

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

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Jacques Blanc-Talon Salah Bourennane
Wilfried Philips Dan Popescu
Paul Scheunders (Eds.)

Advanced Concepts for Intelligent Vision Systems

10th International Conference, ACIVS 2008
Juan-les-Pins, France, October 20-24, 2008
Proceedings

Volume Editors

Jacques Blanc-Talon
DGA/MRIS, 92 221 Bagneux, France
E-mail: jacques.blanc-talon@dga.defense.gouv.fr

Salah Bourennane
Ecole Centrale de Marseille, 13451 Marseille, France
E-mail: salah.bourennane@fresnel.fr

Wilfried Philips
Ghent University, 9000 Ghent, Belgium
E-mail: philips@telin.ugent.be

Dan Popescu
CSIRO ICT Centre, NSW 1710, Sydney, Australia
E-mail: dan.popescu@csiro.au

Paul Scheunders
University of Antwerp, 2610 Wilrijk, Belgium
E-mail: paul.scheunders@ua.ac.be

Library of Congress Control Number: 2008936714

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

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

ISSN 0302-9743
ISBN-10 3-540-88457-2 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-88457-6 Springer Berlin Heidelberg New York

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.

Springer is a part of Springer Science+Business Media
springer.com

© Springer-Verlag Berlin Heidelberg 2008
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12539000 06/3180 5 4 3 2 1 0

Preface

This volume contains the papers accepted for presentation at the 10th International Conference on Advanced Concepts for Intelligent Vision Systems (ACIVS 2008). Following the first meeting in Baden-Baden (Germany) in 1999, which was held as part of a large multiconference, the ACIVS conference then developed into an independent scientific event and has ever since maintained the tradition of being a single-track conference. We celebrate this year the 10th anniversary of ACIVS, the conference being held in France for the very first time. ACIVS currently attracts computer scientists from 33 different countries, mostly from Europe, Australia and Japan, but also from the USA, Asia and the Middle-East.

Although ACIVS is a conference on all areas of image and video processing, submissions tend to focus on certain major fields of interest. About a quarter of the selected papers deal with image and video coding and processing, including filtering and restoration. This year, topics related to biometrics (including face recognition), tracking, pattern recognition and scene understanding for security applications are covered by about a third of the papers, highlighting a growing interest in that area. Segmentation and feature extraction – which has been one of the cores of the conference over the years – has decreased slightly in importance. The remaining papers deal with systems and other applications such as medical imaging. We would like to thank the invited speakers Ivan Selesnick (Polytechnic University, NY, USA), Josiane Zérubia (INRIA, Sophia Antipolis, France) and Marc Antonini (Université de Nice Sophia Antipolis, France) for enhancing the technical program with their presentations.

A conference like ACIVS would not be feasible without the concerted effort of many people and the support of various institutions. The paper-submission and review procedure was carried out electronically and a minimum of three reviewers were assigned to each paper. From 179 submissions, 33 were selected for oral presentation and 74 as posters. A large and energetic Program Committee, helped by additional referees (about 140 people) – listed on the following pages – completed the long and demanding reviewing process. We would like to thank all of them for their timely and high-quality reviews. Also, we would like to thank our sponsors, DGA, NXP Semiconductors, Philips Research, Barco, Eurasip, the IEEE Benelux Signal Processing Chapter and the Flemish FWO Research Community on Audiovisual Systems, for their valuable support.

Last but not least, we would like to thank all the participants who trusted us to organize this event for the 10th time. We hope they found ACIVS 2008

stimulating and enjoyed the atmosphere of the social events in the seaside town of Juan-les-Pins.

July 2008

J. Blanc-Talon
S. Bourennane
D. Popescu
W. Philips
P. Scheunders

Organization

ACIVS 2008 was organized by SEE (Société de l'Electricité, de l'Electronique et des Technologies de l'Information et de la Communication) and Ghent University.

Steering Committee

Jacques Blanc-Talon	DGA, Bagneux, France
Salah Bourennane	Ecole Centrale de Marseille, Marseille, France
Wilfried Philips	Ghent University - IBBT, Ghent, Belgium
Dan Popescu	CSIRO, Sydney, Australia
Paul Scheunders	University of Antwerp, Wilrijk, Belgium

Organizing Committee

Alain Appriou	ONERA, Châtillon, France
Frédéric Barbaresco	THALES, Limours, France
Jacques Blanc-Talon	DGA, Bagneux, France
Salah Bourennane	Ecole Centrale de Marseille, Marseille, France
Jean-Pierre Damiano	SEE, Nice, France
Béatrice Valdayron	SEE, Paris, France

Sponsors

ACIVS 2008 was sponsored by the following organizations:

- Philips Research
- DGA
- NXP Semiconductors
- The IEEE Benelux Signal Processing Chapter
- Eurasip
- Barco
- DSP Valley
- The FWO Research Community on Audiovisual Systems (AVS)

The ACIVS 2008 organizers are especially grateful to DGA and NXP Semiconductors for their financial sponsorship.

