

2012 IEEE Conference on Computer Vision and Pattern Recognition

(CVPR 2012)

**Providence, Rhode Island, USA
16-24 June 2012**

Pages 1-95;



**IEEE Catalog Number: CFP12003-PRT
ISBN: 978-1-4673-1226-4**

Table of Contents

Monday, June 18, 2012

**08:30-10:30 Posters 1A - Computational
Photography, Shape Representation and
Matching, Illumination and Reflectance,
Shape from X (Ballrooms D/E, B/C;
Rooms 555 & 556)**

Poster

Aligning Images in the Wild	1
Authors: Wem-Yan Lin, Linlin Liu, Yasuyuki Matsushita, Kok-Lim Low, Siying Liu [Supplemental Material]	
A Physically-based Approach to Reflection Separation	9
Authors: Naejin Kong, Yu-Wing Tai, Sung Yong Shin [Supplemental Material]	
Motion-Aware Noise Filtering for Deblurring of Noisy and Blurry Images	17
Authors: Yu-Wing Tai, Stephen Lin	
Nonlinear Camera Response Functions and Image Deblurring	25
Authors: Sunyeong Kim, Yu-Wing Tai, Seon Joo Kim, Michael S. Brown, Yasuyuki Matsushita	
Laser Speckle Photography for Surface Tampering Detection	33
Authors: YiChang Shih, Abe Davis, Sam W. Hasinoff, Frédo Durand, William T. Freeman [Supplemental Material]	
Globally Consistent Depth Labeling of 4D Lightfields	41
Authors: Sven Wanner, Bastian Goldluecke	
Scene Warping: Layer-based Stereoscopic Image Resizing	49
Authors: Ken-Yi Lee, Cheng-Da Chung, Yung-Yu Chuang	

A Data-driven Approach for Facial Expression Synthesis in Video	57
Authors: Kai Li, Feng Xu, Jue Wang, Qionghai Dai, Yebin Liu [Supplemental Material]	
Color Constancy Using Faces	65
Authors: Simone Bianco, Raimondo Schettini	
A Two-stage Approach to Blind Spatially-varying Motion Deblurring	73
Authors: Hui Ji, Kang Wang	
Enhancing Underwater Images and Videos by Fusion	81
Authors: Cosmin Ancuti, Codruta Orniana Ancuti, Tom Haber, Philippe Bekaert [Supplemental Material]	
Video Stabilization with a Depth Camera	89
Authors: Shuaicheng Liu, Yingting Wang, Lu Yuan, Jiajun Bu, Ping Tan, Jian Sun	
Compressive Depth Map Acquisition Using a Single Photon-Counting Detector: Parametric Signal Processing Meets Sparsity	96
Authors: Andrea Colaço, Ahmed Kirmani, Gregory A. Howland, John C. Howell, Vivek K. Goyal	
The Vitruvian Manifold: Inferring Dense Correspondences for One-Shot Human Pose Estimation	103
Authors: Jonathan Taylor, Jamie Shotton, Toby Sharp, Andrew Fitzgibbon [Supplemental Material]	
Computing Nearest-Neighbor Fields via Propagation-Assisted KD-Trees	111
Authors: Kaiming He, Jian Sun	
A New Convexity Measurement for 3D Meshes	119
Authors: Zhouhui Lian, Afzal Godil, Paul L. Rosin, Xianfang Sun	
Factorized Graph Matching	127
Authors: Feng Zhou, Fernando De la Torre	
Learning Contour-Fragment-based Shape Model with And-Or Tree Representation	135
Authors: Liang Lin, Xiaolong Wang, Wei Yang, Jianhuang Lai	
Scale Resilient, Rotation Invariant Articulated Object Matching	143
Authors: Hao Jiang, Taipeng Tian, Kun He, Stan Sclaroff	
Fan Shape Model for Object Detection	151
Authors: Xinggang Wang, Xiang Bai, Tianyang Ma, Wenyu Liu, Longin Jan Latecki	
Intrinsic Shape Context Descriptors for Deformable Shapes	159
Authors: Iasonas Kokkinos, Michael M. Bronstein, Roee Litman, Alexander M. Bronstein	

Twisted Window Search for Efficient Shape Localization	167
Authors: Steve Gu, Ying Zheng, Carlo Tomasi	
Robust Nonrigid ICP Using Outlier-Sparsity Regularization	174
Authors: Hidekata Hontani, Takamiti Matsuno, Yoshihide Sawada	
A Game-Theoretic Approach to Deformable Shape Matching	182
Authors: Emanuele Rodolà, Alexander M. Bronstein, Andrea Albarelli, Filippo Bergamasco, Andrea Torsello	
Progressive Shape Models	190
Authors: Antoine Letouzey, Edmond Boyer	
The Schrödinger Distance Transform (SDT) for Point-sets and Curves	198
Authors: Manu Sethi, Anand Rangarajan, Karthik Gurumoorthy	
Image Matching using Local Symmetry Features	206
Authors: Daniel Cabrini Hauagge, Noah Snavely	
Geometric Understanding of Point Clouds Using Laplace-Beltrami Operator	214
Authors: Jian Liang, Rongjie Lai, Tsz Wai Wong, Hongkai Zhao	
On the Dimensionality of Video Bricks under Varying Illumination	222
Authors: Youdong Zhao, Xi Song, Yunde Jia [Supplemental Material]	
A Biquadratic Reflectance Model for Radiometric Image Analysis	230
Authors: Boxin Shi, Ping Tan, Yasuyuki Matsushita, Katsushi Ikeuchi	
Single Image Multimaterial Estimation	238
Authors: Stephen Lombardi, Ko Nishino	
Depth from Optical Turbulence	246
Authors: Yuandong Tian, Srinivasa G. Narasimhan, Alan J. Vannevel [Supplemental Material]	
Optimal Integration of Photometric and Geometric Surface Measurements Using Inaccurate Reflectance/Illumination Knowledge	254
Authors: Takayuki Okatani, Koichiro Deguchi [Supplemental Material]	
Photometric Stereo for Outdoor Webcams	262
Authors: Jens Ackermann, Fabian Langguth, Simon Fuhrmann, Michael Goesele	
Bispectral Photometric Stereo based on Fluorescence	270
Authors: Imari Sato, Takahiro Okabe, Yoichi Sato	

Names and Shades of Color for Intrinsic Image Estimation	278
Authors: Marc Serra Vidal, Olivier Penacchio, Robert Benavente, Maria Vanrell [Supplemental Material]	
Refractive Height Fields from Single and Multiple Images	286
Authors: Qi Shan, Sameer Agarwal, Brian Curless	
A Learning-Based Framework for Depth Ordering	294
Authors: Zhaoyin Jia, Andrew Gallagher, Yao-Jen Chang, Tsuhan Chen	
Example-Based 3D Object Reconstruction from Line Drawings	302
Authors: Tianfan Xue, Jianzhuang Liu, Xiaoou Tang	
Angular Domain Reconstruction of Dynamic 3D Fluid Surfaces	310
Authors: Jinwei Ye, Yu Ji, Feng Li, Jingyi Yu [Supplemental Material]	
Robust Photometric Stereo using Sparse Regression	318
Authors: Satoshi Ikehata, David Wipf, Yasuyuki Matsushita, Kiyoharu Aizawa [Supplemental Material]	
2.5D Building Modeling by Discovering Global Regularities	326
Authors: Qian-Yi Zhou, Ulrich Neumann [Supplemental Material]	
Shape, Albedo, and Illumination from a Single Image of an Unknown Object	334
Authors: Jonathan T. Barron, Jitendra Malik [Supplemental Material]	
Robust Stereo with Flash and No-flash Image Pairs	342
Authors: Changyin Zhou, Alejandro Troccoli, Kari Pulli	
Detection by Detections: Non-parametric Detector Adaptation for a Video	350
Authors: Xiaoyu Wang, Gang Hua, Tony X. Han	

10:30-11:50 Orals 1A - Computational Photography (Ballroom A)

Oral

Richard Szeliski, James Hays

From Pixels to Physics: Probabilistic Color De-rendering	358
---	------------

Authors: Ying Xiong, Kate Saenko, Trevor Darrell, Todd Zickler

Decomposing Global Light Transport using Time of Flight Imaging **366**

Authors: Di Wu, Matthew O'Toole, Andreas Velten, Amit Agrawal, Ramesh Raskar
[Supplemental Material]

Accidental Pinhole and Pinspeck Cameras: Revealing the Scene Outside the Picture **374**

Authors: Antonio Torralba, William T. Freeman

Jigsaw Puzzles with Pieces of Unknown Orientation **382**

Authors: Andrew C. Gallagher
[Supplemental Material]

10:30-11:50 Orals 1B - Shape Representation and Matching (Exhibit Hall D)

Oral

Iasonas Kokkinos, Charless Fowlkes

Affine-Invariant, Elastic Shape Analysis of Planar Contours **390**

Authors: Darshan Bryner, Anuj Srivastava, Eric Klassen

Progressive Graph Matching: Making a Move of Graphs via Probabilistic Voting **398**

Authors: Minsu Cho, Kyoung Mu Lee

The Shape Boltzmann Machine: A Strong Model of Object Shape **406**

Authors: Seyed M. Ali Eslami, Nicolas Heess, John Winn
[Supplemental Material]

Surface Regions of Interest for Viewpoint Selection **414**

Authors: George Leifman, Elizabeth Shtrom, Ayellet Tal
[Supplemental Material]

13:00-15:00 Posters 1B - Color and Texture, Early & Biological Vision, Image Based Modeling, Segmentation and Grouping (Ballrooms

D/E, B/C; Rooms 555 & 556)

