

Table of Contents

Third Workshop on Computer Vision in Vehicle Technology: From Earth to Mars

Pixels, Stixels, and Objects	1
<i>David Pfeiffer, Friedrich Erbs, and Uwe Franke</i>	
Fast Stixel Computation for Fast Pedestrian Detection	11
<i>Rodrigo Benenson, Markus Mathias, Radu Timofte, and Luc Van Gool</i>	

Second Workshop on Parts and Attributes

Discovering a Lexicon of Parts and Attributes	21
<i>Subhransu Maji</i>	
How Important Are “Deformable Parts” in the Deformable Parts Model?	31
<i>Santosh K. Divvala, Alexei A. Efros, and Martial Hebert</i>	
Bounding Part Scores for Rapid Detection with Deformable Part Models	41
<i>Iasonas Kokkinos</i>	
Learning Compact Visual Attributes for Large-Scale Image Classification	51
<i>Yu Su and Frédéric Jurie</i>	
Unsupervised Learning of Discriminative Relative Visual Attributes	61
<i>Shugao Ma, Stan Sclaroff, and Nazli Ikizler-Cinbis</i>	

Third IEEE International Workshop on Analysis and Retrieval of Tracked Events and Motion in Imagery Streams (ARTEMIS 2012)

A Method for Online Analysis of Structured Processes Using Bayesian Filters and Echo State Networks	71
<i>Dimitrios I. Kosmopoulos and Fillia Makedon</i>	
Monocular Camera Fall Detection System Exploiting 3D Measures: A Semi-supervised Learning Approach	81
<i>Konstantinos Makantasis, Eftychios Protopapadakis, Anastasios Doulamis, Lazaros Grammatikopoulos, and Christos Stentoumis</i>	

Person Identification Using Full-Body Motion and Anthropometric Biometrics from Kinect Videos	91
<i>Brent C. Munsell, Andrew Temlyakov, Chengzheng Qu, and Song Wang</i>	
Spatio-temporal Video Representation with Locality-Constrained Linear Coding	101
<i>Manal Al Ghamdi, Nouf Al Harbi, and Yoshihiko Gotoh</i>	
Real Time Detection of Social Interactions in Surveillance Video	111
<i>Paolo Rota, Nicola Conci, and Nicu Sebe</i>	
Towards Space-Time Semantics in Two Frames	121
<i>Karla Brkić, Axel Pinz, Zoran Kalafatić, and Siniša Šegvić</i>	
SuperFloxels: A Mid-level Representation for Video Sequences	131
<i>Avinash Ravichandran, Chaohui Wang, Michalis Raptis, and Stefano Soatto</i>	
Relative Camera Localisation in Non-overlapping Camera Networks Using Multiple Trajectories	141
<i>Vijay John, Gwenn Englebienne, and Ben Krose</i>	
Detecting Interesting Events Using Unsupervised Density Ratio Estimation	151
<i>Yuichi Ito, Kris M. Kitani, James A. Bagnell, and Martial Hebert</i>	
Destination Flow for Crowd Simulation	162
<i>Stefano Pellegrini, Jürgen Gall, Leonid Sigal, and Luc Van Gool</i>	
3D Rotation Invariant Decomposition of Motion Signals	172
<i>Quentin Barthélemy, Anthony Larue, and Jérôme I. Mars</i>	
Learn to Move: Activity Specific Motion Models for Tracking by Detection	183
<i>Thomas Mauthner, Peter M. Roth, and Horst Bischof</i>	
Flow Counting Using Realboosted Multi-sized Window Detectors	193
<i>Håkan Ardö, Mikael Nilsson, and Rikard Berthilsson</i>	
Dynamic Markov Random Field Model for Visual Tracking	203
<i>Daehwan Kim, Ki-Hong Kim, Gil-Haeng Lee, and Daijin Kim</i>	
Mode Seeking with an Adaptive Distance Measure	213
<i>Guodong Pan, Lifeng Shang, Dirk Schnieders, and Kwan-Yee K. Wong</i>	
Constrained Clustering with Local Constraint Propagation	223
<i>Ping He, Xiaohua Xu, and Ling Chen</i>	

