2014 IEEE Conference
on Computer Vision
and Pattern Recognition
Workshops
CVPRW 2014
Table of Contents

Message from the Workshop Chairs.................................................................xv

Biometrics

Hallucinating the Full Face from the Periocular Region via Dimensionally
Weighted K-SVD ........................................................................................................1
Felix Juefei-Xu, Dipan K. Pal, and Marios Savvides

Improving 3D Face Details Based on Normal Map of Hetero-source Images .........................9
Chang Yang, Jiansheng Chen, Nan Su, and Guangda Su

Globality-Locality Preserving Projections for Biometric Data Dimensionality
Reduction ..................................................................................................................15
Sheng Huang, Ahmed Elgammal, Luwen Huangfu, Dan Yang, and Xiaohong Zhang

Robust Low-Rank Regularized Regression for Face Recognition
with Occlusion ..............................................................................................................21
Jianjun Qian, Jian Yang, Fanglong Zhang, and Zhouchen Lin

Natural vs Artificial Face Classification Using Uniform Local Directional
Patterns and Wavelet Uniform Local Directional Patterns ........................................27
Darryl D’Souza and Roman V. Yampolskiy

Landmark Based Facial Component Reconstruction for Recognition
across Pose ................................................................................................................34
Gee-Sern Hsu, Hsiao-Chia Peng, and Kai-Hsiang Chang

Effect of Pupil Dilation and Constriction on the Distribution of Bit Errors
within the Iris ............................................................................................................40
Inmaculada Tomeo-Reyes and Vinod Chandran

Optimization of Iris Codes for Improved Recognition ............................................48
Nitin Mahadeo, Andrew Paplinski, and Sid Ray
Reliable Posterior Probability Estimation for Streaming Face Recognition ........................................56  
  Abhijit Bendale and Terrance Boult

Learning Minutiae Neighborhoods: A New Binary Representation for Matching Fingerprints .................................................................................................................................................64  
  Akhil Vij and Anoop Namboodiri

Performance Improvement of Phase-Based Correspondence Matching for Palmprint Recognition .................................................................................................................................................................................................70  
  Vincent Roux, Shoichiro Aoyama, Koichi Ito, and Takaufumi Aoki

A Robust Approach for Singular Point Extraction Based on Complex Polynomial Model .................................................................................................................................................................................................78  
  Jin Qi and Suxing Liu

Secure Fingerprint Matching with Generic Local Structures .................................................................................................................................84  
  Matthew Morse, Jesse Hartloff, Thomas Effland, Jim Schuler, Jennifer Cordaro, Sergey Tulyakov, Atri Rudra, and Venu Govindaraju

The Value of Multiple Viewpoints in Gesture-Based User Authentication .................................................................................................................................................................................................90  
  Jonathan Wu, Janusz Konrad, and Prakash Ishwar

Context-Aware Active Authentication Using Smartphone Accelerometer Measurements .................................................................................................................................................................................................98  
  Abena Primo, Vir V. Phoha, Rajesh Kumar, and Abdul Serwadda

Can We Use Second Minor Finger Knuckle Patterns to Identify Humans? .................................................................................................................................106  
  Ajay Kumar and Zhihuan Xu

Face Biometrics Under Spoofing Attacks: Vulnerabilities, Countermeasures, Open Issues, and Research Directions .................................................................................................................................................................................................113  
  Abdenour Hadid

**Mobile Vision**

Fast Target Recognition on Mobile Devices: Revisiting Gaussian Elimination for the Estimation of Planar Homographies .................................................................................................................................................................................................119  
  Olexa Bilaniuk, Hamid Bazargani, and Robert Laganière

Cascade of Box (CABOX) Filters for Optimal Scale Space Approximation .................................................................................................................................................................................................126  
  Victor Fragoso, Gaurav Srivastava, Abhishek Nagar, Zhu Li, Kyungmo Park, and Matthew Turk

Real-Time Mobile Facial Expression Recognition System—A Case Study .................................................................................................................................................................................................132  
  Myunghoon Suk and Balakrishnan Prabhakaran

Dense View Interpolation on Mobile Devices Using Focal Stacks .................................................................................................................................................................................................138  
  Parikshit Sakurikar and P.J. Narayanan

Dynamic Image Stacks .................................................................................................................................................................................................144  
  David E. Jacobs, Orazio Gallo, and Kari A. Pulli
Robust Three-View Triangulation Done Fast ......................................................... 152
  Johan Hedborg, Andreas Robinson, and Michael Felsberg

