

*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*

Yo-Sung Ho (Ed.)

# Advances in Image and Video Technology

5th Pacific Rim Symposium, PSIVT 2011  
Gwangju, South Korea, November 20-23, 2011  
Proceedings, Part I

Volume Editor

Yo-Sung Ho

Gwangju Institute of Science and Technology (GIST)

1 Oryong-dong Buk-gu, Gwangju, 500-712, South Korea

E-mail: hoyo@gist.ac.kr

ISSN 0302-9743

e-ISSN 1611-3349

ISBN 978-3-642-25366-9

e-ISBN 978-3-642-25367-6

DOI 10.1007/978-3-642-25367-6

Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2011940679

CR Subject Classification (1998): H.5.1, H.5, I.4-5, I.2.10, I.3, H.3-4, E.4

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

© Springer-Verlag Berlin Heidelberg 2011

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](http://www.springer.com))

# Preface

We are delighted to welcome readers to the proceedings of the 5th Pacific-Rim Symposium on Video and Image Technology (PSIVT 2011), held in Gwangju, Korea, during November 20-23, 2011. The first PSIVT was held in Hsinchu, Taiwan, in 2006. Since then, it has been hosted successfully by Santiago, Chile, in 2007, Tokyo, Japan, in 2009, Singapore in 2010, and finally Gwangju, one of the beautiful and democratic cities in Korea. The symposium provides a forum for presenting and discussing the latest research and development in image and video technology and explores possibilities and future directions in the field. PSIVT 2011 continued to attract researchers, artists, developers, educators, performers, and practitioners of image and video technology from the Pacific rim and around the world.

In PSIVT 2011, the Program Committee was made up of Area Chairs and a Technical Program Committee. The technical areas of PSIVT 2011 covered Image/Video Coding and Transmission, Image/Video Processing and Analysis, Imaging and Graphics Hardware and Visualization, Image/Video Retrieval and Scene Understanding, Biomedical Image Processing and Analysis, Biometrics and Image Forensics, and Computer Vision Applications. For each technical area, at least two Area Chairs were assigned to coordinate the paper-review process with their own team of reviewers selected from the Technical Program Committee. The review process was double-blind in which author names and affiliations were not made known to Area Chairs and reviewers. Reviewers also did not know their Area Chairs. Each paper received at least three reviews. The reviewers were asked to submit a detailed review report and the Area Chairs made the final decisions on the acceptance of papers with little moderation from the Program Chairs. In PSIVT 2011, we accepted 71 papers out of 168 submissions including oral and poster session papers. The acceptance rate of 42% indicates our commitment to ensuring a very high-quality symposium.

PSIVT 2011 was organized by the Realistic Broadcasting Research Center (RBRC) at Gwangju Institute of Science and Technology (GIST) in Korea. The symposium was supported by the Center for Information Technology Education (BK21) at GIST, Gwangju Convention and Visitors Bureau, and the MPEG Forum in Korea.

This symposium would not be possible without the efforts of many people. First of all, we are very grateful to all the authors who contributed their high-quality research work and shared their knowledge with our scientific community. We would also like to appreciate the full support of the excellent Program

Committee and all reviewers that provided timely and insightful reviews. Finally, our thanks must go to all members of the Organizing and Steering Committee for their precious time and enthusiasm. They did their best in financing, publicity, publication, registration, Web and local arrangements.

November 2011

Yo-Sung Ho

# PSIVT 2011 Organization

## Organizing Committee

### General Co-chairs

|              |                                                       |
|--------------|-------------------------------------------------------|
| Yo-Sung Ho   | Gwangju Institute of Science and Technology,<br>Korea |
| Wen-Nung Lie | National Chung Cheng University, Taiwan               |
| Domingo Mery | Pontificia Universidad Catolica, Chile                |

### Program Co-chairs

|                 |                                             |
|-----------------|---------------------------------------------|
| Kap Luk Chan    | Nanyang Technological University, Singapore |
| Qingming Huang  | Chinese Academy of Sciences, China          |
| Shin'ichi Satoh | National Institute of Informatics, Japan    |