Poster

Discrete Texture Traces: Topological Representation of Geometric Context	422
Authors: Jan Ernst, Maneesh K. Singh, Visvanathan Ramesh [Supplemental Material]	
Cross-Based Local Multipoint Filtering	430
Authors: Jiangbo Lu, Keyang Shi, Dongbo Min, Liang Lin, Minh N. Do	
Boosting Bottom-up and Top-down Visual Features for Saliency Estimation	438
Authors: Ali Borji [Supplemental Material]	
Identigram/Watermark Removal using Cross-channel Correlation	446
Authors: Jaesik Park, Yu-Wing Tai, In So Kweon	
Leveraging Stereopsis for Saliency Analysis	454
Authors: Yuzhen Niu, Yujie Geng, Xueqing Li, Feng Liu	
The Scale of Edges	462
Authors: Xianming Liu, Changhu Wang, Hongxun Yao, Lei Zhang	
Probabilistic Learning of Task-Specific Visual Attention	470
Authors: Ali Borji, Dicky N. Sihite, Laurent Itti [Supplemental Material]	
Exploiting Local and Global Patch Rarities for Saliency Detection	478
Authors: Ali Borji, Laurent Itti	
Example-based Cross-Modal Denoising	486
Authors: Dana Segev, Yoav Y. Schechner, Michael Elad	
A Unifying Resolution-Independent Formulation for Early Vision	494
Authors: Fabio Viola, Andrew Fitzgibbon, Roberto Cipolla [Supplemental Material]	
The Image Torque Operator: A New Tool for Mid-level Vision	502
Authors: Morimichi Nishigaki, Cornelia Fermüller, Daniel DeMenthon	
FREAK: Fast Retina Keypoint	510
Authors: Alexandre Alahi, Raphaël Ortiz, Pierre Vandergheynst	
Parameter-free/Pareto-driven Procedural 3D Reconstruction of Buildings from	518

Ground-Level Sequences	
Authors: Loic Simon, Olivier Teboul, Panagiotis Koutsourakis, Luc Van Gool, Nikos Paragios	
Per-Pixel Translational Symmetry Detection, Optimization, and Segmentation	526
Authors: Peng Zhao, Lei Yang, Honghui Zhang, Long Quan	
Fast and Globally Optimal Single View Reconstruction of Curved Objects	534
Authors: Martin R. Oswald, Eno Töppe, Daniel Cremers	
Multi-Class Cosegmentation	542
Authors: Armand Joulin, Francis Bach, Jean Ponce [Supplemental Material]	
Improved Subspace Clustering via Exploitation of Spatial Constraints	550
Authors: Duc-Son Pham, Saha Budhaditya, Dinh Phung, Svetha Venkatesh	
Figure-Ground Segmentation by Transferring Window Masks	558
Authors: Daniel Kuettel, Vittorio Ferrari	
Automated Reconstruction of Tree Structures using Path Classifiers and Mixed Integer Programming	566
Authors: Engin Türetken, Fethallah Benmansour, Pascal Fua [Supplemental Material]	
Efficient Structure Detection via Random Consensus Graph	574
Authors: Hairong Liu, Shuicheng Yan	
Efficient Inference for Fully-Connected CRFs with Stationarity	582
Authors: Yimeng Zhang, Tsuhan Chen	
Learning Image-Specific Parameters for Interactive Segmentation	590
Authors: Zhanghui Kuang, Dirk Schnieders, Hao Zhou, Kwan-Yee K. Wong, Yizhou Yu, Bo Peng	
Fixed-Rank Representation for Unsupervised Visual Learning	598
Authors: Risheng Liu, Zhouchen Lin, Fernando De la Torre, Zhixun Su [Supplemental Material]	
Mode-Seeking on Graphs via Random Walks	606
Authors: Minsu Cho, Kyoung Mu Lee	
Higher Order Motion Models and Spectral Clustering	614
Authors: Peter Ochs, Thomas Brox	
The Role of Image Understanding in Contour Detection	622
Authors: C. Lawrence Zitnick, Devi Parikh	

Center-Shift: An Approach Towards Automatic Robust Mesh Segmentation (ARMS)	630
Authors: Mengtian Sun, Yi Fang, Karthik Ramani	
Globally Optimal Line Clustering and Vanishing Point Estimation in Manhattan World	638
Authors: Jean-Charles Bazin, Yong Duek Seo, Cédric Demonceaux, Pascal Vasseur, Katsushi Ikeuchi, In So Kweon, Marc Pollefeys	
Actionable Saliency Detection: Independent Motion Detection Without Independent Motion Estimation	646
Authors: Georgios Georgiadis, Alper Ayvaci, Stefano Soatto [Supplemental Material]	
Adaptive Figure-Ground Classification	654
Authors: Yisong Chen, Antoni B. Chan, Guoping Wang [Supplemental Material]	
What Are Good Parts for Hair Shape Modeling?	662
Authors: Nan Wang, Haizhou Ai, Feng Tang	
Maximum Weight Cliques with Mutex Constraints for Video Object Segmentation	670
Authors: Tianyang Ma, Longin Jan Latecki	
Linear Solution to Scale Invariant Global Figure Ground Separation	678
Authors: Hao Jiang	
A Hierarchical Image Clustering Cosegmentation Framework	686
Authors: Edward Kim, Hongsheng Li, Xiaolei Huang	
Higher Level Segmentation: Detecting and Grouping of Invariant Repetitive Patterns	694
Authors: Yunliang Cai, George Baciuc [Supplemental Material]	
Describing the Scene as a Whole: Joint Object Detection, Scene Classification and Semantic Segmentation	702
Authors: Jian Yao, Sanja Fidler, Raquel Urtasun	
The Random Cluster Model for Robust Geometric Fitting	710
Authors: Trung Pham, Tat-Jun Chin, Jin Yu, David Suter [Supplemental Material]	
Weighted Color and Texture Sample Selection for Image Matting	718
Authors: Ehsan Shahrian Varnousfaderani, Deepu Rajan	
Graph Cuts Optimization for Multi-Limb Human Segmentation in Depth Maps	726

Authors: Antonio Hernández-Vela, Nadezhda Zlateva, Alexander Marinov, Miguel Reyes, Petia Radeva, Dimo Dimov, Sergio Escalera
[Supplemental Material]

Saliency Filters: Contrast Based Filtering for Salient Region Detection **733**

Authors: Federico Perazzi, Philipp Krähenbühl, Yael Pritch, Alexander Hornung

Exploiting Nonlocal Spatiotemporal Structure for Video Segmentation **741**

Authors: Hsien-Ting Cheng, Narendra Ahuja

Unsupervised Co-segmentation Through Region Matching **749**

Authors: Jose C. Rubio, Joan Serrat, Antonio López, Nikos Paragios

Multi View Registration for Novelty/Background Separation **757**

Authors: Omid Aghazadeh, Josephine Sullivan, Stefan Carlsson
[Supplemental Material]

Seeded Watershed Cut Uncertainty Estimators for Guided Interactive Segmentation **765**

Authors: Christoph-N Straehle, Ullrich Koethe, Graham Knott, Kevin Briggman, Winfried Denk, Fred A. Hamprecht
[Supplemental Material]

Affinity Aggregation for Spectral Clustering **773**

Authors: Hsin-Chien Huang, Yung-Yu Chuang, Chu-Song Chen

Bag of Textons for Image Segmentation via Soft Clustering and Convex Shift **781**

Authors: Zhiding Yu, Ang Li, Oscar C. Au, Chunjing Xu

Segmentation Using Superpixels: A Bipartite Graph Partitioning Approach **789**

Authors: Zhenguo Li, Xiao-Ming Wu, Shih-Fu Chang

15:00-16:20 Orals 1C - Illumination and Reflectance (Ballroom A)

Oral

Ko Nishino, Yoichi Sato

Discriminative Illumination: Per-Pixel Classification of Raw Materials based on Optimal Projections of Spectral BRDF **797**

Authors: Jinwei Gu, Chao Liu
[Supplemental Material]

Camera Spectral Sensitivity Estimation from a Single Image under Unknown Illumination by using Fluorescence 805

Authors: Shuai Han, Yasuyuki Matsushita, Imari Sato, Takahiro Okabe, Yoichi Sato

Micro Phase Shifting 813

Authors: Mohit Gupta, Shree K. Nayar

A Closed-Form Solution to Uncalibrated Photometric Stereo via Diffuse Maxima 821

Authors: Paolo Favaro, Thoma Papadhimetri

15:00-16:20 Orals 1D - Segmentation and Grouping (Exhibit Hall D)

Oral

Kyoung Mu Lee, Eric Mortensen

Connected Contours: A New Contour Completion Model that Respects the Closure Effect 829

Authors: Yansheng Ming, Hongdong Li, Xuming He

On Multiple Foreground Cosegmentation 837

Authors: Gunhee KIM, Eric P. Xing
[Supplemental Material]

Weakly Supervised Structured Output Learning for Semantic Segmentation 845

Authors: Alexander Vezhnevets, Vittorio Ferrari, Joachim M. Buhmann

A Unified Approach to Salient Object Detection via Low Rank Matrix Recovery 853

Authors: Xiaohui Shen, Ying Wu

16:20-18:30 Posters 1C - Vision for Graphics, Sensors, Medical, Vision for Robotics, Applications (Ballrooms D/E, B/C; Rooms 555 & 556)

Poster

Facial Expression Editing in Video Using a Temporally-Smooth Factorization 861

Authors: Fei Yang, Lubomir Bourdev, Eli Shechtman, Jue Wang, Dimitris Metaxas [Supplemental Material]	
KNN Matting	869
Authors: Qifeng Chen, Dingzeyu Li, Chi-Keung Tang [Supplemental Material]	
Automatic Upright Adjustment of Photographs	877
Authors: Hyunjoon Lee, Eli Shechtman, Jue Wang, Seungyong Lee [Supplemental Material]	
Synthesizing Oil Painting Surface Geometry from a Single Photograph	885
Authors: Wei Luo, Zheng Lu, Xiaogang Wang, Ying-Qing Xu, Moshe Ben-Ezra, Xiaoou Tang, Michael S. Brown [Supplemental Material]	
Modelling and Correction of Multipath Interference in Time of Flight Cameras	893
Authors: David Jiménez Cabello, Daniel Pizarro Pérez, Manuel Mazo Quintas, Sira Elena Palazuelos Cagigas [Supplemental Material]	
An Analysis of Color Demosaicing in Plenoptic Cameras	901
Authors: Zhan Yu, Jingyi Yu, Andrew Lumsdaine, Todor Georgiev [Supplemental Material]	
Spatial Bias in Multi-Atlas Based Segmentation	909
Authors: Hongzhi Wang, Paul A. Yushkevich	
2D/3D Rotation-Invariant Detection using Equivariant Filters and Kernel Weighted Mapping	917
Authors: Kun Liu, Qing Wang, Wolfgang Driever, Olaf Ronneberger [Supplemental Material]	
Reconstruction of Super-Resolution Lung 4D-CT Using a Patch-Based Sparse Representation	925
Authors: Yu Zhang, Guorong Wu, Pew-Thian Yap, Qianjin Feng, Jun Lian, Wufan Chen, Dinggang Shen	
Fast Radial Symmetry Detection Under Affine Transformations	932
Authors: Jie Ni, Maneesh K. Singh, Claus Bahlmann	
Sparse Bayesian Multi-Task Learning for Predicting Cognitive Outcomes from Neuroimaging Measures in Alzheimer's Disease	940
Authors: Jing Wan, Zhilin Zhang, Jingwen Yan, Taiyong Li, Bhaskar D. Rao, Shiao-fen Fang, Sungeun Kim, Shannon L. Risacher, Andrew J. Saykin, Li Shen	
The Use of On-line Co-training to Reduce the Training Set Size in Pattern	948