3D Hallway Modeling Using a Single Image ......................................................... 158
  Greg Olmschenk and Zhigang Zhu

Estimating Gaze Direction of Vehicle Drivers Using a Smartphone Camera .......... 165
  Meng-Che Chuang, Raja Bala, Edgar A. Bernal, Peter Paul, and Aaron Burry

GPS Refinement and Camera Orientation Estimation from a Single Image and a 2D Map ................................................................. 171
  Hang Chu, Andrew Gallagher, and Tsuhan Chen

Fast and Robust Object Detection Using Visual Subcategories ............................ 179
  Eshed Ohn-Bar and Mohan M. Trivedi

Vision on Wheels: Looking at Driver, Vehicle, and Surround for On-Road Maneuver Analysis ......................................................... 185
  Eshed Ohn-Bar, Ashish Tawari, Sujitha Martin, and Mohan M. Trivedi

Space-Variant Image Deblurring on Smartphones Using Inertial Sensors .......... 191
  Ondrej Sindelar, Filip Scoubek, and Peyman Milanfar

Offline 1000-Class Classification on a Smartphone ............................................ 193
  Yoshiyuki Kawano and Keiji Yanai

A Compact 3D Camera Suited for Mobile and Embedded Vision Applications .......... 195
  Stefano Mattoccia, Ilario Marchio, and Marco Casadio

Fast and Robust Perspective Rectification of Document Images on a Smartphone ......................................................... 197
  Williem, Christian Simon, Sungdae Cho, and In Kyu Park

Correcting Photometric Distortion of Document Images on a Smartphone .......... 199
  Christian Simon, Williem, Jihwan Choe, Il Dong Yun, and In Kyu Park

Perception beyond the Visible Spectrum

A Thermal Infrared Video Benchmark for Visual Analysis .................................... 201
  Zheng Wu, Nathan Fuller, Diane Theriault, and Margrit Betke

Low Resolution Person Detection with a Moving Thermal Infrared Camera by Hot Spot Classification ......................................................... 209
  Michael Teutsch, Thomas Mueller, Marco Huber, and Juergen Beyerer

Improving Person Tracking Using an Inexpensive Thermal Infrared Sensor .......... 217
  Suren Kumar, Tim K. Marks, and Michael Jones

Driver Cell Phone Usage Detection from HOV/HOT NIR Images ....................... 225
  Yusuf Artan, Orhan Bulan, Robert P. Loce, and Peter Paul

