

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison

Lancaster University, UK

Takeo Kanade

Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler

University of Surrey, Guildford, UK

Jon M. Kleinberg

Cornell University, Ithaca, NY, USA

Alfred Kobsa

University of California, Irvine, CA, USA

Friedemann Mattern

ETH Zurich, Switzerland

John C. Mitchell

Stanford University, CA, USA

Moni Naor

Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz

University of Bern, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

TU Dortmund University, Germany

Madhu Sudan

Microsoft Research, Cambridge, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max Planck Institute for Informatics, Saarbruecken, Germany

Andrea Fusiello Vittorio Murino
Rita Cucchiara (Eds.)

Computer Vision – ECCV 2012

Workshops and Demonstrations

Florence, Italy, October 7-13, 2012
Proceedings, Part III



Springer

Andrea Fusiello
Università degli Studi di Udine
Dipartimento di Ingegneria Elettrica,
Gestionale e Meccanica (DIEGM)
Via delle Scienze, 208, 33100 Udine, Italy
E-mail: andrea.fusiello@uniud.it

Vittorio Murino
IIT Istituto Italiano di Tecnologia
Via Morego 30, 16163 Genoa, Italy
E-mail: vittorio.murino@iit.it

Rita Cucchiara
Università degli Studi di Modena e Reggio Emilia
Strada Vignolege, 905, 41125 Modena, Italy
E-mail: rita.cucchiara@unimore.it

ISSN 0302-9743
ISBN 978-3-642-33884-7
DOI 10.1007/978-3-642-33885-4
Springer Heidelberg Dordrecht London New York

e-ISSN 1611-3349
e-ISBN 978-3-642-33885-4

Library of Congress Control Number: 2012948004

CR Subject Classification (1998): I.4, I.5, I.2.10, I.2, H.5, H.3

LNCS Sublibrary: SL 6 – Image Processing, Computer Vision, Pattern Recognition,
and Graphics

© Springer-Verlag Berlin Heidelberg 2012
This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.
The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

Foreword

The European Conference on Computer Vision is one of the top conferences for researchers in this field and is held biennially in alternation with the International Conference on Computer Vision. It was first held in 1990 in Antibes (France) with subsequent conferences in Santa Margherita Ligure (Italy) in 1992, Stockholm (Sweden) in 1994, Cambridge (UK) in 1996, Freiburg (Germany) in 1998, Dublin (Ireland) in 2000, Copenhagen (Denmark) in 2002, Prague (Czech Republic) in 2004, Graz (Austria) in 2006, Marseille (France) in 2008, and Heraklion (Greece) in 2010. To our great delight, the 12th conference was held in Florence, Italy.

ECCV has an established tradition of very high scientific quality and an overall duration of one week. ECCV 2012 began with a keynote lecture from the honorary chair, Tomaso Poggio. The main conference followed over four days with 40 orals, 368 posters, 22 demos, and 12 industrial exhibits. There were also 9 tutorials and 21 workshops held before and after the main event. For this event we introduced some novelties. These included innovations in the review policy, the publication of a conference booklet with all paper abstracts and the full video recording of oral presentations.

This conference is the result of a great deal of hard work by many people, who have been working enthusiastically since our first meetings in 2008. We are particularly grateful to the Program Chairs, who handled the review of about 1500 submissions and co-ordinated the efforts of over 50 area chairs and about 1000 reviewers (see details of the process in their preface to the proceedings). We are also indebted to all the other chairs who, with the support of our research teams (names listed below), diligently helped us manage all aspects of the main conference, tutorials, workshops, exhibits, demos, proceedings, and web presence. Finally we thank our generous sponsors and Consulta Umbria for handling the registration of delegates and all financial aspects associated with the conference.

We hope you enjoyed ECCV 2012. Benvenuti a Firenze!

October 2012

Roberto Cipolla
Carlo Colombo
Alberto Del Bimbo

Preface

Welcome to the Workshops and Demonstrations proceedings of the 12th European Conference on Computer Vision, held during October 7–13, 2012 in Florence, Italy. We are delighted that the main ECCV 2012 was accompanied by 21 workshops and 22 demonstrations.