### Finance Chair

|              |                                                       |
|--------------|-------------------------------------------------------|
| Kuk-Jin Yoon | Gwangju Institute of Science and Technology,<br>Korea |
|--------------|-------------------------------------------------------|

### Publicity Co-chairs

|              |                                                       |
|--------------|-------------------------------------------------------|
| Sung-Hee Lee | Gwangju Institute of Science and Technology,<br>Korea |
| Yousun Kang  | Tokyo Polytechnic University, Japan                   |

### Publication Chair

|               |                                                       |
|---------------|-------------------------------------------------------|
| Sung Chan Jun | Gwangju Institute of Science and Technology,<br>Korea |
|---------------|-------------------------------------------------------|

### Local Arrangements Chair

|            |                                                       |
|------------|-------------------------------------------------------|
| Hyunju Lee | Gwangju Institute of Science and Technology,<br>Korea |
|------------|-------------------------------------------------------|

## Steering Committee

|                  |                                                       |
|------------------|-------------------------------------------------------|
| Kap Luk Chan     | Nanyang Technological University, Singapore           |
| Yung-Chang Chen  | National Tsinghua University, Taiwan                  |
| Yo-Sung Ho       | Gwangju Institute of Science and Technology,<br>Korea |
| Reinhard Klette  | The University of Auckland, New Zealand               |
| Wen-Nung Lie     | National Chung Cheng University, Taiwan               |
| Domingo Mery     | Pontificia Universidad Catolica, Chile                |
| Akihiro Sugimoto | National Institute of Informatics, Japan              |
| Mohan M. Trivedi | University of California, San Diego, USA              |

## Area Chairs

|                    |                                                           |
|--------------------|-----------------------------------------------------------|
| Oscar Au           | Hong Kong University of Science and Technology, Hong Kong |
| Miguel Carrasco    | Universidad Diego Portales, Chile                         |
| Yoong Choon Chang  | Multimedia University, Malaysia                           |
| Anthony TS Ho      | University of Surrey, UK                                  |
| Fay Huang          | National Ilan University, Taiwan                          |
| Shuaqiang Jiang    | Chinese Academy of Sciences, China                        |
| Shang-Hong Lai     | National Tsing Hua University, Taiwan                     |
| Jaejoon Lee        | Samsung Electronics, Korea                                |
| Qingshan Liu       | Rutgers University, USA                                   |
| Chia-Wen Lin       | National Tsing-Hua University, Taiwan                     |
| Huei-Yung Lin      | National Chung Cheng University, Taiwan                   |
| Yasuhiro Mukaigawa | Osaka University, Japan                                   |
| Luis Pizarro       | Imperial College, UK                                      |
| Mingli Song        | Zhejiang University, China                                |
| Yu-Wing Tai        | KAIST, Korea                                              |
| Gang Wang          | Nanyang Technological University, Singapore               |
| Lei Wang           | University of Wollongong, Australia                       |
| Changsheng Xu      | Chinese Academy of Sciences, China                        |
| Shuicheng Yan      | National University of Singapore, Singapore               |
| Junsong Yuan       | Nanyang Technological University, Singapore               |
| Jianxin Wu         | Nanyang Technological University, Singapore               |
| Vitali Zagorodnov  | Nanyang Technological University, Singapore               |

## Technical Program Committee

|                      |                             |
|----------------------|-----------------------------|
| Hezerul Abdul Karim  | Michael Cree                |
| Toshiyuki Amano      | Ismael Daribo               |
| Yasuo Ariki          | Xiaoyu Deng                 |
| Vishnu Monn Baskaran | Lei Ding                    |
| Bedrich Benes        | Zhao Dong                   |
| Xiujuan Chai         | Gianfranco Doretto          |
| Yoong Choon Chang    | How-Lung Eng                |
| Chin-Chen Chang      | Giovani Gomez               |
| Chia-Yen Chen        | Gerardo Fernández-Escribano |
| Yi-Ling Chen         | Chiou-Shann Fuh             |
| Chu-Song Chen        | Makoto Fujimura             |
| Jia Chen             | Hironobu Fujyoshi           |
| Hwann-Tzong Chen     | Kazuhiro Fukui              |
| Jian Cheng           | Simon Hermann               |
| Gene Cheung          | Yo-Sung Ho                  |
| Chen-Kuo Chiang      | Seiji Hotta                 |
| Sunghyun Cho         | Jun-Wei Hsieh               |