Program Committee

Hamid Aghajan	Stanford University, Stanford, USA
Fritz Albregtsen	University of Oslo, Oslo, Norway
Marc Antonini	Université de Nice Sophia Antipolis, Nice, France
Kenneth Barner	University of Delaware, Newark, USA

VIII Organization

Laure Blanc-Feraud	INRIA, Sophia-Antipolis, France
Philippe Bolon	Université de Savoie, Annecy, France
Don Bone	Canon Information Systems Research Australia, Sydney, Australia
Patrick Bouthemy	IRISA/INRIA, Rennes, France
Umberto Castellani	Università degli Studi di Verona, Verona, Italy
Jocelyn Chanussot	INPG, Grenoble, France
Pamela Cosman	University of California at San Diego, La Jolla, USA
Yves D'Asseler	Ghent University, Ghent, Belgium
Jennifer Davidson	Iowa State University, Ames, USA
Arturo de la Escalera Hueso	Universidad Carlos III de Madrid, Leganes, Spain
Hassan Foroosh	University of Central Florida, Orlando, USA
Don Fraser	University of New South Wales, Canberra, Australia
Jerome Gilles	DGA/CEP, Arcueil, France
Georgy Gimel'farb	The University of Auckland, Auckland, New Zealand
Mark Holden	Canon Information Systems Research Australia, Sydney, Australia
Dimitris Iakovidis	University of Athens, Athens, Greece
Dong Sik Jang	Korea University, Seoul, Korea
Frédéric Jurie	CNRS - INRIA, Saint Ismier, France
Arto Kaarna	Lappeenranta University of Technology, Lappeenranta, Finland
Konstantinos Karantzas	National Technical University of Athens, Athens, Greece
Andrzej Kasinski	Poznan University of Technology, Poznan, Poland
Richard Kleihorst	NXP Semiconductors Research, Eindhoven, The Netherlands
Nikos Komodakis	University of Crete, Crete
Murat Kunt	EPFL, Lausanne, Switzerland
Hideo Kuroda	Nagasaki University, Nagasaki, Japan
Olivier Laligant	IUT Le Creusot, Le Creusot, France
Kenneth Lam	The Hong Kong Polytechnic University, Hong Kong, China
Peter Lambert	Ghent University, Ledeborg-Ghent, Belgium
Georg Langs	Ecole Centrale, France
Yue Li	CSIRO ICT Centre, Sydney, Australia
Xavier Maldague	Université de Laval, Québec, Canada
Gérard Medioni	USC/IRIS, Los Angeles, USA
Fabrice Mériaudeau	IUT Le Creusot, Le Creusot, France
Alfred Mertins	Universität zu Lübeck, Lübeck, Germany
Amar Mitiche	INRS, Montréal, Canada
Rafael Molina	Universidad de Granada, Granada, Spain

Adrian Munteanu	Vrije Universiteit Brussel, Brussels, Belgium
Vittorio Murino	Università degli Studi di Verona, Verona, Italy
Frank Nielsen	Ecole Polytechnique - Sony CSL, Palaiseau, France
Nikos Paragios	Ecole Centrale de Paris, Chatenay-Malabry, France
Jussi Parkkinen	University of Joensuu, Joensuu, Finland
Fernando Pereira	Instituto Superior Técnico, Lisbon, Portugal
Stuart Perry	Canon Information Systems Research Australia, Sydney, Australia
Béatrice Pesquet-Popescu	ENST, Paris, France
Aleksandra Pizurica	Ghent University - IBBT, Ghent, Belgium
André Quinquis	ENSIETA, Brest, France
Gianni Ramponi	Trieste University, Trieste, Italy
Paolo Remagnino	Kingston University, UK
Philippe Salembier	UPC, Barcelona, Spain
Luis Salgado Alvarez	Universidad Politécnica de Madrid, Madrid, Spain
de Sotomayor	ESIEE, Noisy-le-Grand, France
Hugues Talbot	Université de Bourgogne, Le Creusot, France
Frederic Truchetet	EPFL, Lausanne, Switzerland
Dimitri Van De Ville	Ghent University - IBBT, Ghent, Belgium
Ewout Vansteenkiste	University College Ghent, Ghent, Belgium
Peter Veelaert	Sherbrooke University, Sherbrooke, Canada
Djemel Ziou	

