese	11:00~22:30, Close: Sun, Holiday	¥1,000
13	インド料理RAJU (RAJU)	Indian	11:00~15:00, 17:00~23:00	¥1,000~¥2,000
14	アルペン珈琲店 (alpen)	Coffee shop		
15	新福菜館 百万遍店 (Shinhukusaikan)	Chinese Noodle		
16	進々堂京大北門前 (ShinShinDoh)	Coffee shop	8:00~18:00, Close: Tue	¥1,000
17	カフェ・コレクション (cafe collection)	Coffee shop	11:00~22:00 (L.O.)	¥1,000
18	順菜 (Junsai)	Japanese		¥1,000
19	小川コーヒー 今出川店 (Ogawa Coffee)	Coffee shop		¥1,000
20	enzo (enzo)	Italian	11:30~14:00, 17:30~22:30, Close: Thu	¥1,000
21	カフェテリアルネ (cafeteria Renais)	Coop Canteen	11:00~22:00 (Weekdays), 11:00~19:30 (Sat), 11:00~14:00 (Sun)	~¥1,000
22	中央食堂 (Co-op Restaurant)	Coop Canteen	8:00~21:00 (Weekdays), 10:00~14:00 (Sat), Close:Sun	~¥1,000
23	ラ・トゥール (La Tour)	French	11:00~15:00, 17:00~22:00	¥2,000~¥3,000
24	カンフォアラ (Camphora)	Western	9:00~21:30 (Weekdays), 11:00~15:00 (Sat, Sun)	¥1,000~¥2,000
25	関西白仏学館 ル・カフェ (Le cafe)	French	11:00~19:30 (L.O.19:00), Close:Sun, Mon, Holiday	¥1,000
26	クラークハウス (Clark House)	Coffee shop		¥1,000
27	レストランしらん (Shiran)	Western	11:30~21:00, Close:Sun, Holiday	¥1,000~¥3,000



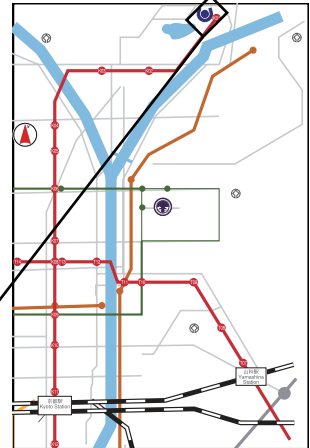
Main Conference (Sept. 29 - Oct. 2) Kyoto International Conference Center