Changbo Hu  
Xiaoqin Huang  
Rui Huang  
Junzhou Huang  
Chun-Rong Huang  
Naoyuki Ichimura  
Masahiro Iwahashi  
Daisuke Iwai  
Yoshio Iwai  
Gangyi Jiang  
Xin Jin  
Ramakrishna Kakarala  
Masayuki Kanbara  
Li-Wei Kang  
Hiroshi Kawasaki  
Chang-Su Kim  
Itaru Kitahara  
Mario Koeppen  
Akira Kubota  
Takio Kurita  
Shang-Hong Lai  
Tung-Ying Lee  
Wen-Nung Lie  
Chia-Wen Lin  
Guo-Shiang Lin  
Xiao Liu  
Damon Shing-Min Liu  
Huiying Liu  
Jonathan Loo  
Yasushi Makihara  
Takeshi Masuda  
Fabrice Meriadeau  
Rodrigo Moreno  
Hajime Nagahara  
Atsushi Nakazawa  
Kai Ni  
Shohei Nobuhara  
Takeshi Oishi

Takahiro Okabe  
Ho-Yuen Pang  
Christian Pieringer  
Lei Qin  
Bo Qiu  
Mauricio Reyes  
Laurent Risser  
Isaac Rudomin  
Clarisa Sanchez  
Tomokazu Sato  
Takeshi Shakunaga  
Shiguang Shan  
Xiaowei Shao  
Chunhua Shen  
Ikuko Shimizu  
Keita Takahashi  
Toru Tamaki  
Ping Tan  
Masayuki Tanaka  
Flavio Torres  
Chien-Cheng Tseng  
Seiichi Uchida  
Carlos Vazquez  
Yu-Chiang Wang  
Jingqiao Wang  
Min-Liang Wang  
Hsien-Huang Wu  
Ming Yang  
Chia-Hung Yeh  
Kaori Yoshida  
Guangtao Zhai  
Daoqiang Zhang  
Qi Zhao  
Yuanjie Zheng  
Bo Zheng  
Huiyu Zhou  
Shaohua Zhou

## Sponsoring Institutions

The Realistic Broadcasting Research Center (RBRC) at GIST  
The Center for Information Technology Education (BK21) at GIST  
Gwangju Convention and Visitors Bureau  
The MPEG Forum in Korea