Ground-Based Activity Recognition at Distance and behind Wall ..................... 231
  Tao Wang, Riad Hammoud, and Zhigang Zhu
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-source Multi-modal Activity Recognition in Aerial Video Surveillance</td>
<td>237</td>
</tr>
<tr>
<td>Riad I. Hammoud, Cem S. Sahin, Erik P. Blasch, and Bradley J. Rhodes</td>
<td></td>
</tr>
<tr>
<td>Non-rigid Point Set Registration with Global-Local Topology Preservation</td>
<td>245</td>
</tr>
<tr>
<td>Song Ge, Guoliang Fan, and Meng Ding</td>
<td></td>
</tr>
<tr>
<td>3D Scene Estimation with Perturbation-Modulated Light and Distributed</td>
<td>252</td>
</tr>
<tr>
<td>Sensors</td>
<td></td>
</tr>
<tr>
<td>Quan Wang, Xinchi Zhang, and Kim L. Boyer</td>
<td></td>
</tr>
<tr>
<td>Edge-Weighted Centroid Voronoi Tessellation with Propagation</td>
<td>258</td>
</tr>
<tr>
<td>of Consistency Constraint for 3D Grain Segmentation in Microscopic</td>
<td></td>
</tr>
<tr>
<td>Superalloy Images</td>
<td></td>
</tr>
<tr>
<td>Youjie Zhou, Lili Ju, Yu Cao, Jarrell Waggoner, Yuewei Lin, Jeff Simmons, and Song Wang</td>
<td></td>
</tr>
<tr>
<td>Joint Shape and Texture Based X-Ray Cargo Image Classification</td>
<td>266</td>
</tr>
<tr>
<td>Jian Zhang, Li Zhang, Ziran Zhao, Yaohong Liu, Jianping Gu, Qiang Li, and Duokun Zhang</td>
<td></td>
</tr>
<tr>
<td>Use of Sparse Representation for Pedestrian Detection in Thermal Images</td>
<td>274</td>
</tr>
<tr>
<td>Bin Qi, Vijay John, Zheng Liu, and Seiichi Mita</td>
<td></td>
</tr>
<tr>
<td>A Photon-Mapping Informed Chan-Vese Segmentation Algorithm to Enable</td>
<td>281</td>
</tr>
<tr>
<td>Multispectral Sensing and Path-Planning in 3D Virtual Environments</td>
<td></td>
</tr>
<tr>
<td>Bruce A. Johnson, Hairong Qi, and Jason C. Isaacs</td>
<td></td>
</tr>
<tr>
<td>Superpixel Estimation for Hyperspectral Imagery</td>
<td>287</td>
</tr>
<tr>
<td>Pegah Massoudifar, Anand Rangarajan, and Paul Gader</td>
<td></td>
</tr>
<tr>
<td>Automatic Target Recognition in Infrared Imagery Using Dense HOG Features and Relevance Grouping of Vocabulary</td>
<td>293</td>
</tr>
<tr>
<td>Mohammad Nazmul Alam Khan, Guoliang Fan, Douglas R. Heisterkamp, and Liangjiang Yu</td>
<td></td>
</tr>
<tr>
<td>Ego-Motion Estimation on Range Images Using High-Order Polynomial Expansion</td>
<td>299</td>
</tr>
<tr>
<td>Brian Okorn and Josh Harguess</td>
<td></td>
</tr>
<tr>
<td><strong>Registration of Very Large Images</strong></td>
<td></td>
</tr>
<tr>
<td>Automatic Geo-location Correction of Satellite Imagery</td>
<td>307</td>
</tr>
<tr>
<td>Ozge C. Ozcanli, Yi Dong, Joseph L. Mundy, Helen Webb, Riad Hammoud, and Tom Victor</td>
<td></td>
</tr>
<tr>
<td>Efficient Change Detection for Very Large Motion Blurred Images</td>
<td>315</td>
</tr>
<tr>
<td>Vijay Rengarajan, Abhijith Punnappurath, A.N. Rajagopalan, and Guna Seetharaman</td>
<td></td>
</tr>
</tbody>
</table>
Non-rigid Registration of 3D Ultrasound Images Using Model-Based Segmentation ................................................................. 323
Babak Matinfar and Lyubomir Zagrochev

Image Registration of Very Large Images via Genetic Programming ................................................................. 329
Sarit Chicotay, Omid E. David, and Nathan S. Netanyahu

Efficient and Automated Multimodal Satellite Data Registration through MRFs and Linear Programming ................................................................. 335
Konstantinos Karantzalos, Aristeidis Sotiras, and Nikos Paragios

Variational Deformation Method for the Computation of the Average Shape of Organs ................................................................. 343
Shun Inagaki and Atsushi Imiya

Adaptive Registration of Very Large Images ........................................................................................................ 351
Brian P. Jackson and A. Ardeshir Goshtasby

**Vision Meets Cognition**

Subject Adaptive Affection Recognition via Sparse Reconstruction ................................................................. 357
Chenyang Zhang and Yingli Tian

Robust Pose Features for Action Recognition ........................................................................................................ 365
Hyungtae Lee, Vlad I. Morariu, and Larry S. Davis

Semantic Visual Understanding of Indoor Environments: From Structures to Opportunities for Action ................................................................. 373
Grace Tsai, Collin Johnson, and Benjamin Kuipers

Understanding Effects of Cognitive Load from Pupillary Responses Using Hilbert Analytic Phase ................................................................. 381
Gahangir Hossain and Mohammed Yeasin

Leveraging Cognitive Context for Object Recognition ........................................................................................................ 387
Wallace Lawson, Laura Hiatt, and J. Gregory Trafton

**Change Detection**

CDnet 2014: An Expanded Change Detection Benchmark Dataset ................................................................................................. 393
Yi Wang, Pierre-Marc Jodoin, Fatih Porikli, Janusz Konrad, Yannick Benezeth, and Prakash Ishwar

A Fast Self-Tuning Background Subtraction Algorithm ................................................................................................. 401
Bin Wang and Piotr Dudek

Spectral-360: A Physics-Based Technique for Change Detection ................................................................................................. 405
Mohamed Sedky, Mansour Moniri, and Claude C. Chibelushi

Change Detection with Weightless Neural Networks ................................................................................................. 409
Massimo De Gregorio and Maurizio Giordano
Flexible Background Subtraction with Self-Balanced Local Sensitivity ........................................414
Pierre-Luc St-Charles, Guillaume-Alexandre Bilodeau, and Robert Bergevin