Recognition Methods: Application to Left Ventricle Segmentation in Ultrasound	
Authors: Gustavo Carneiro, Jacinto C. Nascimento	
From Label Fusion to Correspondence Fusion: A New Approach to Unbiased Groupwise Registration	956
Authors: Paul A. Yushkevich, Hongzhi Wang, John Pluta, Brian B. Avants	
Multiple Clustered Instance Learning for Histopathology Cancer Image Classification, Segmentation and Clustering	964
Authors: Yan Xu, Jun-Yan Zhu, Eric Chang, Zhuowen Tu	
Automatic Mitral Leaflet Tracking in Echocardiography by Outlier Detection in the Low-rank Representation	972
Authors: Xiaowei Zhou, Can Yang, Weichuan Yu	
A Learning Based Deformable Template Matching Method for Automatic Rib Centerline Extraction and Labeling in CT Images	980
Authors: Dijia Wu, David Liu, Zoltan Puskas, Chao Lu, Andreas Wimmer, Christian Tietjen, Grzegorz Soza, S. Kevin Zhou	
Graph-based Detection, Segmentation & Characterization of Brain Tumors	988
Authors: Sarah Parisot, Hugues Duffau, Stéphane Chemouny, Nikos Paragios	
Robust Non-Rigid Registration of 2D and 3D Graphs	996
Authors: Eduard Serradell, Przemyslaw Glowacki, Jan Kybic, Francesc Moreno-Noguer, Pascal Fua	
Efficient Automatic 3D-Reconstruction of Branching Neurons from EM Data	1004
Authors: Jan Funke, Bjoern Andres, Fred A. Hamprecht, Albert Cardona, Matthew Cook [Supplemental Material]	
Learning to Segment Dense Cell Nuclei with Shape Prior	1012
Authors: Xinghua Lou, Ullrich Koethe, Jochen Wittbrodt, Fred A. Hamprecht	
A Riemannian Approach for Estimating Orientation Distribution Function (ODF) Images from High-Angular Resolution Diffusion Imaging (HARDI)	1019
Authors: Kai Krajsek, Hanno Scharf	
Sasaki Metrics for Analysis of Longitudinal Data on Manifolds	1027
Authors: Prasanna Muralidharan, P. Thomas Fletcher	
Globally Optimal Hand-Eye Calibration	1035
Authors: Thomas Ruland, Tomas Pajdla, Lars Krüger [Supplemental Material]	
Real-time Image-based 6-DOF Localization in Large-Scale Environments	1043
Authors: Hyon Lim, Sudipta N. Sinha, Michael F. Cohen, Matt Uyttendaele	

A New Mirror-based Extrinsic Camera Calibration Using an Orthogonality Constraint	1051
Authors: Kosuke Takahashi, Shohei Nobuhara, Takashi Matsuyama [Supplemental Material]	
Online Continuous Stereo Extrinsic Parameter Estimation	1059
Authors: Peter Hansen, Hatem Alismail, Peter Rander, Brett Browning [Supplemental Material]	
Learning Attention Map from Images	1067
Authors: Yao Lu, Wei Zhang, Cheng Jin, Xiangyang Xue	
A Line-Structure-Preserving Approach to Image Resizing	1075
Authors: Che-Han Chang, Yung-Yu Chuang	
Detecting Texts of Arbitrary Orientations in Natural Images	1083
Authors: Cong Yao, Xiang Bai, Wenyu Liu, Yi Ma, Zhuowen Tu	
Markov Weight Fields for Face Sketch Synthesis	1091
Authors: Hao Zhou, Zhanghui Kuang, Kwan-Yee K. Wong	
Unsupervised Feature Learning Framework for No-reference Image Quality Assessment	1098
Authors: Peng Ye, Jayant Kumar, Le Kang, David Doermann	
Scalable k-NN Graph Construction for Visual Descriptors	1106
Authors: Jing Wang, Jingdong Wang, Gang Zeng, Zhuowen Tu, Rui Gan, Shipeng Li	
Multi-scale Dictionary for Single Image Super-resolution	1114
Authors: Kaibing Zhang, Xinbo Gao, Dacheng Tao, Xuelong Li	
Image Collection Summarization via Dictionary Learning for Sparse Representation	1122
Authors: Chunlei Yang, Jinye Peng, Jianping Fan	
Icon Scanning: Towards Next Generation QR Codes	1130
Authors: Itamar Friedman, Lihi Zelnik-Manor [Supplemental Material]	
Automated Quantitative Description of Spiral Galaxy Arm-Segment Structure	1138
Authors: Darren R. Davis, Wayne B. Hayes [Supplemental Material]	
Sparse Representation for Blind Image Quality Assessment	1146
Authors: Lihuo He, Dacheng Tao, Xuelong Li, Xinbo Gao	
Fast Axis Estimation from a Segment of Rotationally Symmetric Object	1154

Authors: Dongjin Han, Hern-soo Hahn

Computer Vision Aided Target Linked Radiation Imaging **1162**

Authors: Dashan Gao, Yi Yao, Feng Pan, Ting Yu, Bing Yu, Li Guan, Walter Dixon III, Brian Yanoff, Tai-Peng Tian, Nils Krahnstoeber

Automated Annotation of Coral Reef Survey Images **1170**

Authors: Oscar Beijbom, Peter J. Edmunds, David I. Kline, B. Gregory Mitchell, David Kriegman

Classifying Covert Photographs **1178**

Authors: Haitao Lang, Haibin Ling

City Scale Geo-spatial Trajectory Estimation of a Moving Camera **1186**

Authors: Gonzalo Vaca-Castano, Amir Roshan Zamir, Mubarak Shah

Tuesday, June 19, 2012

08:15:10:15 Posters 2A - Video Analysis, Stereo and Structure from Motion (Ballrooms D/E, B/C; Rooms 555 & 556)

Poster

A Database for Fine Grained Activity Detection of Cooking Activities **1194**

Authors: Marcus Rohrbach, Sikandar Amin, Mykhaylo Andriluka, Bernt Schiele

Evaluation of Super-Voxel Methods for Early Video Processing **1202**

Authors: Chenliang Xu, Jason J. Corso

Scalable Action Recognition with a Subspace Forest **1210**

Authors: Stephen O'Hara, Bruce A. Draper

A Flow Model for Joint Action Recognition and Identity Maintenance **1218**

Authors: Sameh Khamis, Vlad I. Morariu, Larry S. Davis

Social Interactions: A First-person Perspective **1226**

Authors: Alireza Fathi, Jessica K. Hodgins, James M. Rehg

Action Bank: A High-Level Representation of Activity in Video	1234
Authors: Sreemananath Sadanand, Jason J. Corso	
Discovering Discriminative Action Parts from Mid-Level Video Representations	1242
Authors: Michalis Raptis, Iasonas Kokkinos, Stefano Soatto	
Learning Latent Temporal Structure for Complex Event Detection	1250
Authors: Kevin Tang, Li Fei-Fei, Daphne Koller	
Detecting Regions of Interest in Dynamic Scenes with Camera Motions	1258
Authors: Kihwan Kim, Dongryeol Lee, Irfan Essa [Supplemental Material]	
A Unified Framework for Event Summarization and Rare Event Detection	1266
Authors: Junseok Kwon, Kyoung Mu Lee	
Efficient Activity Detection with Max-Subgraph Search	1274
Authors: Chao-Yeh Chen, Kristen Grauman	
Generalized Time Warping for Multi-modal Alignment of Human Motion	1282
Authors: Feng Zhou, Fernando De la Torre	
Mining Actionlet Ensemble for Action Recognition with Depth Cameras	1290
Authors: Jiang Wang, Zicheng Liu, Ying Wu, Junsong Yuan	
Multimodal Feature Fusion for Robust Event Detection in Web Videos	1298
Authors: Pradeep Natarajan, Shuang Wu, Shiv Vitaladevuni, Xiaodan Zhuang, Stavros Tsakalidis, Unsang Park, Rohit Prasad, Premkumar Natarajan	
Dynamic Scene Understanding: The Role of Orientation Features in Space and Time in Scene Classification	1306
Authors: Konstantinos G. Derpanis, Matthieu Lecce, Kostas Daniilidis, Richard P. Wildes	
Sum-Product Networks for Modeling Activities with Stochastic Structure	1314
Authors: Mohamed R. Amer, Sinisa Todorovic	
Social Behavior Recognition in Continuous Video	1322
Authors: Xavier P. Burgos-Artizzu, Piotr Dollár, Dayu Lin, David J. Anderson, Pietro Perona [Supplemental Material]	
Substructure and Boundary Modeling for Continuous Action Recognition	1330
Authors: Zhaowen Wang, Jinjun Wang, Jing Xiao, Kai-Hsiang Lin, Thomas Huang	
Exploiting Web Images for Event Recognition in Consumer Videos: A Multiple Source Domain Adaptation Approach	1338
Authors: Lixin Duan, Dong Xu, Shih-Fu Chang	