# Table of Contents – Part I

|                                                                                                                                   |     |
|-----------------------------------------------------------------------------------------------------------------------------------|-----|
| Nonlinear Transfer Function-Based Image Detail Preserving Dynamic Range Compression for Color Image Enhancement .....             | 1   |
| <i>Deepak Ghimire and Joonwhoan Lee</i>                                                                                           |     |
| 3D Perception Adjustment of Stereoscopic Images Based upon Depth Map.....                                                         | 13  |
| <i>Jong In Gil, Seung Eun Jang, and Manbae Kim</i>                                                                                |     |
| Super-Resolved Free-Viewpoint Image Synthesis Using Semi-global Depth Estimation and Depth-Reliability-Based Regularization ..... | 22  |
| <i>Keita Takahashi and Takeshi Naemura</i>                                                                                        |     |
| Heat Kernel Smoothing via Laplace-Beltrami Eigenfunctions and Its Application to Subcortical Structure Modeling.....              | 36  |
| <i>Seung-Goo Kim, Moo K. Chung, Seongho Seo, Stacey M. Schaefer, Carien M. van Reekum, and Richard J. Davidson</i>                |     |
| SLAM and Navigation in Indoor Environments .....                                                                                  | 48  |
| <i>Shang-Yen Lin and Yung-Chang Chen</i>                                                                                          |     |
| Color Based Stool Region Detection in Colonoscopy Videos for Quality Measurements .....                                           | 61  |
| <i>Jayantha Muthukudage, JungHwan Oh, Wallapak Tavanapong, Johnny Wong, and Piet C. de Groen</i>                                  |     |
| Improving Motion Estimation Using Image-Driven Functions and Hybrid Scheme .....                                                  | 73  |
| <i>Duc Dung Nguyen and Jae Wook Jeon</i>                                                                                          |     |
| Real-Time Background Compensation for PTZ Cameras Using GPU Accelerated and Range-Limited Genetic Algorithm Search .....          | 85  |
| <i>Thuy Tuong Nguyen and Jae Wook Jeon</i>                                                                                        |     |
| Audio-Visual Speech Recognition Based on AAM Parameter and Phoneme Analysis of Visual Feature .....                               | 97  |
| <i>Yuto Komai, Yasuo Arikai, and Tetsuya Takiguchi</i>                                                                            |     |
| Multi-scale Integration of Slope Data on an Irregular Mesh .....                                                                  | 109 |
| <i>Rafael F.V. Saracchini, Jorge Stolfi, Helena C.G. Leitão, Gary Atkinson, and Melvyn L. Smith</i>                               |     |
| Virtual Viewpoint Disparity Estimation and Convergence Check for Real-Time View Synthesis.....                                    | 121 |
| <i>In-Yong Shin and Yo-Sung Ho</i>                                                                                                |     |

|                                                                                                                                  |     |
|----------------------------------------------------------------------------------------------------------------------------------|-----|
| Spatial Feature Interdependence Matrix (SFIM): A Robust Descriptor<br>for Face Recognition .....                                 | 132 |
| <i>Anbang Yao and Shan Yu</i>                                                                                                    |     |
| Coding of Dynamic 3D Mesh Model for 3D Video Transmission .....                                                                  | 144 |
| <i>Jui-Chiu Chiang, Chun-Hung Chen, and Wen-Nung Lie</i>                                                                         |     |
| Ray Divergence-Based Bundle Adjustment Conditioning for Multi-view<br>Stereo .....                                               | 153 |
| <i>Mauricio Hess-Flores, Daniel Knoblauch, Mark A. Duchaineau,<br/>Kenneth I. Joy, and Falko Kuester</i>                         |     |
| Temporally Consistent Disparity and Optical Flow via Efficient<br>Spatio-temporal Filtering .....                                | 165 |
| <i>Asmaa Hosni, Christoph Rhemann, Michael Bleyer, and<br/>Margrit Gelautz</i>                                                   |     |
| Specular-Free Residual Minimization for Photometric Stereo with<br>Unknown Light Sources .....                                   | 178 |
| <i>Tsuyoshi Migita, Kazuhiro Sogawa, and Takeshi Shakunaga</i>                                                                   |     |
| Analysing False Positives and 3D Structure to Create Intelligent<br>Thresholding and Weighting Functions for SIFT Features ..... | 190 |
| <i>Michael May, Martin Turner, and Tim Morris</i>                                                                                |     |
| Verging Axis Stereophotogrammetry .....                                                                                          | 202 |
| <i>Khurram Jawed and John Morris</i>                                                                                             |     |
| More on Weak Feature: Self-correlate Histogram Distances .....                                                                   | 214 |
| <i>Sheng Wang, Qiang Wu, Xiangjian He, and Wenjing Jia</i>                                                                       |     |
| Mid-level Segmentation and Segment Tracking for Long-Range Stereo<br>Analysis .....                                              | 224 |
| <i>Simon Hermann, Anko Börner, and Reinhard Klette</i>                                                                           |     |
| Applications of Epsilon Radial Networks in Neuroimage Analyses .....                                                             | 236 |
| <i>Nagesh Adluru, Moo K. Chung, Nicholas T. Lange,<br/>Janet E. Lainhart, and Andrew L. Alexander</i>                            |     |
| Road Image Segmentation and Recognition Using Hierarchical<br>Bag-of-Textons Method .....                                        | 248 |
| <i>Yousun Kang, Koichiro Yamaguchi, Takashi Naito, and<br/>Yoshiki Ninomiya</i>                                                  |     |
| On the Security of a Hybrid SVD-DCT Watermarking Method Based<br>on LPSNR .....                                                  | 257 |
| <i>Huo-Chong Ling, Raphael C.-W. Phan, and Swee-Huay Heng</i>                                                                    |     |