Reviewers

Leonardo Abate	University of Trieste, Italy
Hamid Aghajan	Stanford University, Stanford, USA
Marc-André Agostini	I3S, Sophia, France
Fritz Albrechtsen	University of Oslo, Oslo, Norway
Marc Antonini	Université de Nice Sophia Antipolis, Nice, France
Kenneth Barner	University of Delaware, Newark, USA
Attila Baskurt	INSA Lyon, Villeurbanne, France
Ryad Benosman	Université de Paris VI, Paris, France
Laure Blanc-Feraud	INRIA, Sophia-Antipolis, France
Jacques Blanc-Talon	DGA, Bagneux, France
Philippe Bolon	Université de Savoie, Annecy, France
Don Bone	Canon Information Systems Research Australia, Sydney, Australia
Patrick Bonnin	Université de Versailles, Velizy, France
Alberto Borghese	University of Milan, Milan, Italy
Salah Bourennane	Ecole Centrale de Marseille, Marseille, France
Patrick Bouthemy	IRISA/INRIA, Rennes, France
Michael Buckley	CSIRO Australia, Sydney, Australia
Umberto Castellani	Università degli Studi di Verona, Verona, Italy

Yannick Caulier	Fraunhofer Institute, Erlangen, Germany
Jocelyn Chanussot	INPG, Grenoble, France
Pierre Chavel	Université Paris XI/CNRS, Palaiseau, France
Michal Choras	University of Technology and Agriculture, Bydgoszcz, Poland
Olivier Colot	Université de Lille, Villeneuve d'Ascq, France
Tim Cootes	Manchester University, Manchester, UK
Pamela Cosman	University of California at San Diego, La Jolla, USA
Emmanuel D'Angelo	CEP, Arcueil, France
Yves D'Asseler	Ghent University, Ghent, Belgium
Matthew Dailey	Asian Institute of Technology, Klong Luang, Thailand
Frédéric Dambreville	DGA, Arcueil, France
Jennifer Davidson	Iowa State University, Ames, USA
Steve De Backer	IBBT-Visionlab, University of Antwerp, Antwerp, Belgium
Johan De Bock	Ghent University - IBBT, Ghent, Belgium
Arturo de la Escalera Hueso	Universidad Carlos III de Madrid, Leganes, Spain
Rudi Deklerck	VUB, Brussels, Belgium
Stéphane Derrode	ECM, Marseille, France
Jean Dezert	ONERA, Chatillon, France
Jef Driesen	University of Antwerp, Antwerp, Belgium
Séverine Dubuisson	Université de Paris VI, Paris, France
Arno Duijster	University of Antwerp, Antwerp, Belgium
Christine Fernandez-Maloigne	Université de Poitiers, Chasseneuil, France
David Filliat	ENSTA, Paris, France
Caroline Fossati	Ecole Centrale de Marseille, Marseille, France
Don Fraser	University of New South Wales, Canberra, Australia
Simone Frintrop	University of Bonn, Bonn, Germany
Teddy Furon	IRISA, Rennes, France
André Gagalowicz	INRIA, Rocquencourt, France
Thierry Géraud	EPITA, Paris, France
Jerome Gilles	DGA/CEP, Arcueil, France
Georgy Gimel'farb	The University of Auckland, Auckland, New Zealand
Bart Goossens	Ghent University - IBBT, Ghent, Belgium
Philippe Guermeur	ENSTA, Paris, France
Mireille Guillaume	Ecole Centrale de Marseille, Marseille, France
Onur Guleryuz	Polytechnic University, New York, USA
D.S. Guru	University of Mysore, Mysore, India
Rachid Harba	Université d'Orléans, Orléans, France
Mark Holden	Canon Information Systems Research Australia, Sydney, Australia