Static and Moving Object Detection Using Flux Tensor with Split Gaussian Models .............................................................................................................................................................................420
Rui Wang, Filiz Bunyak, Guna Seetharaman, and Kannappan Palaniappan

**Computational Cameras and Displays**

A Novel HDR Depth Camera for Real-Time 3D 360° Panoramic Vision .................................................425
Ahmed Nabil Belbachir, Stephan Schraml, Manfred Mayerhofer, and Michael Hofstätter

Separating Texture and Illumination for Single-Shot Structured Light Reconstruction ........................................................................................................................................................................................................433
Minh Vo, Srinivasa G. Narasimhan, and Yaser Sheikh

Light Field Scale-Depth Space Transform for Dense Depth Estimation ...........................................441
Ivana Tosic and Kathrin Berkner

Projection Center Calibration for a Co-located Projector Camera System .......................................449
Toshiyuki Amano

Dictionary Learning Based Color Demosaicing for Plenoptic Cameras ...........................................455
Xiang Huang and Oliver Cossairt

**Computational Models for Social Interactions and Behavior**

Human Interaction Recognition Based on the Co-occurrence of Visual Words ...............................461
Khadija Nour el Houda Slimani, Yannick Benezeth, and Feriel Souami

Detecting Social Groups in Crowded Surveillance Videos Using Visual Attention .................................................................467
Michael Leach, Rolf Baxter, Neil Robertson, and Ed Sparks

Color Analysis of Facial Skin: Detection of Emotional State ..........................................................474
Geovany A. Ramirez, Olac Fuentes, Stephen L. Crites Jr., Maria Jimenez, and Juanita Ordonez

Towards Automated Understanding of Student-Tutor Interactions Using Visual Deictic Gestures ........................................................................................................................................................................................................480
Suchitra Sathyanarayana, Ravi Kumar Satzoda, Amber Carini, Monique Lee, Linda Salamanca, Judy Reilly, Deborah Forster, Marian Bartlett, and Gwen Littlewort
Deep Vision: Deep Learning in Computer Vision

Heterogeneous Multi-task Learning for Human Pose Estimation with Deep Convolutional Neural Network .................................................................488
Sijin Li, Zhi-Qiang Liu, and Antoni B. Chan

Generalized Autoencoder: A Neural Network Framework for Dimensionality Reduction ..................................................................................................................496
Wei Wang, Yan Huang, Yizhou Wang, and Liang Wang

Unrolling Loopy Top-Down Semantic Feedback in Convolutional Deep Networks ....................................................................................................................504
Carlo Gatta, Adriana Romero, and Joost van de Veijer

CNN Features Off-the-Shelf: An Astounding Baseline for Recognition .................................................................................................................................512
Ali Sharif Razavian, Hossein Azizpour, Josephine Sullivan, and Stefan Carlsson

A Piggyback Representation for Action Recognition .................................................................................................................................520
Lior Wolf, Yair Hanani, and Tal Hassner

Egocentric Vision

Action and Interaction Recognition in First-Person Videos ...............................................................................................................................526
Sanath Narayan, Mohan S. Kankanhalli, and Kalpathi R. Ramakrishnan

Video-Based Object Recognition Using Novel Set-of-Sets Representations ........................................................................................................533
Yang Liu, Youngkyoon Jang, Woontack Woo, and Tae-Kyun Kim

Efficient Retrieval from Large-Scale Egocentric Visual Data Using a Sparse Graph Representation ........................................................541
Wu Min, Xiao Li, Cheston Tan, Bappaditya Mandal, Liyuan Li, and Joo Hwee Lim

Understanding the Nature of First-Person Videos: Characterization and Classification Using Low-Level Features ........................................................................549
Cheston Tan, Hanlin Goh, Vijay Chandrasekhar, Liyuan Li, and Joo-Hwee Lim

This Hand Is My Hand: A Probabilistic Approach to Hand Disambiguation in Egocentric Video ................................................................................557
Stefan Lee, Sven Bambach, David J. Crandall, John M. Franchak, and Chen Yu

An Attention-Based Activity Recognition for Egocentric Video ...............................................................................................................................565
Kenji Matsuo, Kentaro Yamada, Satoshi Ueno, and Sei Naito

Temporally-Dependent Dirichlet Process Mixtures for Egocentric Video Segmentation ...........................................................................................................571
Joseph W. Barker and James W. Davis