|                                                                                                                                 |            |
|---------------------------------------------------------------------------------------------------------------------------------|------------|
| Improved Entropy Coder in H.264/AVC for Lossless Residual Coding<br>in the Spatial Domain . . . . .                             | 267        |
| <i>Jin Heo and Yo-Sung Ho</i>                                                                                                   |            |
| Attention Prediction in Egocentric Video Using Motion and Visual<br>Saliency . . . . .                                          | 277        |
| <i>Kentaro Yamada, Yusuke Sugano, Takahiro Okabe, Yoichi Sato,<br/>Akihiro Sugimoto, and Kazuo Hiraki</i>                       |            |
| FAW for Multi-exposure Fusion Features . . . . .                                                                                | 289        |
| <i>Michael May, Martin Turner, and Tim Morris</i>                                                                               |            |
| Efficient Stereo Image Rectification Method Using Horizontal<br>Baseline . . . . .                                              | 301        |
| <i>Yun-Suk Kang and Yo-Sung Ho</i>                                                                                              |            |
| Real-Time Image Mosaicing Using Non-rigid Registration . . . . .                                                                | 311        |
| <i>Rafael Henrique Castanheira de Souza, Masatoshi Okutomi, and<br/>Akihiko Torii</i>                                           |            |
| Adaptive Guided Image Filtering for Sharpness Enhancement and<br>Noise Reduction . . . . .                                      | 323        |
| <i>Cuong Cao Pham, Synh Viet Uyen Ha, and Jae Wook Jeon</i>                                                                     |            |
| Half-Sweep Imaging for Depth from Defocus . . . . .                                                                             | 335        |
| <i>Shuhei Matsui, Hajime Nagahara, and Rin-ichiro Taniguchi</i>                                                                 |            |
| A Hierarchical Approach to Practical Beverage Package Recognition . . .                                                         | 348        |
| <i>Mei-Chen Yeh and Jason Tai</i>                                                                                               |            |
| An Equivalent 3D Otsu's Thresholding Method . . . . .                                                                           | 358        |
| <i>Puthipong Sthitpattanapongsa and Thitiwan Srinark</i>                                                                        |            |
| Human Motion Tracking with Monocular Video by Introducing a<br>Graph Structure into Gaussian Process Dynamical Models . . . . . | 370        |
| <i>Jianfeng Xu, Koichi Takagi, and Shigeyuki Sakazawa</i>                                                                       |            |
| Depth Map Up-Sampling Using Random Walk . . . . .                                                                               | 384        |
| <i>Gyo-Yoon Lee and Yo-Sung Ho</i>                                                                                              |            |
| Evaluation of a New Coarse-to-Fine Strategy for Fast Semi-Global<br>Stereo Matching . . . . .                                   | 395        |
| <i>Simon Hermann and Reinhard Klette</i>                                                                                        |            |
| Theoretical Analysis of Multi-view Camera Arrangement and<br>Light-Field Super-Resolution . . . . .                             | 407        |
| <i>Ryo Nakashima, Keita Takahashi, and Takeshi Naemura</i>                                                                      |            |
| <b>Author Index . . . . .</b>                                                                                                   | <b>421</b> |

