

# Table of Contents

## Acquisition, Pre-processing and Coding

Efficient Low Complexity SVC Video Transrater with Spatial Scalability .....	1
<i>Christophe Deknudt, François-Xavier Coudoux, Patrick Corlay, Marc Gazelet, and Mohamed Gharbi</i>	
Visual Data Encryption for Privacy Enhancement in Surveillance Systems .....	13
<i>Janusz Cichowski, Andrzej Czyżewski, and Bożena Kostek</i>	
Distance Estimation with a Two or Three Aperture SLR Digital Camera .....	25
<i>Seungwon Lee, Joonki Paik, and Monson H. Hayes</i>	
Acquisition of Agronomic Images with Sufficient Quality by Automatic Exposure Time Control and Histogram Matching .....	37
<i>Martín Montalvo, José M. Guerrero, Juan Romeo, María Guijarro, Jesús M. de la Cruz, and Gonzalo Pajares</i>	
An Enhanced Weighted Median Filter for Noise Reduction in SAR Interferograms .....	49
<i>Wajih Ben Abdallah and Riadh Abdelfattah</i>	
High Precision Restoration Method for Non-uniformly Warped Images .....	60
<i>Kalyan Kumar Halder, Murat Tahtali, and Sreenatha G. Anavatti</i>	
Noise Robustness Analysis of Point Cloud Descriptors .....	68
<i>Yasir Salih, Aamir Saeed Malik, Nicolas Walter, Désiré Sidibé, Naufal Saad, and Fabrice Meriaudeau</i>	
Restoration of Blurred Binary Images Using Discrete Tomography .....	80
<i>Jozsef Nemeth and Peter Balazs</i>	
Minimum Memory Vectorisation of Wavelet Lifting .....	91
<i>David Barina and Pavel Zemcik</i>	
Magnitude Type Preserving Similarity Measure for Complex Wavelet Based Image Registration .....	102
<i>Florina-Cristina Calnegru</i>	

## Biometry

Real-Time Face Pose Estimation in Challenging Environments . . . . .	114
<i>Mliki Hazar, Hammami Mohamed, and Ben-Abdallah Hanène</i>	
Human Motion Capture Using Data Fusion of Multiple Skeleton Data . . . . .	126
<i>Jean-Thomas Masse, Frédéric Lerasle, Michel Devy, André Monin, Olivier Lefebvre, and Stéphane Mas</i>	
Recognizing Conversational Interaction Based on 3D Human Pose . . . . .	138
<i>Jingjing Deng, Xianghua Xie, Ben Daubney, Hui Fang, and Phil W. Grant</i>	
Upper-Body Pose Estimation Using Geodesic Distances and Skin-Color . . . . .	150
<i>Sebastian Handrich and Ayoub Al-Hamadi</i>	
A New Approach for Hand Augmentation Based on Patch Modelling . . .	162
<i>Omer Rashid Ahmad and Ayoub Al-Hamadi</i>	
Hidden Markov Models for Modeling Occurrence Order of Facial Temporal Dynamics . . . . .	172
<i>Khadoudja Ghanem</i>	
Adaptive Two Phase Sparse Representation Classifier for Face Recognition . . . . .	182
<i>Fadi Dornaika, Youssef El Traboulsi, and Ammar Assoum</i>	
Automatic User-Specific Avatar Parametrisation and Emotion Mapping . . . . .	192
<i>Stephanie Behrens, Ayoub Al-Hamadi, Robert Niese, and Eicke Redweik</i>	

## Classification and Recognition

Optimizing Contextual-Based Optimum-Forest Classification through Swarm Intelligence . . . . .	203
<i>Daniel Osaku, Rodrigo Nakamura, João Papa, Alexandre Levada, Fábio Cappabianco, and Alexandre Falcão</i>	
A Mobile Imaging System for Medical Diagnostics . . . . .	215
<i>Sami Varjo and Jari Hannuksela</i>	
Fast Road Network Extraction from Remotely Sensed Images . . . . .	227
<i>Vladimir A. Krylov and James D.B. Nelson</i>	
Partial Near-Duplicate Detection in Random Images by a Combination of Detectors . . . . .	238
<i>Andrzej Śluzek</i>	