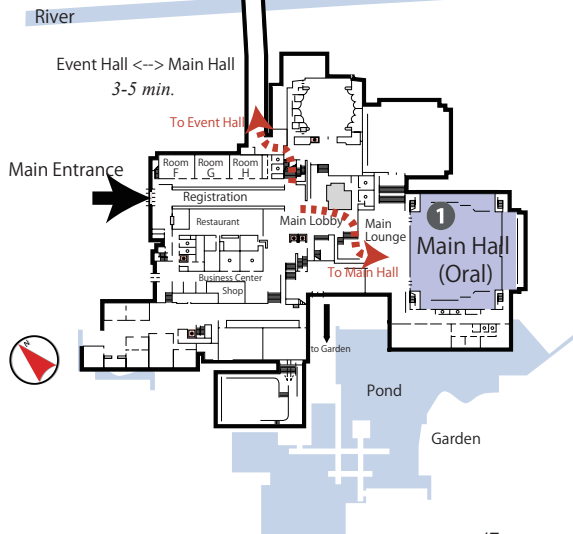
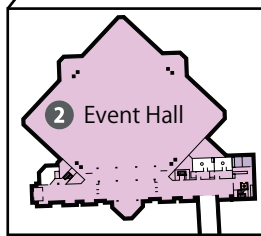
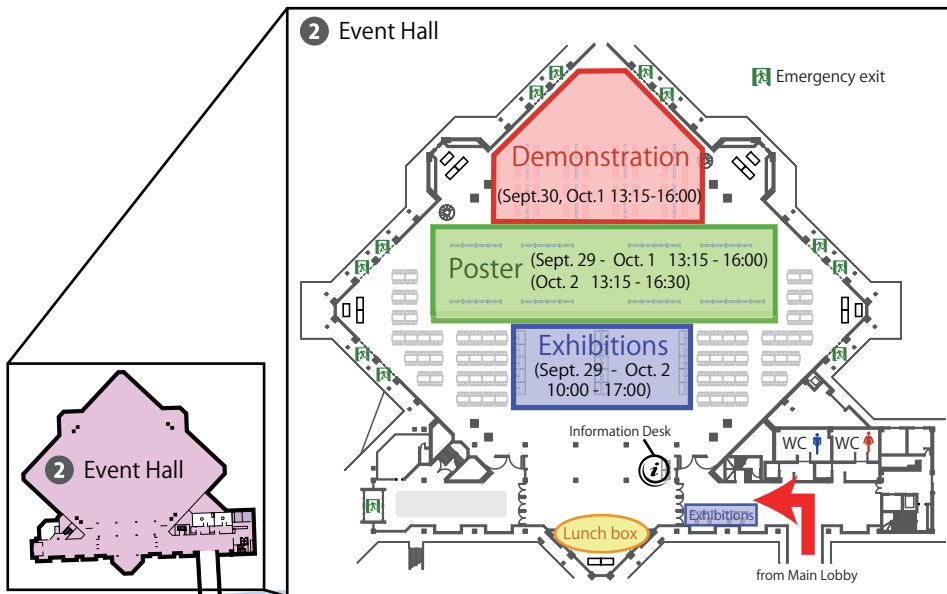


- 1 **Main Building, ICC Kyoto**
Registration, Oral Session
- 2 **Event Hall, ICC Kyoto**
Poster Session, Demos, Exhibitions
- 3 **Grand Prince Hotel Kyoto**
Reception (Sept. 29), Banquet (Oct. 1)

Access

From Kokusaikaikan (Subway Karasuma Line K01)
Please take **Exit 4-2**, to get to the ICC Kyoto
Underground passage is available from 7:00 to 22:30
Please take Exit 3 before 7:00 and after 22:30





Demo Session See page 21
Poster Session See page 16, 19, 23 & 27

Exhibitions

- E-01 ViewPLUS
- E-02 Mitsubishi Electric
- E-03 NTT docomo
- E-04 NTT
- E-05 Toshiba
- E-06 Information Grand Voyage Project
- E-07 Omron
- E-08 NEC
- E-09 NEC Soft
- E-10 Fujitsu
- E-11 Springer Japan
- E-12 Advanced communication media
- E-13 Now Publishers

- 1 Main Hall, ICC Kyoto**
Oral Session
- 2 Event Hall, ICC Kyoto**
Poster Session, Demos, Exhibitions



Special Event, Workshops & Tutorials Kyoto University (Sept. 27, 28, Oct. 3, 4)

- 1 Clock Tower**
Registration, Special Event, Workshops, Tutorials
- 2 Faculty of Engineering Bldg.#3**
Workshops, Tutorials

Route between 1 and 2 (3 min.)



- Cafeteria, Restaurant
- Univ. Co-op Book Store, Shop
- Bus Stop
- Univ. Gift Shop

Access by Bus (Bus fair: 220 yen)

Check the destination before you get on a bus.
Buses going opposite directions have a same number.

From Imadegawa (Subway Karasuma Line **K06**)
(approx. 10-15min.)
Take **Exit 3** from **Subway South Ticket Gate**

[City Bus #201] bound for **Hyakumanben, Gion & Shijo Omiya**
Karasuma Imadegawa → Hyakumanben
(烏丸今出川) or Kyodai Seimon-mae