We received 38 workshop proposals on diverse computer vision topics. The evaluation process was not easy because of the high quality of the submissions, and the final 21 selected workshops complemented the main conference program. They were mostly one-day workshops, with a few limited to half day, and one workshop lasting one day and a half. In the end, the addressed workshop topics constituted a good mix between novel current trends and traditional issues, without forgetting to address the fundamentals of the computational vision area.

On Sunday, October 7, three workshops took place: the 5th Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA), the First Workshop on Visual Analysis and Geo-Localization of Large-Scale Imagery, and the Workshop on Web-scale Vision and Social Media.

The majority of the workshops were held on Friday 12 and Saturday 13. On October 12 we had nine workshops: WebVision, the Workshop on Computer Vision for the Web, with only invited speakers, the traditional PASCAL Visual Object Classes Challenge 2012 (VOC2012) Workshop, the 4th International Workshop on Video Event Categorization, Tagging and Retrieval (VECTaR 2012), the First International Workshop on Re-Identification (Re-Id 2012), the Workshop on Biological and Computer Vision Interfaces, also with only invited speakers, VISART, “Where Computer Vision Meets Art” Workshop, the Second Workshop on Consumer Depth Cameras for Computer Vision (CDC4CV), the Workshop on Unsolved Problems in Optical Flow and Stereo Estimation, and the “What’s in a Face?” Workshop.

On October 13, ten workshops were held: The remaining half day of the Web-Vision Workshop, the 4th Color and Photometry in Computer Vision Workshop, the Third Workshop on Computer Vision in Vehicle Technology: From Earth to Mars, the Second Workshop on Parts and Attributes, the Third IEEE International Workshop on Analysis and Retrieval of Tracked Events and Motion in Imagery Streams (ARTEMIS 2012), the First Workshop on Action Recognition and Pose Estimation in Still Images, the Workshop on Higher-Order Models and Global Constraints in Computer Vision, the Workshop on Information Fusion in Computer Vision for Concept Recognition, the QU3ST Workshop “2.5D Sensing Technologies in Motion: The Quest for 3D”, and the Second International Workshop on Benchmarking Facial Image Analysis Technologies (BeFIT 2012).

We hope that participants enjoyed the workshops, together with the associated 179 papers included in these volumes.

Following the tradition of the major conferences in the field, ECCV 2012 was also proud to host live demonstrations given by companies and academic research groups. These were presented during the days of the main conference and are described in detail in the papers of the last volume.

Presenting a demo is one of the most concrete and exciting ways of demonstrating results of research and providing strong interaction between researchers, practitioners, and scholars in many topics, both theoretical and practical, of computer vision.

Among the proposed demos, submitted with a four-page summary together with slides, videos and rich supplementary material, after peer-review, we selected 22 demos on different subjects spanning topics such as biometry, content-based retrieval, classification and categorization, vision for computer graphics, 3D vision for interfaces, tracking and pose estimation, gesture analysis for human-computer interaction, text recognition, augmented reality, surveillance, and assisted driving.

Demos were presented by authors coming from different nations of Europe (Czech Republic, France, Germany, Italy, The Netherlands, Spain, Switzerland, and UK) and of the rest of the world (Australia, China, Japan, Taiwan, and USA).

The best demo was selected based on the scientific value and the technical presentation as well as the success in researcher interaction during the Demo Sessions.

We believe the scientific prototypes and the technical demonstrations presented at ECCV 2012 will contribute to strengthen the great success of computer vision technologies in industrial, entertainment, social, and everyday applications.

Finally, we would like to thank the individual chairs of each workshop (listed in the respective workshop programs) for soliciting and reviewing submissions, and the demo proposers, who made it possible to build such a rich supplementary program beside the main ECCV 2012 scientific plan.