Visual Navigation Aid for the Blind in Dynamic Environments .................................................................579
Tung-Sing Leung and Gérard Medioni

Wisdom of the Crowd in Egocentric Video Curation .................................................................................................587
Yedid Hoshen, Gil Ben-Artzi, and Shmuel Peleg
From Ego to Nos-Vision: Detecting Social Relationships in First-Person Views ........................................594
   Stefano Alletto, Giuseppe Serra, Simone Calderara, Francesco Solera, and Rita Cucchiara

A Sequential Classifier for Hand Detection in the Framework of Egocentric Vision ..................................................600
   Alejandro Betancourt

Eye-Model-Based Gaze Estimation by RGB-D Camera .................................................................606
   Li Jianfeng and Li Shigang

Experiments on an RGB-D Wearable Vision System for Egocentric Activity Recognition ..................................................611
   Mohammad Moghimi, Pablo Azagra, Luis Montesano, Ana C. Murillo, and Serge Belongie

Embedded Vision

The Sightfield: Visualizing Computer Vision, and Seeing Its Capacity to “See” ........................................618
   Steve Mann

Brain-Inspired Classroom Occupancy Monitoring on a Low-Power Mobile Platform ..................................................624
   Francesco Conti, Antonio Pullini, and Luca Benini

Fast LBP Face Detection on Low-Power SIMD Architectures .............................................................................630
   Olexa Bilaniuk, Ehsan Fazl-Ersi, Robert Laganière, Christina Xu, Daniel Laroche, and Craig Moulder

A High-Performance Hardware Architecture for a Frameless Stereo Vision Algorithm Implemented on a FPGA Platform ..............................................................637
   Florian Eibensteiner, Juergen Kogler, and Josef Scharinger

Towards Autonomous Navigation of Miniature UAV .......................................................................................645
   Roland Brockers, Martin Hummenberger, Stephan Weiss, and Larry Matthies

A Train Station Surveillance System: Challenges and Solutions ..............................................................................652
   Burak Ozer and Marilyn Wolf

Addressing System-Level Optimization with OpenVX Graphs ..............................................................................658
   Erik Rainey, Jesse Villarreal, Goksel Dedeoglu, Kari Pulli, Thierry Lepley, and Frank Brill

A Compute-Efficient Algorithm for Robust Eyebrow Detection ..............................................................................664
   Supriya Sathyanarayana, Ravi Kumar Satzoda, Suchitra Sathyanarayana, and Srikanthan Thambipillai

An Embedded Solution to Visual Mapping for Consumer Drones .............................................................................670
   Guyue Zhou, Ang Liu, Kang Yang, Tao Wang, and Zexiang Li
A Surround View Camera Solution for Embedded Systems .................................................................676
  Buyue Zhang, Vikram Appia, Ibrahim Pekkucuksen, Yucheng Liu,
  Aziz Umit Batur, Pavan Shastry, Stanley Liu, Shiju Sivasankaran,
  and Kedar Chitnis

FPGA-Based Fast Response Image Analysis for Autonomous
or Semi-autonomous Indoor Flight .................................................................682
  Robert Ladig and Kazuhiro Shimonomura

Exploiting Traffic Scene Disparity Statistics for Stereo Vision ..........................................................688
  Stefan Gehrig, Nicolai Schneider, and Uwe Franke

A 240 G-ops/s Mobile Coprocessor for Deep Neural Networks ......................................................696
  Vinayak Gokhale, Jonghoon Jin, Aysegul Dundar, Berin Martini,
  and Eugenio Culurciello

Gesture Recognition in Ego-centric Videos Using Dense Trajectories
and Hand Segmentation .................................................................................702
  Lorenzo Baraldi, Francesco Paci, Giuseppe Serra, Luca Benini, and Rita Cucchiara

Efficient Lane and Vehicle Detection with Integrated Synergies (ELVIS) ........................................708
  Ravi Kumar Satzoda and Mohan M. Trivedi

Long-Term Detection and Tracking

Persistent People Tracking and Face Capture over a Wide Area ......................................................714
  Gérard Medioni and Yinghao Cai

Tracklet Association in Detect-Then-Track Paradigm for Long-Term
Multi-person Tracking ...................................................................................716
  Bing Wang, Gang Wang, Kap Luk Chan, and Li Wang

On Fast Trackers that are Robust to Partial Occlusions ..................................................................718
  Lu Zhang, Hamdi Dibeklioglu, and Laurens van der Maaten