Occlusion Handling in Video Segmentation via Predictive Feedback	233
<i>Jeremie Papon, Alexey Abramov, and Florentin Wörgötter</i>	

First Workshop on Action Recognition and Pose Estimation in Still Images

Collective Activity Localization with Contextual Spatial Pyramid	243
<i>Shigeyuki Odashima, Masamichi Shimosaka, Takuhiro Kaneko, Rui Fukui, and Tomomasa Sato</i>	

Viewpoint Invariant Collective Activity Recognition with Relative Action Context	253
<i>Takuhiro Kaneko, Masamichi Shimosaka, Shigeyuki Odashima, Rui Fukui, and Tomomasa Sato</i>	

On Recognizing Actions in Still Images via Multiple Features	263
<i>Fadime Sener, Cagdas Bas, and Nazli Ikizler-Cinbis</i>	

Higher-Order Models and Global Constraints in Computer Vision

Tighter Relaxations for Higher-Order Models Based on Generalized Roof Duality	273
<i>Johan Fredriksson, Carl Olsson, Petter Strandmark, and Fredrik Kahl</i>	

Approximate Envelope Minimization for Curvature Regularity	283
<i>Stefan Heber, Rene Ranftl, and Thomas Pock</i>	

Relating Things and Stuff by High-Order Potential Modeling	293
<i>Byung-soo Kim, Min Sun, Pushmeet Kohli, and Silvio Savarese</i>	

Submodular Relaxation for MRFs with High-Order Potentials	305
<i>Anton Osokin and Dmitry Vetrov</i>	

Adjacency Matrix Construction Using Sparse Coding for Label Propagation	315
<i>Haixia Zheng, Horace H.S. Ip, and Liang Tao</i>	

Climbing: A Unified Approach for Global Constraints on Hierarchical Segmentation	324
<i>Bangalore Ravi Kiran, Jean Serra, and Jean Cousty</i>	

Information Fusion in Computer Vision for Concept Recognition

Hierarchical Late Fusion for Concept Detection in Videos	335
<i>Sabin Tiberius Strat, Alexandre Benoit, Hervé Bredin, Georges Quénot, and Patrick Lambert</i>	

Fast and Adaptive Deep Fusion Learning for Detecting Visual Objects	345
<i>Nikolaos Doulamis and Anastasios Doulamis</i>	
Hybrid Pooling Fusion in the BoW Pipeline	355
<i>Marc Law, Nicolas Thome, and Matthieu Cord</i>	
Joint Sparsity-Based Robust Multimodal Biometrics Recognition	365
<i>Sumit Shekhar, Vishal M. Patel, Nasser M. Nasrabadi, and Rama Chellappa</i>	
GPS-Based Multi-viewpoint Integration for Anticipative Scene Analysis	375
<i>Kohji Kamejima</i>	
Fusion of Speech, Faces and Text for Person Identification in TV Broadcast	385
<i>Hervé Bredin, Johann Poignant, Makarand Tapaswi, Guillaume Fortier, Viet Bac Le, Thibault Napoleon, Hua Gao, Claude Barras, Sophie Rosset, Laurent Besacier, Jakob Verbeek, Georges Quénot, Frédéric Jurie, and Hazim Kemal Ekenel</i>	
Explicit Performance Metric Optimization for Fusion-Based Video Retrieval	395
<i>Ilseo Kim, Sangmin Oh, Byungki Byun, A.G. Amitha Perera, and Chin-Hui Lee</i>	
Unsupervised Classemes	406
<i>Claudio Cusano, Riccardo Satta, and Simone Santini</i>	
A Benchmarking Campaign for the Multimodal Detection of Violent Scenes in Movies	416
<i>Claire-Hélène Demarty, Cédric Penet, Guillaume Gravier, and Mohammad Soleymani</i>	
A Selective Weighted Late Fusion for Visual Concept Recognition	426
<i>Ningning Liu, Emmanuel Dellandrea, Chao Zhu, Charles-Edmond Bichot, and Liming Chen</i>	
Fusion of Multiple Visual Cues for Visual Saliency Extraction from Wearable Camera Settings with Strong Motion	436
<i>Hugo Boujut, Jenny Benois-Pineau, and Remi Megret</i>	
Enhancing Semantic Features with Compositional Analysis for Scene Recognition	446
<i>Miriam Redi and Bernard Merialdo</i>	
Object Reading: Text Recognition for Object Recognition	456
<i>Sezer Karaoglu, Jan C. van Gemert, and Theo Gevers</i>	