Dimitris Iakovidis	University of Athens, Athens, Greece
Dong Sik Jang	Korea University, Seoul, Korea
Nico Janssens	University of Antwerp, Antwerp, Belgium
Bruno Jedynak	The Johns Hopkins University, Baltimore, USA
Antoine Joux	UVSQ, Versailles, France
Frédéric Jurie	CNRS - INRIA, Saint Ismier, France
Arto Kaarna	Lappeenranta University of Technology, Lappeenranta, Finland
Konstantinos Karantzas	National Technical University of Athens, Athens, Greece
Andrzej Kasinski	Poznan University of Technology, Poznan, Poland
Richard Kleihorst	NXP Semiconductors Research, Eindhoven, The Netherlands
Nikos Komodakis	University of Crete, Crete
Stephan Kopf	Mannheim University, Mannheim, Germany
Hideo Kuroda	Nagasaki University, Nagasaki, Japan
Olivier Laligant	IUT Le Creusot, Le Creusot, France
Kenneth Lam	The Hong Kong Polytechnic University, Hong Kong, China
Peter Lambert	Ghent University, Ledeborg-Ghent, Belgium
Georg Langs	Ecole Centrale, France
Jean-Pierre Lecadre	IRISA, Rennes, France
Olivier Lezoray	University of Caen, Caen, France
Ron Li	CSIRO ICT Centre, Sydney, Australia
Yue Li	CSIRO ICT Centre, Sydney, Australia
Rastislav Lukac	University of Toronto, Toronto, Canada
Alessandra Lumini	Università di Bologna, Bologna, Italy
Evelyne Lutton	INRIA, Rocquencourt, France
Henri Maitre	ENST, Paris, France
Xavier Maldague	Université de Laval, Québec, Canada
Gérard Medioni	USC/IRIS, Los Angeles, USA
A. Meijster	University of Groningen, Groningen, The Netherlands
Bernard Merialdo	EURECOM, France
Fabrice Mériaudeau	IUT Le Creusot, Le Creusot, France
Amar Mitiche	INRS, Montréal, Canada
Rafael Molina	Universidad de Granada, Granada, Spain
Marleen Morbée	Ghent University - IBBT, Ghent, Belgium
Adrian Munteanu	Vrije Universiteit Brussel, Brussels, Belgium
Vittorio Murino	Università degli Studi di Verona, Verona, Italy
Mike Nachtgeael	Ghent University, Gent, Belgium
Jean-Christophe Nebel	Kingston University, Kingston, UK
Mark Nixon	University of Southampton, Southampton, UK
Edgard Nyssen	Vrije Universiteit Brussel, Brussels, Belgium

Jussi Parkkinen	University of Joensuu, Joensuu, Finland
Estelle Parra-Denis	Ecole des Mines de Paris, Fontainebleau, France
Fernando Pereira	Instituto Superior Técnico, Lisbon, Portugal
Patrick Perrot	IRCGN (Institut de recherche criminelle de la gendarmerie nationale), Rosny-sous-Bois, France
Stuart Perry	Canon Information Systems Research Australia, Sydney, Australia
Béatrice Pesquet-Popescu	ENST, Paris, France
Sylvie Philipp-Foliguet	ETIS, Cergy, France
Wilfried Philips	Ghent University - IBBT, Ghent, Belgium
Wojciech Pieczynski	INT, Evry, France
Matti Pietikäinen	University of Oulu, Oulu, Finland
Aleksandra Pizurica	Ghent University - IBBT, Ghent, Belgium
Dan Popescu	CSIRO, Sydney, Australia
Georges Quénot	IMAG, Grenoble, France
André Quinquis	ENSIETA, Brest, France
Gianni Ramponi	Trieste University, Trieste, Italy
Paolo Remagnino	Kingston University, UK
José Ronda	Universidad Politécnica de Madrid, Madrid, Spain
Joseph Ronsin	IETR, Rennes, France
Filip Rooms	Ghent University - IBBT, Ghent, Belgium
Luc Rynders	IMEC, Leuven, Belgium
Philippe Salembier	UPC, Barcelona, Spain
Luis Salgado Alvarez de Sotomayor	Universidad Politécnica de Madrid, Madrid, Spain
Daniel Scharstein	Middlebury College, Middlebury, UK
Paul Scheunders	University of Antwerp, Wilrijk, Belgium
Dirk Stroobandt	Ghent University, Ghent, Belgium
Hugues Talbot	ESIEE, Noisy-le-Grand, France
Linda Tessens	Ghent University - IBBT, Ghent, Belgium
Frederic Truchetet	Université de Bourgogne, Le Creusot, France
Tine Tuytelaars	K.U.Leuven, Leuven, Belgium
Dimitri Van De Ville	EPFL, Lausanne, Switzerland
Sabine Van Huffel	K.U.Leuven, Leuven, Belgium
Marc VanDroogenbroeck	Liège University, Liège, Belgium
Iris Vanhamel	Vrije Universiteit Brussel, Brussels, Belgium
Ewout Vansteenkiste	Ghent University - IBBT, Ghent, Belgium
Peter Veelaert	University College Ghent, Ghent, Belgium
Sergio Velastin	Kingston University, Kingston, UK
Geert Verdoolaege	University of Antwerp, Antwerp, Belgium
Christian Wolf	CNRS, Lyon, France
Didier Wolf	Ecole Nationale Supérieure d'Electricité et de Mécanique, Nancy, France