[City Bus #203] bound for **Ginkakuji**
Karasuma Imadegawa → Hyakumanben

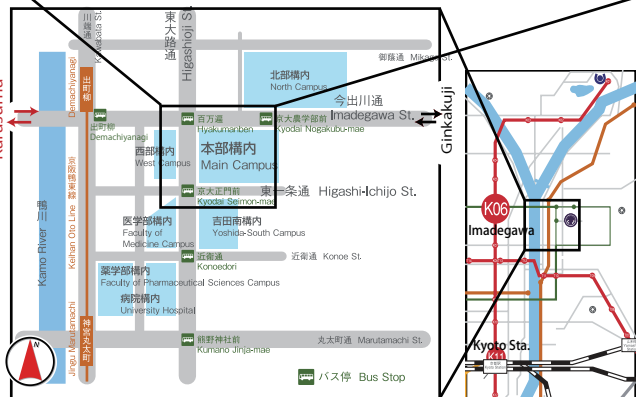
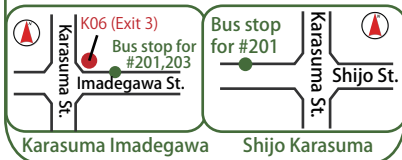
From Kyoto JR Station (approx. 30-40min.)

[City Bus #206] from Bus Platform **D2**
bound for **Kitaoji Bus Terminal via Higashiyama St.**
Kyoto Station → Kyodai Seimon-mae

[City Bus #17] from Bus Platform **A2**
bound for **Ginkakuji**
Kyoto Station → Hyakumanben

From Shijo Karasuma (approx. 25-35min.)

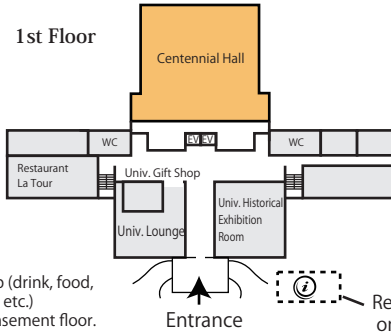
[City Bus #201] bound for **Gion-Hyakumanben**
Shijo Karasuma → Kyodai Seimon-mae
(四条烏丸)



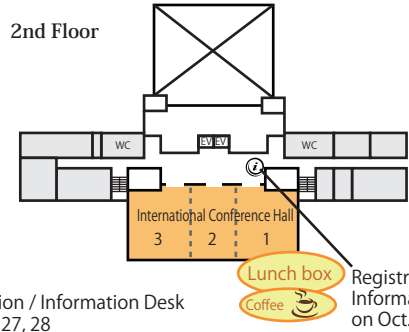
From Shijo Karasuma and Kyoto Station, you can also take **Subway to K06** and transfer to a bus at Imadegawa (to avoid overcrowded buses).

1 Clock Tower

Registration, Special Event, Workshops & Tutorials



Co-op shop (drink, food, stationery, etc.) is in the basement floor.