October 2012

Andrea Fusiello
Vittorio Murino
Rita Cucchiara

Organization

General Chairs

Roberto Cipolla	University of Cambridge, UK
Carlo Colombo	University of Florence, Italy
Alberto Del Bimbo	University of Florence, Italy

Program Coordinator

Pietro Perona	California Institute of Technology, USA
---------------	---

Program Chairs

Andrew Fitzgibbon	Microsoft Research, Cambridge, UK
Svetlana Lazebnik	University of Illinois at Urbana-Champaign, USA
Yoichi Sato	The University of Tokyo, Japan
Cordelia Schmid	INRIA, Grenoble, France

Honorary Chair

Tomaso Poggio	Massachusetts Institute of Technology, USA
---------------	--

Tutorial Chairs

Emanuele Trucco	University of Dundee, UK
Alessandro Verri	University of Genoa, Italy

Workshop Chairs

Andrea Fusiello	University of Udine, Italy
Vittorio Murino	Istituto Italiano di Tecnologia, Genoa, Italy

Demonstration Chair

Rita Cucchiara	University of Modena and Reggio Emilia, Italy
----------------	---

Industrial Liaison Chair

Björn Stenger	Toshiba Research Europe, Cambridge, UK
---------------	--

Web Chair

Marco Bertini University of Florence, Italy

Publicity Chairs

Terrance E. Boulton University of Colorado at Colorado Springs, USA
Tat Jen Cham Nanyang Technological University, Singapore
Marcello Pelillo University Ca' Foscari of Venice, Italy

Publication Chair

Massimo Tistarelli University of Sassari, Italy

Video Processing Chairs

Sebastiano Battiato University of Catania, Italy
Giovanni M. Farinella University of Catania, Italy

Travel Grants Chair

Luigi Di Stefano University of Bologna, Italy

Travel Visa Chair

Stefano Berretti University of Florence, Italy

Local Committee Chair

Andrew Bagdanov MICC, Florence, Italy

Local Committee

Lamberto Ballan	Giuseppe Lisanti
Laura Benassi	Iacopo Masi
Marco Fanfani	Fabio Pazzaglia
Andrea Ferracani	Federico Pernici
Claudio Guida	Lorenzo Seidenari
Lea Landucci	Giuseppe Serra

Workshops Organizers

5th Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment (NORDIA)

Stefano Berretti	University of Florence, Italy
Alexander Bronstein	Tel Aviv University, Israel
Michael Bronstein	University of Lugano, Switzerland
Umberto Castellani	University of Verona, Italy

First Workshop on Visual Analysis and Geo-Localization of Large-Scale Imagery

Mubarak Shah	University of Central Florida, USA
Luc Van Gool	ETH Zurich, Switzerland
Asaad Hakeem	ObjectVideo, USA
Alexei Efros	Carnegie Mellon University, USA
Niels Haering	ObjectVideo, USA
James Hays	Brown University, USA
Hui Cheng	SRI International Sarnoff, USA

Workshop on Web-Scale Vision and Social Media

Lamberto Ballan	University of Florence, Italy
Alex C. Berg	Stony Brook University, USA
Marco Bertini	University of Florence, Italy
Cees G.M. Snoek	University of Amsterdam, The Netherlands

WebVision: The Workshop on Computer Vision for the Web

Manik Varma	Microsoft Research India
Samy Bengio	Google, USA

The PASCAL Visual Object Classes Challenge 2012 (VOC2012) Workshop

Chris Williams	University of Edinburgh, UK
John Winn	MSR Cambridge, UK
Luc Van Gool	ETH Zurich, Switzerland
Andrew Zisserman	University of Oxford, UK
Alex Berg	Stony Brook University, USA
Fei-Fei Li	University of Stanford, USA

4th International Workshop on Video Event Categorization, Tagging and Retrieval (VECTaR 2012)

Tieniu Tan	Chinese Academy of Sciences, China
Thomas S. Huang	University of Illinois at Urbana-Champaign, USA
Ling Shao	University of Sheffield, UK
Jianguo Zhang	University of Dundee, UK
Liang Wang	Chinese Academy of Sciences, China

First International Workshop on Re-Identification (Re-Id 2012)

Marco Cristani	University of Verona, Italy
Shaogang Gong	Queen Mary University London, UK
Yan Shuicheng	NUS, Singapore