Discovering Important People and Objects for Egocentric Video Summarization	1346
Authors: Yong Jae Lee, Joydeep Ghosh, Kristen Grauman	
Social Roles in Hierarchical Models for Human Activity Recognition	1354
Authors: Tian Lan, Leonid Sigal, Greg Mori	
Cross-view Activity Recognition using Hangelets	1362
Authors: Binlong Li, Octavia I. Camps, Mario Sznajder [Supplemental Material]	
Action Recognition by Exploring Data Distribution and Feature Correlation	1370
Authors: Sen Wang, Yi Yang, Zhigang Ma, Xue Li, Chaoyi Pang, Alex G. Hauptmann	
A Combined Pose, Object, and Feature Model for Action Understanding	1378
Authors: Ben Packer, Kate Saenko, Daphne Koller	
Modulation Transfer Function of Patch-Based Stereo Systems	1386
Authors: Ronny Klowsky, Arjan Kuijper, Michael Goesele	
General Trajectory Prior for Non-Rigid Reconstruction	1394
Authors: Jack Valmadre, Simon Lucey	
A Non-Local Cost Aggregation Method for Stereo Matching	1402
Authors: Qingxiong Yang	
Practical Low-Rank Matrix Approximation under Robust L1-Norm	1410
Authors: Yinqiang Zheng, Guangcan Liu, Shigeki Sugimoto, Shuicheng Yan, Masatoshi Okutomi	
Finite Element based Sequential Bayesian Non-Rigid Structure from Motion	1418
Authors: Antonio Agudo, Begoña Calvo, J. M. M. Montiel [Supplemental Material]	
Structure and Motion from Scene Registration	1426
Authors: Tali Basha, Shai Avidan, Alexander Hornung, Wojciech Matusik	
Rolling Shutter Bundle Adjustment	1434
Authors: Johan Hedborg, Per-Erik Forssén, Michael Felsberg, Erik Ringaby [Supplemental Material]	
Visibility Based Preconditioning for Bundle Adjustment	1442
Authors: Avnish Kushal, Sameer Agarwal [Supplemental Material]	
Dense Reconstruction On-the-Fly	1450

Authors: Andreas Wendel, Michael Maurer, Gottfried Graber, Thomas Pock, Horst Bischof
[Supplemental Material]

Seeing Double Without Confusion: Structure-from-Motion in Highly Ambiguous Scenes **1458**

Authors: Nianjuan Jiang, Ping Tan, Loong Fah Cheong

Consistent Depth Maps Recovery from a Trinocular Video Sequence **1466**

Authors: Wenzhuo Yang, Guofeng Zhang, Hujun Bao, Jiwon Kim, Ho-Young Lee
[Supplemental Material]

Saliency-Guided Integration of Multiple Scans **1474**

Authors: Ran Song, Yonghuai Liu, Ralph R. Martin, Paul L. Rosin

Robust Plane-Based Structure From Motion **1482**

Authors: Zihan Zhou, Hailin Jin, Yi Ma

Multi-View Hair Capture using Orientation Fields **1490**

Authors: Linjie Luo, Hao Li, Sylvain Paris, Thibaut Weise, Mark Pauly, Szymon Rusinkiewicz
[Supplemental Material]

Schematic Surface Reconstruction **1498**

Authors: Changchang Wu, Sameer Agarwal, Brian Curless, Steven M. Seitz
[Supplemental Material]

Making Minimal Solvers Fast **1506**

Authors: Martin Bujnak, Zuzana Kukelova, Tomas Pajdla

Discovering and Exploiting 3D Symmetries in Structure from Motion **1514**

Authors: Andrea Cohen, Christopher Zach, Sudipta N. Sinha, Marc Pollefeys
[Supplemental Material]

On SIFTs and their Scales **1522**

Authors: Tal Hassner, Viki Mayzels, Lihi Zelnik-Manor

Real-Time 6D Stereo Visual Odometry with Non-Overlapping Fields of View **1529**

Authors: Tim Kazik, Laurent Kneip, Janosch Nikolic, Marc Pollefeys, Roland Siegwart
[Supplemental Material]

11:15-12:35 Orals 2A - Video Analysis and Active Vision (Ballroom A)

Oral

Ying Wu, Greg Hager

Video from Nearly Still: An Application to Low Frame-rate Gait Recognition 1537

Authors: Naoki Akae, Al Mansur, Yasushi Makihara, Yasushi Yagi
[Supplemental Material]

We are not Contortionists: Coupled Adaptive Learning for Head and Body Orientation Estimation in Surveillance Video 1544

Authors: Cheng Chen, Jean-Marc Odobez
[Supplemental Material]

What Are We Looking For: Towards Statistical Modeling of Saccadic Eye Movements and Visual Saliency 1552

Authors: Xiaoshuai Sun, Hongxun Yao, Rongrong Ji
[Supplemental Material]

Stream-based Joint Exploration-Exploitation Active Learning 1560

Authors: Chen Change Loy, Timothy M. Hospedales, Tao Xiang, Shaogang Gong

11:15-12:35 Orals 2B - Optimization Methods (Exhibit Hall D)

Oral

Anand Rangarajan, Ronen Basri

Incremental Gradient on the Grassmannian for Online Foreground and Background Separation in Subsampled Video 1568

Authors: Jun He, Laura Balzano, Arthur Szlam

Curvature-Based Regularization for Surface Approximation 1576

Authors: Carl Olsson, Yuri Boykov

General and Nested Wiberg Minimization 1584

Authors: Dennis Strelow
[Supplemental Material]

A-Optimal Non-negative Projection for Image Representation 1592

Authors: Haifeng Liu, Zheng Yang, Zhaohui Wu, Xuelong Li

13:35-15:30 Posters 2B - Optimization Methods, Motion and Tracking (Ballrooms D/E, B/C; Rooms 555 & 556)

Poster

- See All by Looking at A Few: Sparse Modeling for Finding Representative Objects** **1600**
Authors: Ehsan Elhamifar, Guillermo Sapiro, René Vidal
- A Branch-and-Bound Algorithm for Globally Optimal Hand-Eye Calibration** **1608**
Authors: Jan Heller, Michal Havlena, Tomas Pajdla
- An Efficient Branch-and-Bound Algorithm for Optimal Human Pose Estimation** **1616**
Authors: Min Sun, Murali Telaprolu, Honglak Lee, Silvio Savarese
- Isogeometric Finite-Elements Methods and Variational Reconstruction Tasks in Vision - A Perfect Match** **1624**
Authors: Jonathan Balzer, Thomas Mörwald
- A Tiered Move-making Algorithm for General Pairwise MRFs** **1632**
Authors: Vibhav Vineet, Jonathan Warrell, Philip H. S. Torr
- Irregular Lattices for Complex Shape Grammar Facade Parsing** **1640**
Authors: Hayko Riemenschneider, Ulrich Krispel, Wolfgang Thaller, Michael Donoser, Sven Havemann, Dieter Fellner, Horst Bischof
- Geometry Constrained Sparse Coding for Single Image Super-resolution** **1648**
Authors: Xiaoqiang Lu, Haoliang Yuan, Pingkun Yan, Yuan Yuan, Xuelong Li
- Random Walks based Multi-Image Segmentation: Quasiconvexity Results and GPU-based Solutions** **1656**
Authors: Maxwell D. Collins, Jia Xu, Leo Grady, Vikas Singh
- What Is Optimized in Tight Convex Relaxations for Multi-Label Problems?** **1664**
Authors: Christopher Zach, Christian Häne, Marc Pollefeys
[Supplemental Material]
- Robust Maximum Likelihood Estimation by Sparse Bundle Adjustment using the L1 Norm** **1672**
Authors: Zhijun Dai, Fengjun Zhang, Hongan Wang

Application of the Mean Field Methods to MRF Optimization in Computer Vision	1680
Authors: Masaki Saito, Takayuki Okatani, Koichiro Deguchi	
A Bundle Approach To Efficient MAP-Inference by Lagrangian Relaxation	1688
Authors: Jörg Hendrik Kappes, Bogdan Savchynskyy, Christoph Schnörr	
MAP-MRF Inference Based on Extended Junction Tree Representation	1696
Authors: Yun Zheng, Pei Chen, Jiang-Zhong Cao	
Fast Algorithms for Structured Robust Principal Component Analysis	1704
Authors: Mustafa Ayazoglu, Mario Sznaiar, Octavia I. Camps [Supplemental Material]	
A Convex Representation for the Vectorial Mumford-Shah Functional	1712
Authors: Evgeny Strelakovsky, Antonin Chambolle, Daniel Cremers	
Parsing Facade with Rank-One Approximation	1720
Authors: Chao Yang, Tian Han, Long Quan, Chiew-Lan Tai	
Fast Dynamic Programming for Labeling Problems with Ordering Constraints	1728
Authors: Junjie Bai, Qi Song, Olga Veksler, Xiaodong Wu [Supplemental Material]	
Seeing through the Blur	1736
Authors: Hossein Mobahi, C. Lawrence Zitnick, Yi Ma [Supplemental Material]	
Multitarget Data Association with Higher-Order Motion Models	1744
Authors: Robert T. Collins	
Optical Flow in the Presence of Spatially-Varying Motion Blur	1752
Authors: Travis Portz, Li Zhang, Hongrui Jiang [Supplemental Material]	
Non-sparse Linear Representations for Visual Tracking with Online Reservoir Metric Learning	1760
Authors: Xi Li, Chunhua Shen, Qinfeng Shi, Anthony Dick, Anton van den Hengel	
Layered Segmentation and Optical Flow Estimation Over Time	1768
Authors: Deqing Sun, Erik B. Sudderth, Michael J. Black [Supplemental Material]	
Decomposing and Regularizing Sparse/Non-sparse Components for Motion Field Estimation	1776
Authors: Zhuoyuan Chen, Jiang Wang, Ying Wu	
Exemplar-Based Human Action Pose Correction and Tagging	1784

Authors: Wei Shen, Ke Deng, Xiang Bai, Tommer Leyvand, Baining Guo, Zhuowen Tu	
Collection Flow	1792
Authors: Ira Kemelmacher-Shlizerman, Steven M. Seitz	
Dense Lagrangian Motion Estimation with Occlusions	1800
Authors: Susanna Ricco, Carlo Tomasi	
Online Robust Image Alignment via Iterative Convex Optimization	1808
Authors: Yi Wu, Bin Shen, Haibin Ling	
Part-based Multiple-Person Tracking with Partial Occlusion Handling	1815
Authors: Guang Shu, Afshin Dehghan, Omar Oreifej, Emily Hand, Mubarak Shah	
Visual Tracking via Adaptive Structural Local Sparse Appearance Model	1822
Authors: Xu Jia, Huchuan Lu, Ming-Hsuan Yang	
Real Time Robust L1 Tracker Using Accelerated Proximal Gradient Approach	1830
Authors: Chenglong Bao, Yi Wu, Haibin Ling, Hui Ji	
Robust Object Tracking via Sparsity-based Collaborative Model	1838
Authors: Wei Zhong, Huchuan Lu, Ming-Hsuan Yang	
Video Segmentation by Tracing Discontinuities in a Trajectory Embedding	1846
Authors: Katerina Fragkiadaki, Geng Zhang, Jianbo Shi	
Robust Tracking via Weakly Supervised Ranking SVM	1854
Authors: Yancheng Bai, Ming Tang	
Tracking the Articulated Motion of Two Strongly Interacting Hands	1862
Authors: Iason Oikonomidis, Nikolaos Kyriazis, Antonis A. Argyros [Supplemental Material]	
Spatio-temporal Motion Tracking with Unsynchronized Cameras	1870
Authors: Ahmed Elhayek, Carsten Stoll, Nils Hasler, Kwang In Kim, Hans-Peter Seidel, Christian Theobalt [Supplemental Material]	
Joint Motion Estimation and Segmentation of Complex Scenes with Label Costs and Occlusion Modeling	1878
Authors: Markus Unger, Manuel Werlberger, Thomas Pock, Horst Bischof	
Decentralized Particle Filter for Joint Individual-Group Tracking	1886
Authors: Loris Bazzani, Marco Cristani, Vittorio Murino	
Efficient Online Structured Output Learning for Keypoint-Based Object Tracking	1894
Authors: Sam Hare, Amir Saffari, Philip H. S. Torr	