## Table of Contents – Part II

|                                                                                                          |     |
|----------------------------------------------------------------------------------------------------------|-----|
| Lossless Image Coding Based on Inter-color Prediction for Ultra High Definition Image .....              | 1   |
| <i>Jiho Park, Je-Woo Kim, Jechang Jeong, and Byeongho Choi</i>                                           |     |
| Multithreading Architecture for Real-Time MPEG-4 AVC/H.264 SVC Decoder .....                             | 13  |
| <i>Yong-Hwan Kim, Jiho Park, and Je-Woo Kim</i>                                                          |     |
| Fast Mode Decision Algorithm for Depth Coding in 3D Video Systems Using H.264/AVC .....                  | 25  |
| <i>Da-Hyun Yoon and Yo-Sung Ho</i>                                                                       |     |
| Improved Diffusion Basis Functions Fitting and Metric Distance for Brain Axon Fiber Estimation .....     | 36  |
| <i>Ramón Aranda, Mariano Rivera, and Alonso Ramírez-Manzanares</i>                                       |     |
| An Adaptive Motion Data Storage Reduction Method for Temporal Predictor .....                            | 48  |
| <i>Ruobing Zou, Oscar C. Au, Lin Sun, Sijin Li, and Wei Dai</i>                                          |     |
| A Local Variance-Based Bilateral Filtering for Artifact-Free Detail- and Edge-Preserving Smoothing ..... | 60  |
| <i>Cuong Cao Pham, Synh Viet Uyen Ha, and Jae Wook Jeon</i>                                              |     |
| Iterative Gradient-Driven Patch-Based Inpainting .....                                                   | 71  |
| <i>Sarawat Tae-o-sot and Akinori Nishihara</i>                                                           |     |
| Feature Extraction Based on Co-occurrence of Adjacent Local Binary Patterns .....                        | 82  |
| <i>Ryusuke Nosaka, Yasuhiro Ohkawa, and Kazuhiro Fukui</i>                                               |     |
| Natural Image Composition with Inhomogeneous Boundaries .....                                            | 92  |
| <i>Dong Wang, Weijia Jia, Guiqing Li, and Yunhui Xiong</i>                                               |     |
| Directional Eigentemplate Learning for Sparse Template Tracker .....                                     | 104 |
| <i>Hiroiyuki Seto, Tomoyuki Taguchi, and Takeshi Shakunaga</i>                                           |     |
| Gender Identification Using Feature Patch-Based Bayesian Classifier .....                                | 116 |
| <i>Shen-Ju Lin, Chung-Lin Huang, and Shih-Chung Hsu</i>                                                  |     |
| Multiple Objects Tracking across Multiple Non-overlapped Views .....                                     | 128 |
| <i>Ke-Yin Chen, Chung-Lin Huang, Shih-Chung Hsu, and I-Cheng Chang</i>                                   |     |

|                                                                                                                  |     |
|------------------------------------------------------------------------------------------------------------------|-----|
| Fast Hypercomplex Polar Fourier Analysis for Image Processing . . . . .                                          | 141 |
| <i>Zhuo Yang and Sei-ichiro Kamata</i>                                                                           |     |
| Colorization by Landmark Pixels Extraction. . . . .                                                              | 149 |
| <i>Weiwei Du, Shiya Mori, and Nobuyuki Nakamori</i>                                                              |     |
| Filtering-Based Noise Estimation for Denoising the Image Degraded by<br>Gaussian Noise . . . . .                 | 157 |
| <i>Tuan-Anh Nguyen and Min-Cheol Hong</i>                                                                        |     |
| Combining Mendonça-Cipolla Self-calibration and Scene Constraints . . .                                          | 168 |
| <i>Adlane Habel, Tarik Elamsy, and Boubakeur Boufama</i>                                                         |     |
| A Key Derivation Scheme for Hierarchical Access Control to JPEG<br>2000 Coded Images . . . . .                   | 180 |
| <i>Shoko Imaizumi, Masaaki Fujiyoshi, Hitoshi Kiya,<br/>Naokazu Aoki, and Hiroyuki Kobayashi</i>                 |     |
| Bifocal Matching Using Multiple Geometrical Solutions . . . . .                                                  | 192 |
| <i>Miguel Carrasco and Domingo Mery</i>                                                                          |     |
| Digital Hologram Compression Using Correlation of Reconstructed<br>Object Images . . . . .                       | 204 |
| <i>Jae-Young Sim</i>                                                                                             |     |
| Pedestrian Image Segmentation via Shape-Prior Constrained Random<br>Walks . . . . .                              | 215 |
| <i>Ke-Chun Li, Hong-Ren Su, and Shang-Hong Lai</i>                                                               |     |
| A Novel Rate Control Algorithm for H.264/AVC Based on Human<br>Visual System . . . . .                           | 227 |
| <i>Jiangying Zhu, Mei Yu, Qiaoyan Zheng, Zongju Peng, Feng Shao,<br/>Fucui Li, and Gangyi Jiang</i>              |     |
| Blind Image Deblurring with Modified Richardson-Lucy Deconvolution<br>for Ringing Artifact Suppression . . . . . | 240 |
| <i>Hao-Liang Yang, Yen-Hao Chiao, Po-Hao Huang, and<br/>Shang-Hong Lai</i>                                       |     |
| Quality Estimation for H.264/SVC Inter-layer Residual Prediction in<br>Spatial Scalability . . . . .             | 252 |
| <i>Ren-Jie Wang, Yan-Ting Jiang, Jiunn-Tsair Fang, and<br/>Pao-Chi Chang</i>                                     |     |
| Extracting Interval Distribution of Human Interactions . . . . .                                                 | 262 |
| <i>Ryohei Kimura, Noriko Takemura, Yoshio Iwai, and Kosuke Sato</i>                                              |     |