Workshop on Biological and Computer Vision Interfaces

Olivier Faugeras	INRIA, France
Pierre Kornprobst	INRIA, France

VISART: “Where Computer Vision Meets Art” Workshop

João Paulo Costeira	IST Lisbon, Portugal
Gustavo Carneiro	University of Adelaide, Australia
Nuno Pinho da Silva	IST Lisbon, Portugal
Alessio Del Bue	Istituto Italiano di Tecnologia, Italy

Second Workshop on Consumer Depth Cameras for Computer Vision (CDC4CV)

Andrea Fossati	ETH Zurich, Switzerland
Jürgen Gall	Max-Planck-Institut für Informatik, Germany
Helmut Grabner	ETH Zurich, Switzerland
Xiaofeng Ren	Intel Labs, USA
Kurt Konolige	Industrial Perception, USA
Seungkyu Lee	Samsung, South Korea
Miles Hansard	Queen Mary University London, UK

Workshop on Unsolved Problems in Optical Flow and Stereo Estimation

Daniel Kondermann	University of Heidelberg, Germany
Bernd Jähne	University of Heidelberg, Germany
Daniel Scharstein	Middlebury College, USA

“What’s in a Face?” Workshop

Arun Ross	West Virginia University, USA
Alice O’Toole	University of Texas, USA
Maja Pantic	Imperial College London, UK
Antitza Dantcheva	West Virginia University, USA
Stefanos Zafeiriou	Imperial College London, UK

4th Color and Photometry in Computer Vision Workshop

Theo Gevers	University of Amsterdam, The Netherlands
Raimondo Schettini	University of Milano Bicocca, Italy
Joost van de Weijer	Universitat Autònoma de Barcelona, Spain
Todd Zickler	Harvard University, USA
Javier Vazquez-Corral	Universitat Autònoma de Barcelona, Spain

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

Atsushi Imiya IMIT, Japan
Antonio M. López UAB/CVC, Spain

Second Workshop on Parts and Attributes

Christoph H. Lampert IST, Austria
Rogerio S. Feris IBM Research, USA

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

Anastasios Doulamis TUC, Greece
Nikolaos D. Doulamis NTUA, Greece
Jordi González UAB/CVC, Spain
Thomas B. Moeslund University of Aalborg, Denmark
Marco Bertini University of Florence, Italy

First Workshop on Action Recognition and Pose Estimation in Still Images

Vittorio Ferrari University of Edinburgh, UK
Ivan Laptev INRIA/Ecole Normale Supérieure, France
Josef Sivic INRIA/Ecole Normale Supérieure, France
Bangpeng Yao Stanford University, USA

Workshop on Higher-Order Models and Global Constraints in Computer Vision

KartEEK Alahari INRIA-WILLOW/Ecole Normale Supérieure, France
Dhruv Batra TTI-Chicago, USA
Srikumar Ramalingam MERL, USA
Nikos Paragios Paristech, France
Rich Zemel University of Toronto, Canada

Workshop on Information Fusion in Computer Vision for Concept Recognition

Jenny Benois-Pineau LABRI, University of Bordeaux, France
Georges Quenot LIG INPG, Grenoble, France
Tomas Piatrik Queen Mary University London, UK
Bogdan Ionescu LAPI, University Politehnica of Bucharest, Romania

QU3ST Workshop - 2.5D Sensing Technologies in Motion: The Quest for 3D

David Fofi	Université de Bourgogne, France
Adrien Bartoli	Université d'Auvergne, France

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

Hazim Kemal Ekenel	KIT, Germany/Istanbul Technical University, Turkey
Gang Hua	Stevens Institute of Technology/IBM Research, USA
Shiguang Shan	Chinese Academy of Sciences, China

Sponsoring Companies and Institutions

Gold Sponsors



Silver Sponsors



Bronze Sponsors



Institutional Sponsors



Università degli Studi di Firenze



UNIVERSITY OF
CAMBRIDGE



ENTE
CASSA DI RISPARMIO
DI FIRENZE

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>Iseo 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>	
Erratum	
A Method for Online Analysis of Structured Processes Using Bayesian Filters and Echo State Networks	E1
<i>Dimitrios I. Kosmopoulos and Fillia Makedon</i>	
Author Index	679