

1. Record Nr.	UNISA996466421203316
Titolo	Advanced Concepts for Intelligent Vision Systems [[electronic resource]] : 16th International Conference, ACIVS 2015, Catania, Italy, October 26-29, 2015. Proceedings / / edited by Sebastiano Battiato, Jacques Blanc-Talon, Giovanni Gallo, Wilfried Philips, Dan Popescu, Paul Scheunders
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-25903-2
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (XXI, 897 p. 389 illus.)
Collana	Image Processing, Computer Vision, Pattern Recognition, and Graphics ; ; 9386
Disciplina	004
Soggetti	Computer security Data encryption (Computer science) Coding theory Information theory E-commerce Management information systems Computer science Computers and civilization Systems and Data Security Cryptology Coding and Information Theory e-Commerce/e-business Management of Computing and Information Systems Computers and Society
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- About the Volume Editors -- Organization -- Contents -- Low-Level Image Processing -- BNRFBFBE Method for Blur Estimation in Document Images -- 1 Introduction -- 2 Blur Analysis -- 3 Blur Measuring -- 3.1 Principle of the Measurement -- 3.2 Text Blur

Measurement -- 4 Experiments -- 4.1 Simulated Blur -- 4.2 Influence of Working Zone Z -- 4.3 Real Images -- 4.4 DIQA Database -- 5 Conclusion -- References -- Edge Width Estimation for Defocus Map from a Single Image -- 1 Introduction -- 2 Edge Width -- 2.1 Gaussian Edge Model -- 2.2 Estimation of Edge Width -- 2.3 The Edge Width Estimation Algorithm -- 3 Defocus Blur Estimation -- 3.1 Sparse Defocus Map -- 3.2 Full Defocus Map -- 4 Results and Discussion -- 4.1 Possible Improvement -- 5 Conclusion -- References -- RSD-DOG: A New Image Descriptor Based on Second Order Derivatives -- 1 Introduction -- 1.1 Related Work -- 2 Directional Filter -- 3 Ridge and Valley Detection Using Difference of Gaussian Filters -- 3.1 Difference of Half Smoothing Filters (DHSF) -- 3.2 Estimating the Direction of Second Order Statistics Such as Ridges and Valleys -- 4 Descriptor Construction -- 5 Experiments and Results -- 5.1 Dataset and Evaluation -- 5.2 Descriptor Performance -- 6 Conclusion -- References -- Ringing Artifact Suppression Using Sparse Representation -- 1 Introduction -- 2 Ringing Suppression -- 2.1 Problem Formulation -- 2.2 Joint Sparse Coding -- 2.3 Ringing Suppression Method -- 3 Evaluation -- 4 Conclusion -- References -- Patch-Based Mathematical Morphology for Image Processing, Segmentation and Classification -- 1 Introduction -- 2 Patch Complete Lattice Learning -- 2.1 Complete Lattice from Patches -- 2.2 Complete Lattice Learning -- 2.3 Patch-Based MM Operators -- 3 Applications -- 3.1 Color Image Processing -- 3.2 Color Image Segmentation. 3.3 Color Image Texture Classification -- 4 Conclusion -- References -- Time Ordering Shuffling for Improving Background Subtraction -- 1 Introduction -- 2 Time Shuffling Strategies -- 2.1 Principle -- 2.2 Random Time Shuffling Strategy -- 2.3 Deterministic Time Shuffling Strategies -- 2.4 Implementation of the Deterministic Strategies -- 3 Experiments and Results -- 3.1 Initialization -- 3.2 Dataset -- 3.3 Background Subtraction Algorithms -- 3.4 Results and Interpretation -- 4 Conclusions -- References -- Fast and Low Power Consumption Outliers Removal for Motion Vector Estimation -- 1 Introduction -- 2 Proposed Method -- 2.1 Pre-processing -- 2.2 Advanced Voting -- 2.3 Motion Estimation Model -- 3 Experimental Results -- 4 Computational Cost Comparison -- 5 Conclusion -- References -- Adaptive Scale Selection for Multiscale Image Denoising -- 1 Introduction -- 2 Motivation of the Work -- 2.1 Atomic Representation and Time-Scale Evolution -- 2.2 Rational Dilation Wavelet Transform -- 3 Scale Selection -- 3.1 Packets of Atoms -- 3.2 Scale Selection Algorithm -- 4 Adaptive RDWT -- 5 Preliminary Experimental Results -- 6 Conclusions -- References -- Secure Signal Processing Using Fully Homomorphic Encryption -- 1 Introduction -- 2 Related Work -- 3 Fully Homomorphic Encryption -- 4 Encrypted Natural Logarithm -- 5 Brightness/Contrast Filter Theory -- 6 Experimental Results -- 7 Conclusion -- References -- Video Processing and Camera Networks -- Towards a Bayesian Video Denoising Method -- 1 Introduction -- 2 Bayesian Video Denoising -- 2.1 A Nonlocal Bayesian Principle -- 2.2 Learning the a Priori Model -- 2.3 Description of the Algorithm -- 2.4 Computational Complexity -- 3 Results -- 4 Conclusions -- References -- Collaborative, Context Based Activity Control Method for Camera Networks -- 1 Introduction -- 2 Related Work. 3 The Implemented Algorithm -- 4 The Test Setup -- 5 Results and Discussion -- 6 Conclusions -- References -- EFIC: Edge Based Foreground Background Segmentation and Interior Classification for Dynamic Camera Viewpoints -- 1 Introduction -- 2 Edge Based Foreground Background Segmentation -- 2.1 Previous Work -- 2.2 Foreground Shape Correction -- 2.3 Ghost Removal -- 3 Camera