[Supplemental Material]

Hand Tracking by Binary Quadratic Programming and Its Application to Retail Activity Recognition **1902**

Authors: Hoang Trinh, Quanfu Fan, Prasad Gabbur, Sharath Pankanti

Distribution Fields for Tracking **1910**

Authors: Laura Sevilla-Lara, Erik Learned-Miller
[Supplemental Material]

Multi-Target Tracking by Online Learning of Non-linear Motion Patterns and Robust Appearance Models **1918**

Authors: Bo Yang, Ram Nevatia
[Supplemental Material]

Discrete-Continuous Optimization for Multi-Target Tracking **1926**

Authors: Anton Andriyenko, Konrad Schindler, Stefan Roth
[Supplemental Material]

An Optimized DBN-Based Mode-Focussing Particle filter **1934**

Authors: Séverine Dubuisson, Christophe Gonzales

Locally Orderless Tracking **1940**

Authors: Shaul Oron, Aharon Bar-Hillel, Dan Levi, Shai Avidan

Coupling Detection and Data Association for Multiple Object Tracking **1948**

Authors: Zheng Wu, Ashwin Thangali, Stan Sclaroff, Margrit Betke

Order Determination and Sparsity-Regularized Metric Learning for Adaptive Visual Tracking **1956**

Authors: Nan Jiang, Wenyu Liu, Ying Wu

Robust Visual Tracking using Autoregressive Hidden Markov Model **1964**

Authors: Dong Woo Park, Junseok Kwon, Kyoung Mu Lee

Improving Multi-target Tracking via Social Grouping **1972**

Authors: Zhen Qin, Christian R. Shelton

Growing a Bag of Systems Tree for Fast and Accurate Classification **1979**

Authors: Emanuele Coviello, Adeel Mumtaz, Antoni B. Chan, Gert R. G. Lanckriet

Branch-and-Price Global Optimization for Multi-view Multi-object Tracking **1987**

Authors: Laura Leal-Taixé, Gerard Pons-Moll, Bodo Rosenhahn

A Contextual Maximum Likelihood Framework for Modeling Image Registration **1995**

Authors: Christian Wachinger, Nassir Navab
[Supplemental Material]

Monotonicity and Error Type Differentiability in Performance Measures for Target Detection and Tracking in Video 2003

Authors: Ido Leichter, Eyal Krupka

Generalizing Wiberg Algorithm for Rigid and Nonrigid Factorizations with Missing Components and Metric Constraints 2010

Authors: Yinqiang Zheng, Shigeki Sugimoto, Shuicheng Yan, Masatoshi Okutomi

15:30-16:50 Orals 2C - Structure from Motion and Tracking (Exhibit Hall A)

Oral

Ming-Hsuan Yang, Mark Pollefeys

A Simple Prior-free Method for Non-Rigid Structure-from-Motion Factorization 2018

Authors: Yuchao Dai, Hongdong Li, Mingyi He

On Template-Based Reconstruction from a Single View: Analytical Solutions and Proofs of Well-Posedness for Developable, Isometric and Conformal Surfaces 2026

Authors: Adrien Bartoli, Yan Gérard, François Chadebecq, Toby Collins

An Online Learned CRF Model for Multi-Target Tracking 2034

Authors: Bo Yang, Ram Nevatia
[Supplemental Material]

Robust Visual Tracking via Multi-Task Sparse Learning 2042

Authors: Tianzhu Zhang, Bernard Ghanem, Si Liu, Narendra Ahuja

15:30-16:50 Orals 2D - Statistical Methods and Learning (Exhibit Hall B)

Oral

Bill Freeman, Alex Berg

Learning Rotation-Aware Features: From Invariant Priors to Equivariant Descriptors 2050

Authors: Uwe Schmidt, Stefan Roth

QsRank: Query-sensitive Hash Code Ranking for Efficient ϵ-neighbor Search	2058
Authors: Xiao Zhang, Lei Zhang, Heung-Yeung Shum	
Geodesic Flow Kernel for Unsupervised Domain Adaptation	2066
Authors: Boqing Gong, Yuan Shi, Fei Sha, Kristen Grauman [Supplemental Material]	
Supervised Hashing with Kernels	2074
Authors: Wei Liu, Jun Wang, Rongrong Ji, Yu-Gang Jiang, Shih-Fu Chang	

**16:50-19:00 Posters 2C - Video Surveillance,
Statistical Methods and Learning
(Ballrooms D/E, B/C; Rooms 555 & 556)**

Poster

Online Content-aware Video Condensation	2082
Authors: Shikun Feng, Zhen Lei, Dong Yi, Stan Z. Li [Supplemental Material]	
Active Attentional Sampling for Speed-up of Background Subtraction	2088
Authors: Hyung Jin Chang, Hawook Jeong, Jin Young Choi [Supplemental Material]	
Bridging the Past, Present and Future: Modeling Scene Activities From Event Relationships and Global Rules	2096
Authors: Jagannadan Varadarajan, Rémi Emonet, Jean-Marc Odobez [Supplemental Material]	
Background Modeling Using Adaptive Pixelwise Kernel Variances in a Hybrid Feature Space	2104
Authors: Manjunath Narayana, Allen Hanson, Erik Learned-Miller [Supplemental Material]	
Video Anomaly Detection Based on Local Statistical Aggregates	2112
Authors: Venkatesh Saligrama, Zhu Chen	
Multi-View Latent Variable Discriminative Models For Action Recognition	2120
Authors: Yale Song, Louis-Philippe Morency, Randall Davis	
Sharing Features in Multi-class Boosting via Group Sparsity	2128

Authors: Sakrapee Paisitkriangkrai, Chunhua Shen, Anton van den Hengel [Supplemental Material]	
Learning the Right Model: Efficient Max-Margin Learning in Laplacian CRFs	2136
Authors: Dhruv Batra, Ashutosh Saxena [Supplemental Material]	
Power SVM: Generalization with Exemplar Classification Uncertainty	2144
Authors: Weiyu Zhang, Stella X. Yu, Shang-Hua Teng	
Active Image Clustering: Seeking Constraints from Humans to Complement Algorithms	2152
Authors: Arijit Biswas, David Jacobs	
Generalized Multiview Analysis: A Discriminative Latent Space	2160
Authors: Abhishek Sharma, Abhishek Kumar, Hal Daume III, David W. Jacobs	
Robust Visual Domain Adaptation with Low-Rank Reconstruction	2168
Authors: I-Hong Jhuo, Dong Liu, Der-Tsai Lee, Shih-Fu Chang	
Manifold Guided Composite of Markov Random Fields for Image Modeling	2176
Authors: Dahua Lin, John Fisher III [Supplemental Material]	
Image Categorization Using Fisher Kernels of Non-iid Image Models	2184
Authors: Ramazan Gokberk Cinbis, Jakob Verbeek, Cordelia Schmid	
Matrix Completion by Truncated Nuclear Norm Regularization	2192
Authors: Debing Zhang, Yao Hu, Jieping Ye, Xuelong Li, Xiaofei He	
Sign Language Recognition using Sequential Pattern Trees	2200
Authors: Eng-Jon Ong, Helen Cooper, Nicolas Pugeault, Richard Bowden	
Group Action Induced Distances for Averaging and Clustering Linear Dynamical Systems with Applications to the Analysis of Dynamic Scenes	2208
Authors: Bijan Afsari, Rizwan Chaudhry, Avinash Ravichandran, René Vidal	
Semi-Coupled Dictionary Learning with Applications to Image Super-Resolution and Photo-Sketch Image Synthesis	2216
Authors: Shenlong Wang, Lei Zhang, Yan Liang, Quan Pan	
Relaxed Collaborative Representation for Pattern Classification	2224
Authors: Meng Yang, Lei Zhang, David Zhang, Shenlong Wang	
Efficient Discriminative Learning of Parametric Nearest Neighbor Classifiers	2232
Authors: Ziming Zhang, Paul Sturgess, Sunando Sengupta, Nigel Crook, Philip H. S. Torr	

Multi-feature Metric Learning with Knowledge Transfer among Semantics and Social Tagging	2240
Authors: Shuhui Wang, Shuqiang Jiang, Qingming Huang, Qi Tian	
A Constrained Latent Variable Model	2248
Authors: Aydin Varol, Mathieu Salzmann, Pascal Fua, Raquel Urtasun [Supplemental Material]	
Model Recommendation for Action Recognition	2256
Authors: Pyry Matikainen, Rahul Sukthankar, Martial Hebert	
Robust Boltzmann Machines for Recognition and Denoising	2264
Authors: Yichuan Tang, Ruslan Salakhutdinov, Geoffrey Hinton	
Nonparametric Learning for Layered Segmentation of Natural Images	2272
Authors: Soumya Ghosh, Erik B. Sudderth [Supplemental Material]	
Learning Hierarchical Similarity Metrics	2280
Authors: Nakul Verma, Dhruv Mahajan, Sundararajan Sellamanickam, Vinod Nair	
Large Scale Metric Learning from Equivalence Constraints	2288
Authors: Martin Köstinger, Martin Hirzer, Paul Wohlhart, Peter M. Roth, Horst Bischof	
Top-Down Visual Saliency via Joint CRF and Dictionary Learning	2296
Authors: Jimei Yang, Ming-Hsuan Yang	
Complex Loss Optimization via Dual Decomposition	2304
Authors: Mani Ranjbar, Arash Vahdat, Greg Mori	
Affinity Learning via Self-diffusion for Image Segmentation and Clustering	2312
Authors: Bo Wang, Zhuowen Tu	
Sparse Kernel Approximations for Efficient Classification and Detection	2320
Authors: Andrea Vedaldi, Andrew Zisserman	
Non-Negative Low Rank and Sparse Graph for Semi-Supervised Learning	2328
Authors: Liansheng Zhuang, Haoyuan Gao, Zhouchen Lin, Yi Ma, Xin Zhang, Nenghai Yu	
Learning 3D Object Templates by Hierarchical Quantization of Geometry and Appearance Spaces	2336
Authors: Wenze Hu	
Power Mean SVM for Large Scale Visual Classification	2344
Authors: Jianxin Wu	
Multi-Label ReliefF and F-statistic Feature Selections for Image Annotation	2352