Tien-Tsin Wong

The Chinese University of Hong Kong, Hong Kong,
China

Wei Zhao

Zhejiang University, Hang Zhou, China

Djemel Ziou

Sherbrooke University, Sherbrooke, Canada

Witold Zorski

Military University of Technology, Warsaw,
Poland

Table of Contents

Image and Video Coding

Performance Analysis of Generalized Zerotree Coders Varying the Maximum Zerotree Degree	1
<i>Luca Cicala</i>	
Passive Error Concealment for Wavelet Coded Images with Efficient Reconstruction of High-Frequency Content	13
<i>Joost Rombaut, Aleksandra Pizurica, and Wilfried Philips</i>	
Applying Open-Loop Coding in Predictive Coding Systems.....	25
<i>Adrian Munteanu, Frederik Verbist, Jan Cornelis, and Peter Schelkens</i>	
Network Security Using Biometric and Cryptography	38
<i>Sandip Dutta, Avijit Kar, N.C. Mahanti, and B.N. Chatterji</i>	
Bit Domain Encryption	45
<i>Anil Yekkala and C.E. Veni Madhavan</i>	
A Multiresolution Robust Watermarking Approach for Scalable Wavelet Image Compression	57
<i>Habibollah Danyali and Mehran Deljavan Amiri</i>	
Improving Image Vector Quantization with a Genetic Accelerated K-Means Algorithm	67
<i>Carlos R.B. Azevedo, Tiago A.E. Ferreira, Waslon T.A. Lopes, and Francisco Madeiro</i>	

Systems and Applications

Efficient and Flexible Cluster-and-Search for CBIR	77
<i>Anderson Rocha, Jurandy Almeida, Mario A. Nascimento, Ricardo Torres, and Siome Goldenstein</i>	
An Evaluation Methodology for Image Mosaicing Algorithms	89
<i>Pietro Azzari, Luigi Di Stefano, and Stefano Mattoccia</i>	
High-Speed Acquisition and Pre-processing of Polarimetric Image Sequences	101
<i>Luc Gendre, Alban Foulonneau, and Laurent Bigué</i>	
Nighttime Vehicle Detection for Intelligent Headlight Control	113
<i>Antonio López, Jörg Hilgenstock, Andreas Busse, Ramón Baldrich, Felipe Lumbreras, and Joan Serrat</i>	

Fourier-Based Inspection of Free-Form Reflective Surfaces	125
<i>Y. Caulier and S. Bourennane</i>	
An Iterative Kalman Filter Approach to Camera Calibration	137
<i>Carlos Ricolfe-Viala and Antonio-José Sánchez-Salmerón</i>	
An Efficient Hardware Architecture without Line Memories for Morphological Image Processing	147
<i>Christophe Clienti, Michel Bilodeau, and Serge Beucher</i>	
Embedding of a Real Time Image Stabilization Algorithm on SoPC Platform, a Chip Multi-processor Approach	157
<i>Jean Pierre Dérutin, Lionel Damez, and Alexis Landrault</i>	
“Local Rank Differences” Image Feature Implemented on GPU	170
<i>Lukáš Polok, Adam Herout, Pavel Zemčík, Michal Hradiš, Roman Juránek, and Radovan Jošth</i>	
Real-Time Wavelet-Spatial-Activity-Based Adaptive Video Enhancement Algorithm for FPGA	182
<i>V. Zlokolica, M. Katona, M. Juenke, Z. Krajacevic, N. Teslic, and M. Temerinac</i>	
MIDIAS: An Integrated 2D/3D Sensor System for Safety Applications	194
<i>Tobias Hanning and Aless Lasaruk</i>	
Configurable Passband Imaging Spectrometer Based on Acousto-optic Tunable Filter	206
<i>Joan Vila-Francés, Luis Gómez-Chova, Julia Amorós-López, and Javier Calpe-Maravilla</i>	
Basic Video-Surveillance with Low Computational and Power Requirements Using Long-Exposure Frames	218
<i>Vincenzo Caglioti and Alessandro Giusti</i>	
Parallel Algorithm for Concurrent Computation of Connected Component Tree	230
<i>P. Matas, E. Dokládalová, M. Akil, T. Grandpierre, L. Najman, M. Poupa, and V. Georgiev</i>	
Distributed Smart Camera Calibration Using Blinking LED	242
<i>Michael Koch, Zoran Zivkovic, Richard Kleihorst, and Henk Corporaal</i>	
Real-Time Hough Transform on 1-D SIMD Processors: Implementation and Architecture Exploration	254
<i>Yifan He, Zoran Zivkovic, Richard Kleihorst, Alexander Danilin, Henk Corporaal, and Bart Mesman</i>	

Sub-optimal Camera Selection in Practical Vision Networks through Shape Approximation	266
<i>Huang Lee, Linda Tessens, Marleen Morbee, Hamid Aghajan, and Wilfried Philips</i>	