Motion Detection -- 3.1 Optical Flow -- 3.2 Flow Based Camera Motion Detection -- 4 Camera Motion Compensation -- 4.1 Affine Image Transformation -- 4.2 Distinction Between Panning/Tilting and Jitter -- 4.3 Jitter Compensation -- 4.4 Panning/Tilting Compensation -- 5 Experiments -- 6 Conclusions -- References -- A Unified Camera Calibration from Arbitrary Parallelograms and Parallepipeds -- 1 Introduction -- 2 Preliminaries -- 2.1 Parallelogram Parameterization -- 3 Projections of Parallelograms -- 3.1 Canonic Homography -- 3.2 Measurement Matrix of Homographies -- 4 Parameter Estimation -- 4.1 Rescaling the Measurement Matrix -- 4.2 Factorization -- 4.3 Resolving Affine Ambiguity -- 4.4 Computing Camera Parameters -- 5 Merging Information from Parallelepipeds -- 6 Experimental Results -- 6.1 Simulated Experiment -- 6.2 Real Image Experiment -- 7 Conclusion -- References -- Motion Compensation Based on Robust Global Motion Estimation: Experiments and Applications -- 1 Introduction -- 2 Related Work -- 2.1 Problem Statement -- 2.2 Geometric Feature-Based Methods -- 2.3 Direct Methods -- 3 Proposed Method -- 3.1 Outlines of the Method -- 3.2 Detailed Method -- 3.3 A Hybrid Pyramidal Method Robust to Large Motion -- 3.4 Motion Estimation Robust to Occlusions and Moving Objects -- 4 Experimental Framework and Results -- 4.1 Problem Statement -- 4.2 Experiments -- 4.3 Criteria -- 4.4 Results -- 5 Applications -- 5.1 Stabilisation -- 5.2 Panorama Creation. 5.3 Moving Target Detection and Tracking -- 6 Conclusion and Future Work -- References -- Bayesian Fusion of Back Projected Probabilities (BFBP): Co-occurrence Descriptors for Tracking in Complex Environments -- 1 Introduction -- 2 Related Work -- 3 Probabilistic Color Co-occurrence Modeling -- 4 Bayesian Fusion of Multiple Co-occurrence Back Projections -- 5 Experimental Evaluations -- 6 Conclusion -- References -- Embedded System Implementation for Vehicle Around View Monitoring -- 1 Introduction -- 2 Surrounding Image Construction -- 2.1 Rectification -- 2.2 Bird's-Eye-View Transformation -- 2.3 Image Stitching -- 3 Embedded System Implementation -- 3.1 Hardware System Architecture -- 3.2 Performance Optimization -- 4 Experimental Results -- 4.1 Calibration Result -- 4.2 Result of Bird's-Eye-View Transformation -- 4.3 Obtaining 360 Surrounding View Image -- 4.4 Real-Time Stitching Performance and Precision -- 5 Conclusion -- References -- Motion and Tracking -- Cosine-Sine Modulated Filter Banks for Motion Estimation and Correction -- 1 Introduction -- 2 Cosine-Sine Modulated Filter Bank -- 3 Motion Estimation -- 3.1 The Error Function -- 3.2 Hierarchical Motion Estimation with CSMFB -- 4 Results -- 4.1 Motion Estimation -- 4.2 Motion Correction -- 4.3 Phase Shift Correction -- 4.4 Motion Correction in Magnetic Resonance Imaging -- 5 Conclusions -- Fast and Robust Variational Optical Flow for High-Resolution Images Using SLIC Superpixels -- 1 Introduction -- 2 Existing Work Using (Over)Segmentation -- 3 Existing Superpixel Methods -- 3.1 gSLIC Superpixels -- 3.2 (g)SLIC in Our Proposed Workflow -- 4 Variational Optical Flow on the Superpixel Grid -- 5 Experiments and Results -- 6 Conclusion -- 7 Future Work -- References -- Depth-Based Filtration for Tracking Boost -- 1 Introduction -- 2 Proposed Approach -- 2.1 Pixel Filtration. 2.2 Tracking Stage -- 2.3 Detection Stage -- 2.4 Occlusion Handling -- 2.5 Recenter and Resize -- 2.6 Learning Stage -- 3 Experimental Results -- 3.1 Success Rate -- 3.2 Precision -- 3.3 Efficiency -- 4 Conclusion -- Robust Fusion of Trackers Using Online Drift Prediction -- 1 Introduction -- 2 Related Work -- 3 Our Approach -- 3.1 Drift Predictor -- 3.2 Computation of the Fusion Bounding Box -- 3.3 Object