|                                                                                                             |            |
|-------------------------------------------------------------------------------------------------------------|------------|
| A Flexible Method for Localisation and Classification of Footprints of Small Species . . . . .              | 274        |
| <i>Haokun Geng, James Russell, Bok-Suk Shin, Radu Nicolescu, and Reinhard Klette</i>                        |            |
| Learning and Regularizing Motion Models for Enhancing Particle Filter-Based Target Tracking . . . . .       | 287        |
| <i>Francisco Madrigal, Mariano Rivera, and Jean-Bernard Hayet</i>                                           |            |
| CT-MR Image Registration in 3D K-Space Based on Fourier Moment Matching . . . . .                           | 299        |
| <i>Hong-Ren Su and Shang-Hong Lai</i>                                                                       |            |
| Sparse Temporal Representations for Facial Expression Recognition . . . .                                   | 311        |
| <i>S.W. Chew, R. Rana, P. Lucey, S. Lucey, and S. Sridharan</i>                                             |            |
| Dynamic Compression of Curve-Based Point Cloud . . . . .                                                    | 323        |
| <i>Ismael Daribo, Ryo Furukawa, Ryusuke Sagawa, Hiroshi Kawasaki, Shinsaku Hiura, and Naoki Asada</i>       |            |
| Recovering Depth Map from Video with Moving Objects . . . . .                                               | 335        |
| <i>Hsiao-Wei Chen and Shang-Hong Lai</i>                                                                    |            |
| An Iterative Algorithm for Efficient Adaptive GOP Size in Transform Domain Wyner-Ziv Video Coding . . . . . | 347        |
| <i>Khanh DinhQuoc, Xiem HoangVan, and Byeungwoo Jeon</i>                                                    |            |
| A Robust Zero-Watermark Copyright Protection Scheme Based on DWT and Image Normalization . . . . .          | 359        |
| <i>Mahsa Shakeri and Mansour Jamzad</i>                                                                     |            |
| Multi-view Video Coding Based on High Efficiency Video Coding . . . . .                                     | 371        |
| <i>Kwan-Jung Oh, Jaejoon Lee, and Du-Sik Park</i>                                                           |            |
| 2D to 3D Image Conversion Based on Classification of Background Depth Profiles . . . . .                    | 381        |
| <i>Guo-Shiang Lin, Han-Wen Liu, Wei-Chih Chen, Wen-Nung Lie, and Sheng-Yen Huang</i>                        |            |
| Shape Matching and Recognition Using Group-Wised Points . . . . .                                           | 393        |
| <i>Junwei Wang, Yu Zhou, Xiang Bai, and Wenyu Liu</i>                                                       |            |
| <b>Author Index . . . . .</b>                                                                               | <b>405</b> |