Video Processing

A Real-Time Vision System for Traffic Signs Recognition Invariant to Translation, Rotation and Scale	278
<i>Bogusław Cyganek</i>	
Dynamic Selection of Characteristics for Feature Based Image Sequence Stabilization	290
<i>Hugo Jiménez and Joaquín Salas</i>	
Video-Based Fall Detection in the Home Using Principal Component Analysis	298
<i>Lykele Hazelhoff, Jungong Han, and Peter H.N. de With</i>	
Fluid Flow Measurement in Thermographic Video Sequences by Wavelet-Multiresolution Optical Flow Estimation	310
<i>Hugo Franco, Álvaro Perea, Eduardo Romero, and Daniel Rodríguez</i>	
Video Object Segmentation Based on Feedback Schemes Guided by a Low-Level Scene Ontology	322
<i>Alvaro García and Jesús Bescós</i>	
Adaptive Metadata Management System for Distributed Video Content Analysis	334
<i>C. Carincotte, X. Desurmont, and A. Bastide</i>	
Synchronizing Video Sequences from Temporal Epipolar Lines Analysis	346
<i>Vincent Guitteny, Ryad Benosman, and Christophe Charbuillet</i>	
Automatic Feature-Based Stabilization of Video with Intentional Motion through a Particle Filter	356
<i>Carlos R. del-Blanco, Fernando Jaureguizar, Luis Salgado, and Narciso García</i>	

Filtering and Restoration

Image Denoising Using Similarities in the Time-Scale Plane	368
<i>Vittoria Bruni and Domenico Vitulano</i>	
Video Denoising and Simplification Via Discrete Regularization on Graphs	380
<i>Mahmoud Ghoniem, Youssef Chahir, and Abderrahim Elmoataz</i>	

A Robust Method for Edge-Preserving Image Smoothing	390
<i>Gang Dong and Kannappan Palaniappan</i>	
Atmospheric Turbulence Restoration by Diffeomorphic Image Registration and Blind Deconvolution	400
<i>Jérôme Gilles, Tristan Dagobert, and Carlo De Franchis</i>	
Sequential Blind PSF Estimation and Restoration of Aerial Multispectral Images	410
<i>Pejman Rahmani, Benoît Vozel, and Kacem Chehdi</i>	
Phase Unwrapping in Fringe Projection Systems Using Epipolar Geometry	422
<i>Christian Bräuer-Burchardt, Christoph Munkelt, Matthias Heinze, Peter Kühmstedt, and Gunther Notni</i>	
Decision Trees in Binary Tomography for Supporting the Reconstruction of $h\nu$ -Convex Connected Images	433
<i>Péter Balázs and Mihály Gara</i>	
Multidimensional Noise Removal Based on Fourth Order Cumulants	444
<i>Damien Letexier, Salah Bourennane, and Jacques Blanc-Talon</i>	
Defocus Blur Correcting Projector-Camera System	453
<i>Yuji Oyamada and Hideo Saito</i>	
Multidimensional Noise Removal Method Based on PARAFAC Decomposition	465
<i>Florian Joyeux, Damien Letexier, Salah Bourennane, and Jacques Blanc-Talon</i>	
Segmentation and Feature Extraction	
A New Algorithm for Dominant Point Detection by Quasi-collinear Break Points Suppression	474
<i>A. Carmona-Poyato, N.L. Fernandez-Garcia, and R. Muñoz-Salinas</i>	
Robust Curvature Extrema Detection Based on New Numerical Derivation	485
<i>Cédric Join and Salvatore Tabbone</i>	
Geodesic Active Contours with Combined Shape and Appearance Priors	494
<i>Rami Ben-Ari and Dror Aiger</i>	
Nonparametric Level-Set Segmentation Based on the Minimization of the Stochastic Complexity	506
<i>Marc Allain, Nicolas Bertaux, and Frederic Galland</i>	