Bayesian Multimodal Fusion in Forensic Applications	466
<i>Virginia Fernandez Arguedas, Qianni Zhang, and Ebroul Izquierdo</i>	

2.5D Sensing Technologies in Motion: The Quest for 3D (QU3ST)

Noise Modelling and Uncertainty Propagation for TOF Sensors	476
<i>Amira Belhedi, Adrien Bartoli, Steve Bourgeois, Kamel Hamrouni, Patrick Sayd, and Vincent Gay-Bellile</i>	

Single Color One-Shot Scan Using Topology Information	486
<i>Hiroshi Kawasaki, Hitoshi Masuyama, Ryusuke Sagawa, and Ryo Furukawa</i>	

View Planning Approach for Automatic 3D Digitization of Unknown Objects	496
<i>Souhaïel Khalfaoui, Ralph Seulin, Yohan Fougerolle, and David Fofi</i>	

Depth Enhancement by Fusion for Passive and Active Sensing	506
<i>Frederic Garcia, Djamila Aouada, Hashim Kemal Abdella, Thomas Solignac, Bruno Mirbach, and Björn Ottersten</i>	

2.1 Depth Estimation of Frames in Image Sequences Using Motion Occlusions	516
<i>Guillem Palou and Philippe Salembier</i>	

Joint Spatio-temporal Depth Features Fusion Framework for 3D Structure Estimation in Urban Environment	526
<i>Mohamad Motasem Nawaf and Alain Trémeau</i>	

Second International Workshop on Benchmarking Facial Image Analysis Technologies (BeFIT 2012)

A Virtual Environment Tool for Benchmarking Face Analysis Systems	536
<i>Mauricio Correa, Javier Ruiz-del-Solar, and Rodrigo Verschae</i>	

An Open Source Framework for Standardized Comparisons of Face Recognition Algorithms	547
<i>Manuel Günther, Roy Wallace, and Sébastien Marcel</i>	

Adaptive Registration for Occlusion Robust 3D Face Recognition	557
<i>Nese Alyuz, Berk Gokberk, and Lale Akarun</i>	

Robust and Computationally Efficient Face Detection Using Gaussian Derivative Features of Higher Orders	567
<i>John A. Ruiz-Hernandez, James L. Crowley, Claudine Combe, Augustin Lux, and Matti Pietikäinen</i>	

Multi-view Facial Expression Recognition Analysis with Generic Sparse Coding Feature	578
<i>Usman Tariq, Jianchao Yang, and Thomas S. Huang</i>	