Authors: Deguang Kong, Chris Ding, Heng Huang, Haifeng Zhao	
Bilevel Sparse Coding for Coupled Feature Spaces	2360
Authors: Jianchao Yang, Zhaowen Wang, Zhe Lin, Xianbiao Shu, Thomas Huang [Supplemental Material]	
Batch Mode Adaptive Multiple Instance Learning for Computer Vision Tasks	2368
Authors: Wen Li, Lixin Duan, Ivor Wai-Hung Tsang, Dong Xu	
Regression Tree Fields — An Efficient, Non-parametric Approach to Image Labeling Problems	2376
Authors: Jeremy Jancsary, Sebastian Nowozin, Toby Sharp, Carsten Rother [Supplemental Material]	
A Regularized Spectral Algorithm for Hidden Markov Models with Applications in Computer Vision	2384
Authors: Hà Quang Minh, Marco Cristani, Alessandro Perina, Vittorio Murino [Supplemental Material]	
Image Denoising: Can Plain Neural Networks Compete with BM3D?	2392
Authors: Harold C. Burger, Christian J Schuler, Stefan Harmeling	
Unsupervised Learning of Translation Invariant Occlusive Components	2400
Authors: Zhenwen Dai, Jörg Lücke [Supplemental Material]	
AVA: A Large-Scale Database for Aesthetic Visual Analysis	2408
Authors: Naila Murray, Luca Marchesotti, Florent Perronnin	
Learning Structural Element Patch Models With Hierarchical Palettes	2416
Authors: Jeroen Chua, Inmar Givoni, Ryan Adams, Brendan Frey [Supplemental Material]	
Chebyshev Approximations to the Histogram c_2 Kernel	2424
Authors: Fuxin Li, Guy Lebanon, Cristian Sminchisescu	
Low Level Vision via Switchable Markov Random Fields	2432
Authors: Dahua Lin, John Fisher III [Supplemental Material]	
Revisiting Uncertainty in Graph Cut Solutions	2440
Authors: Daniel Tarlow, Ryan P. Adams [Supplemental Material]	
Boosting Algorithms for Simultaneous Feature Extraction and Selection	2448
Authors: Mohammad J. Saberian, Nuno Vasconcelos	

Iterative Nearest Neighbors for Classification and Dimensionality Reduction 2456
Authors: Radu Timofte, Luc Van Gool

Robust Non-negative Graph Embedding: Towards Noisy Data, Unreliable Graphs, and Noisy Labels 2464

Authors: Hanwang Zhang, Zhengjun Zha, Shuicheng Yan, Meng Wang, Tat-seng Chua

Wednesday, June 20, 2012

8:30-10:30 Posters 3A - Face and Gesture, Human ID, Document Analysis, Scene Understanding (Ballrooms D/E, B/C; Rooms 555 & 556)

Poster

Edge-Preserving Photometric Stereo via Depth Fusion 2472
Authors: Qing Zhang, Mao Ye, Ruigang Yang, Yasuyuki Matsushita, Bennett Wilburn, Huimin Yu

Hierarchical Face Parsing via Deep Learning 2480
Authors: Ping Luo, Xiaogang Wang, Xiaoou Tang

Discriminately Decreasing Discriminability with Learned Image Filters 2488
Authors: Jacob Whitehill, Javier Movellan
[Supplemental Material]

Covariance Discriminative Learning: A Natural and Efficient Approach to Image Set Classification 2496
Authors: Ruiping Wang, Huimin Guo, Larry S. Davis, Qionghai Dai

$l_{2,1}$ Regularized Correntropy for Robust Feature Selection 2504
Authors: Ran He, Tieniu Tan, Liang Wang, Wei-Shi Zheng

Discriminant Image Filter Learning for Face Recognition with Local Binary Pattern Like Representation 2512
Authors: Zhen Lei, Dong Yi, Stan Z. Li

Learning Hierarchical Representations for Face Verification with Convolutional 2518

Deep Belief Networks	
Authors: Gary B. Huang, Honglak Lee, Erik Learned-Miller	
Linear Discriminative Image Processing Operator Analysis	2526
Authors: Toru Tamaki, Bingzhi Yuan, Kengo Harada, Bisser Raytchev, Kazufumi Kaneda [Supplemental Material]	
Metric Learning with Two-Dimensional Smoothness for Visual Analysis	2533
Authors: Xinlei Chen, Zifei Tong, Haifeng Liu, Deng Cai	
Memory Constrained Face Recognition	2539
Authors: Ashish Kapoor, Simon Baker, Sumit Basu, Eric Horvitz [Supplemental Material]	
A Study on Human Age Estimation Under Facial Expression Changes	2547
Authors: Guodong Guo, Xiaolong Wang	
Improved Facial Expression Recognition via Uni-Hyperplane Classification	2554
Authors: Sien W. Chew, Simon Lucey, Patrick Lucey, Sridha Sridharan, Jeff F. Cohn	
Learning Active Facial Patches for Expression Analysis	2562
Authors: Lin Zhong, Qingshan Liu, Peng Yang, Bo Liu, Junzhou Huang, Dimitris N. Metaxas	
Learning Ordinal Discriminative Features for Age Estimation	2570
Authors: Changsheng Li, Qingshan Liu, Jing Liu, Hanqing Lu	
Real-time Facial Feature Detection using Conditional Regression Forests	2578
Authors: Matthias Dantone, Juergen Gall, Gabriele Fanelli, Luc Van Gool	
Sparse Representation for Face Recognition based on Discriminative Low-Rank Dictionary Learning	2586
Authors: Long Ma, Chunheng Wang, Baihua Xiao, Wen Zhou	
Neighborhood Repulsed Metric Learning for Kinship Verification	2594
Authors: Jiwen Lu, Junlin Hu, Xiuzhuang Zhou, Yuanyuan Shang, Yap-Peng Tan, Gang Wang	
On Partial Least Squares in Head Pose Estimation: How to Simultaneously Deal with Misalignment	2602
Authors: Murad Al Haj, Jordi Gonzàlez, Larry S. Davis	
3D Constrained Local Model for Rigid and Non-Rigid Facial Tracking	2610
Authors: Tadas Baltrušaitis, Peter Robinson, Louis-Philippe Morency [Supplemental Material]	
Low-Rank Matrix Recovery with Structural Incoherence for Robust Face	2618

Recognition

Authors: Chih-Fan Chen, Chia-Po Wei, Yu-Chiang Frank Wang

Image Sets Alignment for Video-based Face Recognition **2626**

Authors: Zhen Cui, Shiguang Shan, Haihong Zhang, Shihong Lao, Xilin Chen

Multi-output Laplacian Dynamic Ordinal Regression for Facial Expression Recognition and Intensity Estimation **2634**

Authors: Ognjen Rudovic, Vladimir Pavlovic, Maja Pantic
[Supplemental Material]

Feature-domain Super-resolution Framework for Gabor-based Face and Iris Recognition **2642**

Authors: Kien Nguyen Thanh, Sridha Sridharan, Simon Denman, Clinton Fookes
[Supplemental Material]

Transfer Re-identification: From Person to Set-based Verification **2650**

Authors: Wei-Shi Zheng, Shaogang Gong, Tao Xiang

"Knock! Knock! Who is it?" Probabilistic Person Identification in TV-Series **2658**

Authors: Makarand Tapaswi, Martin Bäuml, Rainer Stiefelhagen
[Supplemental Material]

PCCA: A New Approach for Distance Learning from Sparse Pairwise Constraints **2666**

Authors: Alexis Mignon, Frédéric Jurie

Single Image 3D Human Pose Estimation from Noisy Observations **2673**

Authors: Edgar Simo-Serra, Arnau Ramisa, Guillem Alenyà, Carme Torras, Francesc Moreno-Noguer

Customizing Biometric Authentication Systems via Discriminative Score Calibration **2681**

Authors: Norman Poh, Massimo Tistarelli

Top-Down and Bottom-up Cues for Scene Text Recognition **2687**

Authors: Anand Mishra, Karteek Alahari, C. V. Jawahar

Recognizing Scene Viewpoint using Panoramic Place Representation **2695**

Authors: Jianxiong Xiao, Krista A. Ehinger, Aude Oliva, Antonio Torralba

Semantic Structure From Motion with Points, Regions, and Objects **2703**

Authors: Sid Yingze Bao, Mohit Bagra, Yu-Wei Chao, Silvio Savarese

Small Sample Scene Categorization from Perceptual Relations **2711**

Authors: Ilan Kadar, Ohad Ben-Shahar

Bayesian Geometric Modeling of Indoor Scenes **2719**

Authors: Luca Del Pero, Joshua Bowdish, Daniel Fried, Bonnie Kermgard, Emily Hartley, Kobus Barnard	
Learning Object Relationships via Graph-based Context Model	2727
Authors: Heesoo Myeong, Ju Yong Chang, Kyoung Mu Lee	
Automatic Discovery of Groups of Objects for Scene Understanding	2735
Authors: Congcong Li, Devi Parikh, Tsuhan Chen	
Context Aware Topic Model for Scene Recognition	2743
Authors: Zhenxing Niu, Gang Hua, Xinbo Gao, Qi Tian	
SUN Attribute Database: Discovering, Annotating, and Recognizing Scene Attributes	2751
Authors: Genevieve Patterson, James Hays	
RGB-(D) Scene Labeling: Features and Algorithms	2759
Authors: Xiaofeng Ren, Liefeng Bo, Dieter Fox [Supplemental Material]	
Learning Sparse Covariance Patterns for Natural Scenes	2767
Authors: Liwei Wang, Yin Li, Jiaya Jia, Jian Sun, David Wipf, James M. Rehg	
Reconfigurable Models for Scene Recognition	2775
Authors: Sobhan Naderi Parizi, John G. Oberlin, Pedro F. Felzenszwalb	
Multiclass Pixel Labeling with Non-Local Matching Constraints	2783
Authors: Stephen Gould	
Image Description with a Goal: Building Efficient Discriminating Expressions for Images	2791
Authors: Amir Sadovnik, Yi-I Chiu, Noah Snavely, Shimon Edelman, Tsuhan Chen	
Nonparametric Image Parsing using Adaptive Neighbor Sets	2799
Authors: David Eigen, Rob Fergus	
Recovering Free Space of Indoor Scenes from a Single Image	2807
Authors: Varsha Hedau, Derek Hoiem, David Forsyth	
Efficient Structured Prediction for 3D Indoor Scene Understanding	2815
Authors: Alexander G. Schwing, Hazan Tamir, Marc Pollefeys, Raquel Urtasun	
Joint 2D-3D Temporally Consistent Semantic Segmentation of Street Scenes	2823
Authors: Georgios Floros, Bastian Leibe	
Robust Camera Self-Calibration from Monocular Images of Manhattan Worlds	2831
Authors: Horst Wildenauer, Allan Hanbury	