A Geometric Primitive Extraction Process for Remote Sensing Problems	518
<i>Florent Lafarge, Georgy Gimel'farb, and Xavier Descombes</i>	
Use of Local Surface Curvature Estimation for Adaptive Vision System Based on Active Light Projection	530
<i>Wanjing Li, Martin Böhler, Rainer Schütze, Franck S. Marzani, Yvon Voisin, and Frank Boochs</i>	
Spatially-Variant Directional Mathematical Morphology Operators Based on a Diffused Average Squared Gradient Field	542
<i>Rafael Verdú-Monedero and Jesús Angulo</i>	
Spherical Edge Detector: Application to Omnidirectional Imaging	554
<i>Stéphanie Bigot, Djemaa Kachi, and Sylvain Durand</i>	
Towards Fully Automatic Image Segmentation Evaluation	566
<i>Lutz Goldmann, Tomasz Adamek, Peter Vajda, Mustafa Karaman, Roland Mörzinger, Eric Galmar, Thomas Sikora, Noel E. O'Connor, Thien Ha-Minh, Touradj Ebrahimi, Peter Schallauer, and Benoit Huet</i>	
Fast Saliency-Based Motion Segmentation Algorithm for an Active Vision System	578
<i>M. Salah E.-N. Shafik and Baerbel Mertsching</i>	
A Multicomponent Image Segmentation Framework	589
<i>J. Driesen and P. Scheunders</i>	
An Interval-Valued Fuzzy Morphological Model Based on Lukasiewicz-Operators	601
<i>M. Nachtgaeel, P. Sussner, T. Mélange, and E.E. Kerre</i>	
Curvature Estimation and Curve Inference with Tensor Voting: A New Approach	613
<i>Gabriele Lombardi, Elena Casiraghi, and Paola Campadelli</i>	
Attention-Based Segmentation on an Image Pyramid Sequence	625
<i>Masayasu Atsumi</i>	
A Pseudo-logarithmic Image Processing Framework for Edge Detection	637
<i>Constantin Vertan, Alina Oprea, Corneliu Florea, and Laura Florea</i>	
Graffiti Detection Using a Time-Of-Flight Camera	645
<i>Federico Tombari, Luigi Di Stefano, Stefano Mattoccia, and Andrea Zanetti</i>	

Contour Detection for Industrial Image Processing by Means of Level Set Methods	655
<i>J. Marot, Y. Caulier, A. Kuleschov, K. Spinnler, and S. Bourennane</i>	
Knee Point Detection in BIC for Detecting the Number of Clusters	664
<i>Qinpei Zhao, Ville Hautamaki, and Pasi Fränti</i>	
Grey-Scale Morphology with Spatially-Variant Rectangles in Linear Time	674
<i>Petr Dokládál and Eva Dokládálová</i>	
Image Segmentation Based on Supernodes and Region Size Estimation	686
<i>Yuan Yuan, Lihong Ma, and Hanqing Lu</i>	
An Image Quality Metric Based on a Colour Appearance Model	696
<i>Li Cui and Alastair R. Allen</i>	
Fuzzy Rule Iterative Feature Selection (FRIFS) with Respect to the Choquet Integral Apply to Fabric Defect Recognition	708
<i>Emmanuel Schmitt, Vincent Bombardier, and Laurent Wendling</i>	
Simple and Robust Optic Disc Localisation Using Colour Decorrelated Templates	719
<i>Tomi Kauppi and Heikki Kälviäinen</i>	
Active Contours without Edges and with Simple Shape Priors	730
<i>Eduard Sojka, Jan Gaura, and Michal Krumník</i>	
Tracking, Scene Understanding and Computer Vision	
A Robust Method for Filling Holes in 3D Meshes Based on Image Restoration	742
<i>Emiliano Pérez, Santiago Salamanca, Pilar Merchán, Antonio Adán, Carlos Cerrada, and Inocente Cambero</i>	
A Comparison of Multiclass SVM Methods for Real World Natural Scenes	752
<i>Can Demirkesen and Hocine Cherifi</i>	
Intuitionistic Fuzzy Clustering with Applications in Computer Vision ...	764
<i>Dimitris K. Iakovidis, Nikos Pelekis, Evangelos Kotsifakos, and Ioannis Kopanakis</i>	
Object Tracking Using Naive Bayesian Classifiers	775
<i>Nemanja Petrović, Ljubomir Jovanov, Aleksandra Pižurica, and Wilfried Philips</i>	

3D Tracking Using Multi-view Based Particle Filters	785
<i>Raúl Mohedano, Narciso García, Luis Salgado, and Fernando Jaureguizar</i>	
Motion Recovery for Uncalibrated Turntable Sequences Using Silhouettes and a Single Point	796
<i>Hui Zhang, Ling Shao, and Kwan-Yee K. Wong</i>	
Semantic Map Generation from Satellite Images for Humanitarian Scenarios Applications	808
<i>Corina Vaduva, Daniela Faur, Anca Popescu, Inge Gavut, and Mihai Datcu</i>	
An Effective Salience-Based Algorithm for Shape Matching	818
<i>Glauco V. Pedrosa, Cristiane F. Santos, Marcos A. Batista, Henrique C. Fernandes, and Celia A.Z. Barcelos</i>	
A New Ground Movement Compensation Approach for Obstacle Detection Using an In-Vehicle Camera	828
<i>Changhui Yang, Hitoshi Hongo, and Shinichi Tanimoto</i>	
Foliage Recognition Based on Local Edge Information	838
<i>David Van Hamme, Peter Veelaert, Wilfried Philips, Kristof Teelen, Niels Stevens, and Bart Vermeersch</i>	
On Bin Configuration of Shape Context Descriptors in Human Silhouette Classification	850
<i>Mark Barnard and Janne Heikkilä</i>	
Kernel Based Approach for High Dimensional Heterogeneous Image Features Management in CBIR Context	860
<i>I. Daoudi, K. Idrissi, and S.E. Ouatik</i>	
Scene Reconstruction Using MRF Optimization with Image Content Adaptive Energy Functions	872
<i>Ping Li, Rene Klein Gunnewiek, and Peter H.N. de With</i>	
Blur and Contrast Invariant Fast Stereo Matching	883
<i>Matteo Pedone and Janne Heikkilä</i>	
A Generalized Appriou's Model for Evidential Classification of Multispectral Images: A Case Study of Algiers City	891
<i>Abdenour Bouakache, Radja Khedam, Aichouche Belhadj-Aissa, and Grégoire Mercier</i>	
Medical Imaging	
Fuzzy Clustering and Active Contours for Histopathology Image Segmentation and Nuclei Detection	903
<i>Adel Hafiane, Filiz Bunyak, and Kannappan Palaniappan</i>	