ECCV Demonstrations

Real-Time Image Registration of RGB Webcams and Colorless 3D Time-of-Flight Cameras	589
<i>Juan D. Gomez, Guido Bologna, and Thierry Pun</i>	
Technical Demonstration on Model Based Training, Detection and Pose Estimation of Texture-Less 3D Objects in Heavily Cluttered Scenes	593
<i>Stefan Hinterstoisser, Vincent Lepetit, Slobodan Ilic, Stefan Holzer, Kurt Konolige, Gary Bradski, and Nassir Navab</i>	
FaceHugger: The ALIEN Tracker Applied to Faces	597
<i>Federico Pernici</i>	
INTAIRACT: Joint Hand Gesture and Fingertip Classification for Touchless Interaction	602
<i>Xavier Suau, Marcel Alcoverro, Adolfo Lopez-Mendez, Javier Ruiz-Hidalgo, and Josep Casas</i>	
Fast and Precise Template Matching Based on Oriented Gradients	607
<i>Yoshinori Konishi, Yasuyo Kotake, Yoshihisa Ijiri, and Masato Kawade</i>	
Object Categorization Based on a Supervised Mean Shift Algorithm	611
<i>Ruo Du, Qiang Wu, Xiangjian He, and Jie Yang</i>	
3D Gesture Touchless Control Based on Real-Time Stereo Matching	615
<i>Chao-Kang Liao, Chi-Hao Wu, Ching-Chun Hsiao, Po-Kuan Huang, Tung-Yang Lin, and Hsu-Ting Lin</i>	
A Real-Time Scene Text to Speech System	619
<i>Lukáš Neumann and Jiří Matas</i>	
Face-Based Illuminant Estimation	623
<i>Simone Bianco and Raimondo Schettini</i>	
Object-Layout-Aware Image Retrieval for Personal Album Management	627
<i>Mengyou Li, Zheng Song, Qiang Chen, Liang Lin, Zhongyang Huang, and Shuicheng Yan</i>	
A Human vs. Machine Challenge in Fashion Color Classification	631
<i>Costantino Grana, Daniele Borghesani, and Rita Cucchiara</i>	

Understanding Road Scenes Using Visual Cues and GPS Information . . .	635
<i>Jose M. Alvarez, Felipe Lumbreras, Antonio M. Lopez, and Theo Gevers</i>	
The Leiden Augmented Reality System (LARS)	639
<i>Qi Zhang and Michael S. Lew</i>	
Prosemanic Image Retrieval	643
<i>Gianluigi Ciocca, Claudio Cusano, Simone Santini, and Raimondo Schettini</i>	
LZM in Action: Realtime Face Recognition System	647
<i>Evangelos Sarrayanidi, Birkan Tunç, and Muhittin Gökmen</i>	
Using 3D Models for Real-Time Facial Feature Tracking, Pose Estimation, and Expression Monitoring	651
<i>Angela Counce and Tim Cootes</i>	
Instant Scene Recognition on Mobile Platform	655
<i>Sebastiano Battiato, Giovanni Maria Farinella, Mirko Guarnera, Daniele Ravi, and Valeria Tomaselli</i>	
Adasens Advanced Driver Assistance Systems Live Demo	659
<i>Noel Trujillo, Chrystoph Toll, Daniele Sciretti, Silvia Sanchez, Andrej Ritter, Christian Kaes, Vrushali Jedhe, Gabriela Jager, Daniel Danch, Alessandro Colombo, Sebastian Carreño, and Josep Aulinas</i>	
Real-Time 3D Motion Capture by Monocular Vision and Virtual Rendering	663
<i>David Antonio Gómez Jáuregui and Patrick Horain</i>	
A Tai Chi Training System Based on Fast Skeleton Matching Algorithm	667
<i>Yu Jin, Xiaoxiang Hu, and GangShan Wu</i>	
Emotion Mirror: A Novel Intervention for Autism Based on Real-Time Expression Recognition	671
<i>David Deriso, Joshua Susskind, Lauren Krieger, and Marian Bartlett</i>	
Unsupervised Activity Analysis and Monitoring Algorithms for Effective Surveillance Systems	675
<i>Jean-Marc Odobez, Cyril Carincotte, Rémi Emonet, Erwan Jouneau, Sofia Zaidenberg, Bertrand Ravera, Francois Bremond, and Andrea Grifoni</i>	
Author Index	679