Object Recognition and Modeling Using SIFT Features . . . . .	250
<i>Alessandro Bruno, Luca Greco, and Marco La Cascia</i>	
Painting Scene Recognition Using Homogenous Shapes . . . . .	262
<i>Razvan George Condorovici, Corneliu Florea, and Constantin Vertan</i>	
A Novel Graph Based Clustering Technique for Hybrid Segmentation of Multi-spectral Remotely Sensed Images . . . . .	274
<i>Biplab Banerjee, Pradeep Kumar Mishra, Surender Varma, and Buddhiraju Krishna Mohan</i>	

## Depth, 3D and Tracking

Planar Segmentation by Time-of-Flight Cameras . . . . .	286
<i>Rudi Penne, Luc Mertens, and Bart Ribbens</i>	
An Efficient Normal-Error Iterative Algorithm for Line Triangulation . . .	298
<i>Qiang Zhang, Yan Wu, Ming Liu, and Licheng Jiao</i>	
Moving Object Detection System in Aerial Video Surveillance . . . . .	310
<i>Ahlem Walha, Ali Wali, and Adel M. Alimi</i>	
An Indoor RGB-D Dataset for the Evaluation of Robot Navigation Algorithms . . . . .	321
<i>Adam Schmidt, Michał Fularz, Marek Kraft, Andrzej Kasiński, and Michał Nowicki</i>	
Real-Time Depth Map Based People Counting . . . . .	330
<i>František Galčík and Radoslav Gargalik</i>	
Tracking of a Handheld Ultrasonic Sensor for Corrosion Control on Pipe Segment Surfaces . . . . .	342
<i>Christian Bendicks, Erik Lilienblum, Christian Freye, and Ayoub Al-Hamadi</i>	
Extended GrabCut for 3D and RGB-D Point Clouds . . . . .	354
<i>Nizar K. Sallem and Michel Devy</i>	

## Efficient Implementations and Frameworks

A Resource Allocation Framework for Adaptive Selection of Point Matching Strategies . . . . .	366
<i>Quentin De Neyer and Christophe De Vleeschouwer</i>	
VTApi: An Efficient Framework for Computer Vision Data Management and Analytics . . . . .	378
<i>Petr Chmelar, Martin Pesek, Tomas Volf, Jaroslav Zendulka, and Vojtech Froml</i>	

Computational Methods for Selective Acquisition of Depth Measurements: An Experimental Evaluation . . . . .	389
<i>Pierre Payeur, Phillip Curtis, and Ana-Maria Cretu</i>	
A New Color Image Database TID2013: Innovations and Results . . . . .	402
<i>Nikolay Ponomarenko, Oleg Ieremeiev, Vladimir Lukin, Lina Jin, Karen Egiazarian, Jaakko Astola, Benoit Vozel, Kacem Chehdi, Marco Carli, Federica Battisti, and C.-C. Jay Kuo</i>	
Performance Evaluation of Video Analytics for Surveillance On-Board Trains . . . . .	414
<i>Valentina Casola, Mariana Esposito, Francesco Flammini, Nicola Mazzocca, and Concetta Pragliola</i>	
GPU-Accelerated Human Motion Tracking Using Particle Filter Combined with PSO . . . . .	426
<i>Boguslaw Rymut, Bogdan Kwolek, and Tomasz Krzeszowski</i>	
<b>Low Level Image Analysis and Segmentation</b>	
Modelling Line and Edge Features Using Higher-Order Riesz Transforms . . . . .	438
<i>Ross Marchant and Paul Jackway</i>	
Semantic Approach in Image Change Detection . . . . .	450
<i>Adrien Gressin, Nicole Vincent, Clément Mallet, and Nicolas Paparoditis</i>	
Small Target Detection Improvement in Hyperspectral Image . . . . .	460
<i>Tao Lin, Julien Marot, and Salah Bourennane</i>	
The Objective Evaluation of Image Object Segmentation Quality . . . . .	470
<i>Ran Shi, King Nghi Ngan, and Songnan Li</i>	
A Modification of Diffusion Distance for Clustering and Image Segmentation . . . . .	480
<i>Eduard Sojka and Jan Gaura</i>	
Flexible Multi-modal Graph-Based Segmentation . . . . .	492
<i>Willem P. Sanberg, Luat Do, and Peter H.N. de With</i>	
The Divide and Segment Method for Parallel Image Segmentation . . . . .	504
<i>Thales Sehn Körting, Emiliano Ferreira Castejon, and Leila Maria Garcia Fonseca</i>	
Unsupervised Segmentation for Transmission Imaging of Carbon Black . . . . .	516
<i>Lydie Luengo, Hélène Laurent, Sylvie Treuillet, Isabelle Jolivet, and Emmanuel Gomez</i>	