Mosaicing of Fibered Fluorescence Microscopy Video	915
<i>Steve De Backer, Frans Cornelissen, Jan Lemeire, Rony Nuydens, Theo Meert, Peter Schelkens, and Paul Scheunders</i>	

Fusion of Multi-view Tissue Classification Based on Wound 3D Model	924
<i>Hazem Wannous, Yves Lucas, Sylvie Treuillet, and Benjamin Albouy</i>	

Effective Segmentation for Dental X-Ray Images Using Texture-Based Fuzzy Inference System	936
<i>Y.H. Lai and P.L. Lin</i>	

Breast Mass Segmentation in Mammographic Images by an Effective Region Growing Algorithm	948
<i>Arianna Mencattini, Giulia Rabottino, Marcello Salmeri, Roberto Lojacono, and Emanuele Colini</i>	

Biometrics and Surveillance

Pedestrian Detection and Tracking Based on Far Infrared Visual Information	958
<i>Daniel Olmeda, Cristina Hilario, Arturo de la Escalera, and Jose M. Armingol</i>	

Crowd Behavior Recognition for Video Surveillance	970
<i>Shobhit Saxena, François Brémond, Monnique Thonnat, and Ruihua Ma</i>	

Face Recognition Using Symbolic KPCA Plus Symbolic LDA in the Framework of Symbolic Data Analysis: Symbolic Kernel Fisher Discriminant Method	982
<i>P.S. Hiremath and C.J. Prabhakar</i>	

Face Recognition Using Parabola Edge Map	994
<i>Francis Deboeverie, Peter Veelaert, Kristof Teelen, and Wilfried Philips</i>	

Human Pose Estimation in Vision Networks Via Distributed Local Processing and Nonparametric Belief Propagation	1006
<i>Chen Wu and Hamid Aghajan</i>	

Model-Based Gait Recognition Using Multiple Feature Detection	1018
<i>Donghyeon Kim, Daehee Kim, and Joonki Paik</i>	

A New Segmentation Approach for Ear Recognition	1030
<i>Sepehr Attarchi, Karim Faez, and Aref Rafiei</i>	

Robust Lip Contours Localization and Tracking Using Multi Features – Statistical Shape Models	1038
<i>Quoc Dinh Nguyen and Maurice Milgram</i>	
3D Face Recognition Evaluation on Expressive Faces Using the IV^2 Database	1050
<i>Joseph Colineau, Johan D'Hose, Boulbaba Ben Amor, Mohsen Ardabilian, Liming Chen, and Bernadette Dorizzi</i>	
Reliable Eyelid Localization for Iris Recognition	1062
<i>Mathieu Adam, Florence Rossant, Frederic Amiel, Beata Mikovicova, and Thomas Ea</i>	
Head Pose Determination Using Synthetic Images	1071
<i>Kevin Bailly and Maurice Milgram</i>	
A Fast and Fully Automatic Ear Recognition Approach Based on 3D Local Surface Features	1081
<i>S.M.S. Islam, R. Davies, A.S. Mian, and M. Bennamoun</i>	
Open or Closed Mouth State Detection: Static Supervised Classification Based on Log-Polar Signature	1093
<i>Christian Bouvier, Alexandre Benoit, Alice Caplier, and Pierre-Yves Coulon</i>	
Gabor Filter-Based Fingerprint Anti-spoofing	1103
<i>Shankar Bhausahab Nikam and Suneeta Agarwal</i>	
Improved Infrared Face Identification Performance Using Nonuniformity Correction Techniques	1115
<i>César San Martín, Pablo Meza, Sergio Torres, and Roberto Carrillo</i>	
Constrained Phase-Based Personalized Facial Feature Tracking	1124
<i>Mohamed Dahmane and Jean Meunier</i>	
Author Index	1135