[Supplemental Material]

Factorizing Appearance Using Epitomic Flobject Analysis 2839

Authors: Patrick S. Li, Brendan J. Frey

11:15-12:35 Orals 3A - Video Analysis and Event Recognition (Exhibit Hall A)

Oral

Anthony Hoogs, Robert Collins

Detecting Activities of Daily Living in First-person Camera Views 2847

Authors: Hamed Pirsiavash, Deva Ramanan

Discriminative Virtual Views for Cross-View Action Recognition 2855

Authors: Ruonan Li, Todd Zickler

Max-Margin Early Event Detectors 2863

Authors: Minh Hoai, Fernando De la Torre

[Supplemental Material]

Understanding Collective Crowd Behaviors: Learning a Mixture Model of Dynamic Pedestrian-Agents 2871

Authors: Bolei Zhou, Xiaogang Wang, Xiaoou Tang

11:15-12:35 Orals 3B - Detecting Faces and Bodies (Exhibit Hall B)

Oral

Shuicheng Yan, Erik Learned-Miller

Face Detection, Pose Estimation, and Landmark Localization in the Wild 2879

Authors: Xiangxin Zhu, Deva Ramanan

[Supplemental Material]

Face Alignment by Explicit Shape Regression 2887

Authors: Xudong Cao, Yichen Wei, Fang Wen, Jian Sun

Contextual Boost for Pedestrian Detection 2895
Authors: Yuanyan Ding, Jing Xiao

Pedestrian Detection at 100 Frames per Second 2903
Authors: Rodrigo Benenson, Markus Mathias, Radu Timofte, Luc Van Gool

**13:35-15:30 Posters 3B - Image & Video Retrieval,
Object Detection (Ballrooms D/E, B/C;
Rooms 555 & 556)**

Poster

Three Things Everyone Should Know to Improve Object Retrieval 2911
Authors: Relja Arandjelović, Andrew Zisserman

Robust and Discriminative Distance for Multi-Instance Learning 2919
Authors: Hua Wang, Feiping Nie, Heng Huang

Towards Compact Topical Descriptors 2925
Authors: Rongrong Ji, Ling-Yu Duan, Jie Chen, Wen Gao

Multi-Attribute Spaces: Calibration for Attribute Fusion and Similarity Search 2933
Authors: Walter J. Scheirer, Neeraj Kumar, Peter N. Belhumeur, Terrance E. Boult

D-Nets: Beyond Patch-Based Image Descriptors 2941
Authors: Felix von Hundelshausen, Rahul Sukthankar

Weak Attributes for Large-Scale Image Retrieval 2949
Authors: Felix X. Yu, Rongrong Ji, Ming-Hen Tsai, Guangnan Ye, Shih-Fu Chang
[Supplemental Material]

Spherical Hashing 2957
Authors: Jae-Pil Heo, Youngwoon Lee, Junfeng He, Shih-Fu Chang, Sung-Eui Yoon
[Supplemental Material]

Auto Face Re-Ranking By Mining the Web and Video Archives 2965
Authors: Duy-Dinh Le, Shin'ichi Satoh
[Supplemental Material]

WhittleSearch: Image Search with Relative Attribute Feedback 2973
Authors: Adriana Kovashka, Devi Parikh, Kristen Grauman

[Supplemental Material]

- Graph-Guided Sparse Reconstruction for Region Tagging** **2981**
Authors: Yahong Han, Fei Wu, Jian Shao, Qi Tian, Yueting Zhuang
[Supplemental Material]
- Nonparametric Kernel Estimators for Image Classification** **2989**
Authors: Barnabás Póczos, Liang Xiong, Dougal J. Sutherland, Jeff Schneider
[Supplemental Material]
- Unsupervised Metric Fusion by Cross Diffusion** **2997**
Authors: Bo Wang, Jiayan Jiang, Wei Wang, Zhi-Hua Zhou, Zhuowen Tu
- Mobile Product Search with Bag of Hash Bits and Boundary Reranking** **3005**
Authors: Junfeng He, Jinyuan Feng, Xianglong Liu, Tao Cheng, Tai-Hsu Lin, Hyunjin Chung, Shih-Fu Chang
- Object Retrieval and Localization with Spatially-constrained Similarity Measure and k-NN Re-ranking** **3013**
Authors: Xiaohui Shen, Zhe Lin, Jonathan Brandt, Shai Avidan, Ying Wu
- Robust Late Fusion With Rank Minimization** **3021**
Authors: Guangnan Ye, Dong Liu, I-Hong Jhuo, Shih-Fu Chang
[Supplemental Material]
- Image Search Results Refinement via Outlier Detection using Deep Contexts** **3029**
Authors: Junyang Lu, Jiazhen Zhou, Jingdong Wang, Tao Mei, Xian-Sheng Hua, Shipeng Li
- Fast approximate k-means via cluster closures** **3037**
Authors: Jing Wang, Jingdong Wang, Qifa Ke, Gang Zeng, Shipeng Li
- Leveraging Category-Level Labels For Instance-Level Image Retrieval** **3045**
Authors: Albert Gordo, José A. Rodríguez-Serrano, Florent Perronnin, Ernest Valveny
- A Fast Nearest Neighbor Search Algorithm by Nonlinear Embedding** **3053**
Authors: Yoonho Hwang, Bohyung Han, Hee-Kap Ahn
- (Unseen) Event Recognition via Semantic Compositionality** **3061**
Authors: Julian Stöttinger, Jasper R. R. Uijlings, Anand K. Pandey, Nicu Sebe, Fausto Giunchiglia
- The Inverted Multi-Index** **3069**
Authors: Artem Babenko, Victor Lempitsky
[Supplemental Material]
- Fast Computation of min-Hash Signatures for Image Collections** **3077**

Authors: Ondřej Chum, Jiří Matas	
Meta-Class Features for Large-Scale Object Categorization on a Budget	3085
Authors: Alessandro Bergamo, Lorenzo Torresani	
On the Regularization of Image Semantics by Modal Expansion	3093
Authors: Jose Costa Pereira, Nuno Vasconcelos	
Randomized Visual Phrases for Object Search	3100
Authors: Yuning Jiang, Jingjing Meng, Junsong Yuan	
Fast Search in Hamming Space with Multi-Index Hashing	3108
Authors: Mohammad Norouzi, Ali Punjani, David J. Fleet	
Augmenting Deformable Part Models with Irregular-shaped Object Patches	3116
Authors: Roozbeh Mottaghi [Supplemental Material]	
Multi-Pedestrian Detection in Crowded Scenes: A Global View	3124
Authors: Junjie Yan, Zhen Lei, Dong Yi, Stan Z. Li	
Learning Shared Body Plans	3130
Authors: Ian Endres, Vivek Srikumar, Ming-Wei Chang, Derek Hoiem	
Efficient Object Detection Using Cascades of Nearest Convex Model Classifiers	3138
Authors: Hakan Cevikalp, Bill Triggs	
Occlusion Reasoning for Object Detection under Arbitrary Viewpoint	3146
Authors: Edward Hsiao, Martial Hebert [Supplemental Material]	
Articulated Pose Estimation with Parts Connectivity using Discriminative Local Oriented Contours	3154
Authors: Norimichi Ukita	
Active Learning for Semantic Segmentation with Expected Change	3162
Authors: Alexander Vezhnevets, Joachim M. Buhmann, Vittorio Ferrari	
Learning an Object Class Representation on a Continuous Viewsphere	3170
Authors: Johannes Schels, Joerg Liebelt, Rainer Lienhart	
Articulated People Detection and Pose Estimation: Reshaping the Future	3178
Authors: Leonid Pishchulin, Arjun Jain, Mykhaylo Andriluka, Thorsten Thormählen, Bernt Schiele	
Vector Array based Multi-view Face Detection with Compound Exemplars	3186
Authors: Kai Ma, Jezekiel Ben-Arie	