Tree Symbols Detection for Green Space Estimation . . . . .	526
<i>Adrian Sroka and Marcin Luckner</i>	
Hierarchical Layered Mean Shift Methods . . . . .	538
<i>Milan Šurkala, Karel Mozdřeň, Radovan Fusek, and Eduard Sojka</i>	
Globally Segmentation Using Active Contours and Belief Function . . . . .	546
<i>Foued Derraz, Miloud Boussahla, and Laurent Peyrodie</i>	

## Video Analytics

Automatic Monitoring of Pig Activity Using Image Analysis . . . . .	555
<i>Mohammad Amin Kashiha, Claudia Bahr, Sanne Ott, Christel P.H. Moons, Theo A. Niewold, Frank Tuytens, and Daniel Berckmans</i>	
IMM-Based Tracking and Latency Control with Off-the-Shelf IP PTZ Camera . . . . .	564
<i>Pierrick Paillet, Romaric Audigier, Frederic Lerasle, and Quoc-Cuong Pham</i>	
Evaluation of Traffic Sign Recognition Methods Trained on Synthetically Generated Data . . . . .	576
<i>Boris Moiseev, Artem Konev, Alexander Chigorin, and Anton Konushin</i>	
Robust Multi-camera People Tracking Using Maximum Likelihood Estimation . . . . .	584
<i>Nyan Bo Bo, Peter Van Hese, Sebastian Gruenwedel, Junzhi Guan, Jorge Niño-Castañeda, Dirk Van Haerenborgh, Dimitri Van Cauwelaert, Peter Veelaert, and Wilfried Philips</i>	
A Perception-Based Interpretation of the Kernel-Based Object Tracking . . . . .	596
<i>Vittoria Bruni and Domenico Vitulano</i>	
Efficient Detection and Tracking of Road Signs Based on Vehicle Motion and Stereo Vision . . . . .	608
<i>Chang-Won Choi, Sung-In Choi, and Soon-Yong Park</i>	
Incremental Principal Component Analysis-Based Sparse Representation for Face Pose Classification . . . . .	620
<i>Yuyao Zhang, Y. Benhamza, Khalid Idrissi, and Christophe Garcia</i>	
Person Detection with a Computation Time Weighted AdaBoost . . . . .	632
<i>Alhayat Ali Mekonnen, Frédéric Lerasle, and Ariane Herbulot</i>	

Perspective Multiscale Detection of Vehicles for Real-Time Forward Collision Avoidance Systems . . . . .	645
<i>Juan Diego Ortega, Marcos Nieto, Andoni Cortes, and Julian Florez</i>	
Learning and Propagation of Dominant Colors for Fast Video Segmentation . . . . .	657
<i>Cédric Verleysen and Christophe De Vleeschouwer</i>	
A Key-Pose Similarity Algorithm for Motion Data Retrieval . . . . .	669
<i>Jan Sedmidubsky, Jakub Valcik, and Pavel Zezula</i>	
Training with Corrupted Labels to Reinforce a Probably Correct Teamspport Player Detector . . . . .	682
<i>Pascaline Parisot, Berk Sevilmış, and Christophe De Vleeschouwer</i>	
Spherical Center-Surround for Video Saliency Detection Using Sparse Sampling . . . . .	695
<i>Hamed Rezazadegan Tavakoli, Esa Rahtu, and Janne Heikkilä</i>	
Semantic Concept Detection Using Dense Codeword Motion . . . . .	705
<i>Claudiu Tănase and Bernard Mérialdo</i>	
<b>Author Index</b> . . . . .	715