The Matrioska Tracking Algorithm on LTDT2014 Dataset ..............................................................720
  Mario Edoardo Maresca and Alfredo Petrosino

On-Line Video Motion Estimation by Invariant Receptive Inputs .....................................................726
  Marco Gori, Marco Lippi, Marco Maggini, and Stefano Melacci

Multi-sensor Fusion for Outdoor Dynamic Scene Understanding

Integrating LIDAR Range Scans and Photographs with Temporal Changes ......................................732
  Brittany Morago, Giang Bui, and Ye Duan

Guided Depth Upsampling via a Cosparse Analysis Model ..............................................................738
  Xiaojin Gong, Jiangjiang Ren, Baisheng Lai, Chaohua Yan, and Hui Qian

Alignment of 3D Building Models with Satellite Images Using Extended
Chamfer Matching ..........................................................................................746
  Xi Zhang, Gady Agam, and Xin Chen
Active Planning, Sensing, and Recognition Using a Resource-Constrained
Discriminant POMDP ................................................................................................................754
  Zhaowen Wang, Zhangyang Wang, Mark Moll, Po-Sen Huang, Devin Grady,
  Nasser Nasrabadi, Thomas Huang, Lydia Kavraki, and Mark Hasegawa-Johnson

Frame Rate Fusion and Upsampling of EO/LIDAR Data for Multiple Platforms ..................762
  T. Nathan Mundhenk, Kyungnam Kim, and Yuri Owechko

Feature Regression for Multimodal Image Analysis ..........................................................770
  Michael Ying Yang, Xuanzi Yong, and Bodo Rosenhahn

2D/3D Sensor Exploitation and Fusion for Enhanced Object Detection ..............................778
  Jiejun Xu, Kyungnam Kim, Zhiqi Zhang, Hai-Wen Chen, and Yuri Owechko

Web-Scale Vision and Social Media

Photo Recall: Using the Internet to Label Your Photos ......................................................785
  Neeraj Kumar and Steve Seitz

Streetscore—Predicting the Perceived Safety of One Million Streetscapes ..........................793
  Nikhil Naik, Jade Philipoom, Ramesh Raskar, and César Hidalgo

A Stream Algebra for Computer Vision Pipelines .............................................................800
  Mohamed A. Helala, Ken Q. Pu, and Faisal Z. Qureshi

What Is Usual in Unusual Videos? Trajectory Snippet Histograms for Discovering Unusualness .....................................................................................................................808
  Ahmet Iscen, Anil Armagan, and Pinar Duygulu

Clustering Social Event Images Using Kernel Canonical Correlation Analysis ..................814
  Unaiza Ahsan and Irfan Essa

Author Index ............................................................................................................................820

An Introduction to the 3rd Workshop on Egocentric (First-Person) Vision ..........................827
  Steve Mann, Kris M. Kitani, Yong Jae Lee, M.S. Ryoo, Alireza Fathi
Message from the Workshop Chairs

CVPR 2014 offers 19 workshops that span the research frontiers of computer vision involving entrepreneurship, social media, deep learning, crowdsourcing, and much more.

On Monday, June 23, six full-day and three half-day workshops cover perceptual organization, mobile vision, scene understanding, cognition, the vision industry, human computation, vision beyond the visible spectrum, registration, and biometrics. On Saturday, June 28, six full-day and four half-day workshops discuss approaches to web-scale, embedded, big, egocentric, and deep vision, long-term detection and tracking, computational cameras and displays, change detection, social interactions, and sensor fusion.

The 12 full-day and 7 half-day workshops have a wide range of formats – many include invited speakers and papers (16/19) and poster sessions (11/19), some include spotlight presentations, abstracts, and demos. Three workshops publicized plans for best paper awards.

Planning for the workshops started in summer 2013, the call for proposals went out in September 2013, and the proposal submission deadline was in October 2013. We received and reviewed 32 workshop proposals, of which 20 were accepted and 19 workshops came to fruition. Some workshops have been running successfully for many years, such as Embedded Vision, Perception Beyond the Visible Spectrum, Biometrics, and Perceptual Organization; other workshops address new trends, such as Deep Vision, and Human Computation, or push the envelope of traditional topics such as Long-term Detection and Tracking, and Registration of Very Large Images.

We wish all workshop participants an enriching experience,

Margrit Betke and Jim Davis

CVPR Workshop Co-Chairs