Salient Object Detection for Searched Web Images via Global Saliency	3194
Authors: Peng Wang, Jingdong Wang, Gang Zeng, Jie Feng, Hongbin Zha, Shipeng Li	
Large-scale Knowledge Transfer for Object Localization in ImageNet	3202
Authors: Matthieu Guillaumin, Vittorio Ferrari	
Foreground Detection Using Spatiotemporal Projection Kernels	3210
Authors: Yair Moshe, Hagit Hel-Or, Yacov Hel-Or	
Unsupervised Object Class Discovery via Saliency-Guided Multiple Class Learning	3218
Authors: Jun-Yan Zhu, Jiajun Wu, Yichen Wei, Eric Chang, Zhuowen Tu [Supplemental Material]	
Steerable Part Models	3226
Authors: Hamed Pirsiavash, Deva Ramanan	
Visual Stem Mapping and Geometric Tense Coding for Augmented Visual Vocabulary	3234
Authors: Ke Gao, Yongdong Zhang, Ping Luo, Wei Zhang, Junhai Xia, Shouxun Lin	
Interactive Object Detection	3242
Authors: Angela Yao, Juergen Gall, Christian Leistner, Luc Van Gool [Supplemental Material]	
Shrink Boost for Selecting Multi-LBP Histogram Features in Object Detection	3250
Authors: Cher Keng Heng, Sumio Yokomitsu, Yuichi Matsumoto, Hajime Tamura	
A Discriminative Deep Model for Pedestrian Detection with Occlusion Handling	3258
Authors: Wanli Ouyang, Xiaogang Wang [Supplemental Material]	
Superedge Grouping for Object Localization by Combining Appearance and Shape Information	3266
Authors: Zhiqi Zhang, Sanja Fidler, Jarrell Waggoner, Yu Cao, Sven Dickinson, Jeffrey Mark Siskind, Song Wang	
Transferring a Generic Pedestrian Detector Towards Specific Scenes	3274
Authors: Meng Wang, Wei Li, Xiaogang Wang	
Learning Object Class Detectors from Weakly Annotated Video	3282
Authors: Alessandro Prest, Christian Leistner, Javier Civera, Cordelia Schmid, Vittorio Ferrari [Supplemental Material]	
Mobile Object Detection through Client-Server based Vote Transfer	3290
Authors: Shyam Sunder Kumar, Min Sun, Silvio Savarese	

Unsupervised Incremental Learning for Improved Object Detection in a Video 3298

Authors: Pramod Sharma, Chang Huang, Ram Nevatia

Color Attributes for Object Detection 3306

Authors: Fahad Shahbaz Khan, Rao Muhammad Anwer, Joost van de Weijer, Andrew D. Bagdanov, Maria Vanrell, Antonio M. López

A Data Driven Method for Feature Transformation 3314

Authors: Mert Dikmen, Derek Hoiem, Thomas S. Huang

Learning to Localize Detected Objects 3322

Authors: Qieyun Dai, Derek Hoiem

15:30-16:50 Orals 3C - Vision Systems (Exhibit Hall A)

Oral

Fatih Porikli, Rahul Sukthankar

Street-to-Shop: Cross-Scenario Clothing Retrieval via Parts Alignment and Auxiliary Set 3330

Authors: Si Liu, Zheng Song, Guangcan Liu, Changsheng Xu, Hanqing Lu, Shuicheng Yan

Autonomous Cleaning of Corrupted Scanned Documents - A Generative Modeling Approach 3338

Authors: Zhenwen Dai, Jörg Lücke
[Supplemental Material]

A Theory of Multi-Layer Flat Refractive Geometry 3346

Authors: Amit Agrawal, Srikumar Ramalingam, Yuichi Taguchi, Vishes Chari
[Supplemental Material]

Are We Ready for Autonomous Driving? The KITTI Vision Benchmark Suite 3354

Authors: Andreas Geiger, Philip Lenz, Raquel Urtasun
[Supplemental Material]

15:30-16:50 Orals 3D - Object Recognition (Exhibit Hall B)

Oral

Ales Leonardis, Sinisa Todorovic

Teaching 3D Geometry to Deformable Part Models 3362

Authors: Bojan Pepik, Michael Stark, Peter Gehler, Bernt Schiele
[Supplemental Material]

Beyond Spatial Pyramids: Receptive Field Learning for Pooled Image Features 3370

Authors: Yangqing Jia, Chang Huang, Trevor Darrell

Semantic Segmentation using Regions and Parts 3378

Authors: Pablo Arbeláez, Bharath Hariharan, Chunhui Gu, Saurabh Gupta, Lubomir Bourdev, Jitendra Malik

Large-scale Image Classification with Trace-norm Regularization 3386

Authors: Zaid Harchaoui, Matthijs Douze, Mattis Paulin, Miroslav Dudik, Jérôme Malick

**16:50-19:00 Posters 3C - Object Recognition,
Performance Evaluation (Ballrooms D/E,
B/C; Rooms 555 & 556)**

Poster

Conditional Regression Forests for Human Pose Estimation 3394

Authors: Min Sun, Pushmeet Kohli, Jamie Shotton

Contour-Based Recognition 3402

Authors: Yong Xu, Yuhui Quan, Zhuming Zhang, Hui Ji, Cornelia Fermüller, Morimichi Nishigaki, Daniel Dementhon

Estimating the Aspect Layout of Object Categories 3410

Authors: Yu Xiang, Silvio Savarese
[Supplemental Material]

Submodular Dictionary Learning for Sparse Coding 3418

Authors: Zhuolin Jiang, Guangxiao Zhang, Larry S. Davis
[Supplemental Material]

Hierarchical Matching with Side Information for Image Classification 3426

Authors: Qiang Chen, Zheng Song, Yang Hua, Zhongyang Huang, Shuicheng Yan

Discriminative Feature Fusion for Image Classification	3434
Authors: Basura Fernando, Elisa Fromont, Damien Muselet, Marc Sebban	
Building a Dictionary of Image Fragments	3442
Authors: Zicheng Liao, Ali Farhadi, Yang Wang, Ian Endres, David Forsyth [Supplemental Material]	
Hedging Your Bets: Optimizing Accuracy-Specificity Trade-offs in Large Scale Visual Recognition	3450
Authors: Jia Deng, Jonathan Krause, Alexander C. Berg, Li Fei-Fei [Supplemental Material]	
SURFing the Point Clouds: Selective 3D Spatial Pyramids for Category-level Object Recognition	3458
Authors: Carolina Redondo-Cabrera, Roberto J. López-Sastre, Javier Acevedo-Rodríguez, Saturnino Maldonado-Bascón [Supplemental Material]	
A Codebook-Free and Annotation-Free Approach for Fine-Grained Image Categorization	3466
Authors: Bangpeng Yao, Gary Bradski, Li Fei-Fei	
Discovering Localized Attributes for Fine-grained Recognition	3474
Authors: Kun Duan, Devi Parikh, David Crandall, Kristen Grauman	
Towards Good Practice in Large-scale Learning for Image Classification	3482
Authors: Florent Perronnin, Zeynep Akata, Zaid Harchaoui, Cordelia Schmid	
Learning Inter-related Visual Dictionary for Object Recognition	3490
Authors: Ning Zhou, Yi Shen, Jinye Peng, Jianping Fan	
Cats and Dogs	3498
Authors: Omkar M. Parkhi, Andrea Vedaldi, Andrew Zisserman, C. B. Jawahar	
Discriminative Spatial Saliency for Image Classification	3506
Authors: Gaurav Sharma, Frédéric Jurie, Cordelia Schmid	
Omni-Range Spatial Contexts for Visual Recognition	3514
Authors: Bingbing Ni, Mengdi Xu, Jinhui Tang, Shuicheng Yan, Pierre Moulin	
Recognizing Proxemics in Personal Photos	3522
Authors: Yi Yang, Simon Baker, Anitha Kannan, Deva Ramanan	
Structured Local Predictors for Image Labelling	3530
Authors: Samuel Rota Bulò, Peter Kotschieder, Marcello Pelillo, Horst Bischof	
Real-Time Scene Text Localization and Recognition	3538

Authors: Lukáš Neumann, Jiří Matas [Supplemental Material]	
From Pictorial Structures to Deformable Structures	3546
Authors: Silvia Zuffi, Oren Freifeld, Michael J. Black	
DCMSVM: Distributed Parallel Training For Single-Machine Multiclass Classifiers	3554
Authors: Xufeng Han, Alexander C. Berg [Supplemental Material]	
Understanding and Predicting Importance in Images	3562
Authors: Alexander C. Berg, Tamara L. Berg, Hal Daumé III, Jesse Dodge, Amit Goyal, Xufeng Han, Alyssa Mensch, Margaret Mitchell, Aneesh Sood, Karl Stratos, Kota Yamaguchi	
Parsing Clothing in Fashion Photographs	3570
Authors: Kota Yamaguchi, M. Hadi Kiapour, Luis E. Ortiz, Tamara L. Berg	
Weakly Supervised Sparse Coding with Geometric Consistency Pooling	3578
Authors: Liujuan Cao, Rongrong Ji, Yue Gao, Yi Yang, Qi Tian	
What Has My Classifier Learned? Visualizing the Classification Rules of Bag-of- Feature Model by Support Region Detection	3586
Authors: Lingqiao Liu, Lei Wang	
3D Visual Phrases for Landmark Recognition	3594
Authors: Qiang Hao, Rui Cai, Zhiwei Li, Lei Zhang, Yanwei Pang , Feng Wu	
Connecting the Dots in Multi-Class Classification: From Nearest Subspace to Collaborative Representation	3602
Authors: Yuejie Chi, Fatih Porikli	
Convex Reduction of High-Dimensional Kernels for Visual Classification	3610
Authors: Efstratios Gavves, Cees G. M. Snoek, Arnold W. M. Smeulders	
Locality-constrained and Spatially Regularized Coding for Scene Categorization	3618
Authors: Aymen Shabou, Hervé Le Borgne	
RALF: A Reinforced Active Learning Formulation for Object Class Recognition	3626
Authors: Sandra Ebert, Mario Fritz, Bernt Schiele	
A 3D Extension to Cortex Like Mechanisms for 3D Object Class Recognition	3634
Authors: Greg Flitton, Toby P. Breckon, Najla Megherbi Bouallagui	
Multi-column Deep Neural Networks for Image Classification	3642
Authors: Dan Cireşan, Ueli Meier, Jürgen Schmidhuber [Supplemental Material]	

Local Naive Bayes Nearest Neighbor for Image Classification	3650
Authors: Sancho McCann, David G. Lowe	
Online Incremental Attribute-based Zero-shot Learning	3657
Authors: Pichai Kankuekul, Aram Kawewong, Sirinart Tangruamsub, Osamu Hasegawa	
Pose Pooling Kernels for Sub-category Recognition	3665
Authors: Ning Zhang, Ryan Farrell, Trevor Darrell	
Cache-efficient Graph Cuts on Structured Grids	3673
Authors: Ondřej Jamriška, Daniel Sýkora, Alexander Hornung [Supplemental Material]	
Evaluation of Low-Level Features and their Combinations for Complex Event Detection in Open Source Videos	3681
Authors: Amir Tamrakar, Saad Ali, Qian Yu, Jingen Liu, Omar Javed, Ajay Divakaran, Hui Cheng, Harpreet Sawhney	
Fast Recursive Ensemble Convolution of Haar-like Features	3689
Authors: Daniel Wesierski, Maher Mkhinini, Patrick Horain, Anna Jezierska	