Model Reinitialization or Update -- 4 Fusion Experiments and Results
 -- 4.1 Video Dataset -- 4.2 Evaluation Protocol -- 4.3 Implementation
 -- 4.4 Results -- 5 Conclusion -- References -- Bootstrapping
 Computer Vision and Sensor Fusion for Absolute and Relative Vehicle
 Positioning -- 1 Introduction -- 2 Fusion Approach -- 3 Visual
 Features -- 4 Improved GPS Method -- 5 Dynamic Map -- References
 -- Detection of Social Groups in Pedestrian Crowds Using Computer
 Vision -- 1 Introduction -- 2 Proposed Methodology -- 3 Bottom up
 Hierarchical Clustering -- 4 Experimental Results -- 5 Conclusions --
 References -- Single Image Visual Obstacle Avoidance for Low Power
 Mobile Sensing -- 1 Introduction -- 2 Navigating Around Obstacles --
 2.1 Relative Focus Maps -- 2.2 Obstacle Avoidance -- 2.3
 Implementation -- 3 Evaluation -- 4 Conclusions and Future Work --
 References -- ROS-Based SLAM for a Gazebo-Simulated Mobile Robot
 in Image-Based 3D Model of Indoor Environment -- 1 Introduction -- 2
 System Setup -- 2.1 Choice of a Robot for Simulation in Gazebo -- 2.2
 PR-2 Robot Description and Simulation -- 2.3 AR-601M Robot
 Description and Simulation -- 3 Camera-Based 3D Model of Indoor
 Environment -- 3.1 Indoor Environment Shooting with Camera -- 3.2
 Image-Based 3D Modeling of Indoor Environment -- 4 ROS-Based
 SLAM Using Gazebo in Image-Based 3D Model of Indoor Environment
 -- 4.1 Robot Simulation in Gazebo -- 4.2 ROS-Based SLAM Simulation
 in Gazebo -- References.
 Security, Forensics and Biometrics.

Sommario/riassunto

This book constitutes the thoroughly refereed proceedings of the 16th International Conference on Advanced Concepts for Intelligent Vision Systems, ACIVS 2015, held Catania, Italy, in October 2015. The 76 revised full papers were carefully selected from 129 submissions. AcivS 2015 is a conference focusing on techniques for building adaptive, intelligent, safe and secure imaging systems. The focus of the conference is on following topic: low-level Image processing, video processing and camera networks, motion and tracking, security, forensics and biometrics, depth and 3D, image quality improvement and assessment, classification and recognition, multidimensional signal processing, multimedia compression, retrieval, and navigation.