Registration / Information Desk on Sept. 27, 28

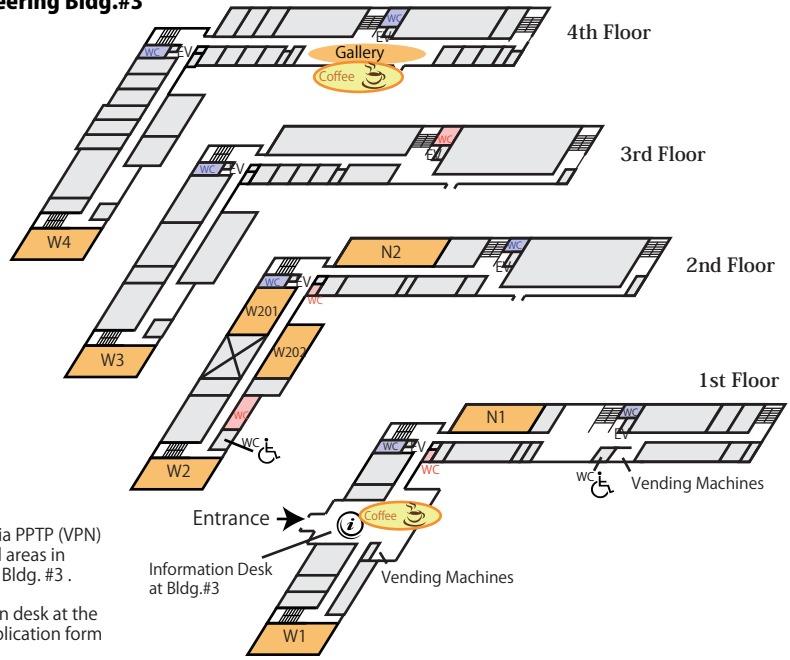
Lunch box
Coffee

Registration / Information Desk on Oct. 3, 4

2 Faculty of Engineering Bldg.#3

Workshops, Tutorials

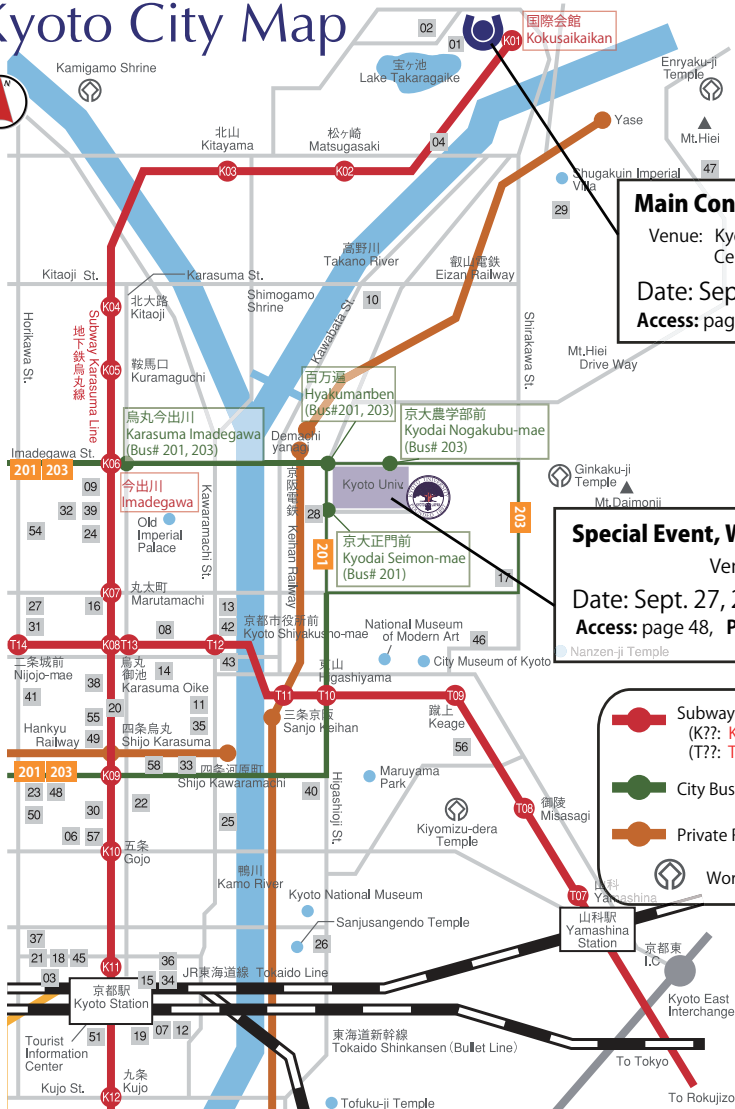
- EV: Elevators
- WC: Restrooms ♀
- WC: Restrooms ♂



Wireless internet access via PPTP (VPN) will be available at several areas in the Clock Tower and Eng. Bldg. #3 .

Please visit the registration desk at the Clock Tower to get an application form for the Guest ID.

Kyoto City Map



Main Conference

Venue: Kyoto International Conference Center (ICC Kyoto)

Date: Sept. 29 - Oct. 2

Access: page 46, Program: page 16-29






Special Event, Workshops & Tutorials

Venue: Kyoto University

Date: Sept. 27, 28, Oct. 3, 4

Access: page 48, Program: page 3-15, 30-41



-  Subway
(K???: Karasuma Line)
(T??: Tozai Line)
-  City Bus (# 201 203)
-  Private Railways (Keihan, Hankyu, Eizan)



World Cultural Heritage Sites

Hotel List : see page 43