

PROCEEDINGS OF SPIE

Sixth International Conference on Graphic and Image Processing (ICGIP 2014)

**Yulin Wang
Xudong Jiang
David Zhang**
Editors

**24–26 October 2014
Beijing, China**

Organized by
IACSIT—International Association of Computer Science and Information Technology

Sponsored by
Wuhan University (China)
IACSIT—International Association of Computer Science and Information Technology

Published by
SPIE

Volume 9443

Proceedings of SPIE 0277-786X, V.9443

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Sixth International Conference on Graphic and Image Processing (ICGIP 2014),
edited by Yulin Wang, Xudong Jiang, David Zhang, Proc. of SPIE Vol. 9443, 944301
© 2015 SPIE · CCC code: 0277-786X/15/\$18 · doi: 10.1117/12.2190588

Proc. of SPIE Vol. 9443 944301-1

The papers included in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. The papers published in these proceedings reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from this book:

Author(s), "Title of Paper," in *Sixth International Conference on Graphic and Image Processing (ICGIP 2014)*, edited by Yulin Wang, Xudong Jiang, David Zhang, Proceedings of SPIE Vol. 9443 (SPIE, Bellingham, WA, 2015) Article CID Number.

ISSN: 0277-786X

ISBN: 9781628415582

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

SPIE.org

Copyright © 2015, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 0277-786X/15/\$18.00.

Printed in the United States of America.

Publication of record for individual papers is online in the SPIE Digital Library.



SPIDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print and on CD-ROM. Papers are published as they are submitted and meet publication criteria. A unique, consistent, permanent citation identifier (CID) number is assigned to each article at the time of the first publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online, print, and electronic versions of the publication. SPIE uses a six-digit CID article numbering system in which:

- The first four digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc.

The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages. Numbers in the index correspond to the last two digits of the six-digit CID Number.

Contents

ix	<i>Authors</i>
xiii	<i>Conference Committee</i>
xv	<i>Introduction</i>

SESSION 1 FACE RECOGNITION

9443 02	Two-dimensional discriminant neighborhood preserving embedding in face recognition [9443-7]
9443 03	A review of recent advances in 3D face recognition [9443-16]
9443 04	Supervised descent method with low rank and sparsity constraints for robust face alignment [9443-27]
9443 05	Hardware-software face detection system based on multi-block local binary patterns [9443-28]
9443 06	Particle swarm optimization-based articulated human pose tracking using enhanced silhouette extraction [9443-46]
9443 07	Gestalt interest points for image description in weight-invariant face recognition [9443-52]
9443 08	Combining appearance and geometric features for facial expression recognition [9443-56]
9443 09	Toward retail product recognition on grocery shelves [9443-72]
9443 0A	An integrated modeling approach to age invariant face recognition [9443-121]
9443 0B	Online Farsi digit recognition using their upper half structure [9443-67]

SESSION 2 FEATURE DETECTION AND TARGET TRACKING

9443 0C	Fast ellipse detection by elliptical arcs extracting and grouping [9443-1]
9443 0D	Stereo vision-based pedestrian detection using dense disparity map-based detection and segmentation [9443-2]
9443 0E	Multi-lane detection based on multiple vanishing points detection [9443-15]
9443 0F	Edge detection and reduction of brightness of students' bubble form images [9443-40]
9443 0G	Detection and recognition of uneaten fish food pellets in aquaculture using image processing [9443-75]

- 9443 OH **Improved video copy detection algorithm based on multi-scale Harris feature points** [9443-76]
- 9443 OI **Detecting moving objects under a moving camera in complex environments** [9443-79]
- 9443 OJ **Abnormal behaviors detection using particle motion model** [9443-101]
- 9443 OK **A novel hybrid motion detection algorithm based on 2D histogram** [9443-132]
- 9443 OL **Infrared small target detection based on visual attention** [9443-150]
- 9443 OM **Saliency region and density maximization for salient object detection** [9443-155]
- 9443 ON **A framework for small infrared target real-time visual enhancement** [9443-31]
- 9443 OO **An approach for tissue density classification in mammographic images using artificial neural network based on wavelet and curvelet transforms** [9443-38]
- 9443 OP **An adaptive interval generation method for efficient distance coding of binary images** [9443-45]
- 9443 OQ **Research on target tracking in coal mine based on optical flow method** [9443-47]
- 9443 OR **Adaptive object tracking via both positive and negative models matching** [9443-86]
- 9443 OS **Missile placement analysis based on improved SURF feature matching algorithm** [9443-109]
- 9443 OT **A modified dual-band ratio temperature measurement method for remote target using temperature change information** [9443-19]
- 9443 OU **A vision framework for the localization of soccer players and ball on the pitch using Handycams** [9443-29]
- 9443 OV **Combined block-matching and adaptive differential motion estimation in a hierarchical multi-scale framework** [9443-83]
- 9443 OW **Vehicle tracking process based on combination of SURF and color feature** [9443-43]

SESSION 3 IMAGE PROCESSING

- 9443 OX **Image denoising using ridgelet shrinkage** [9443-4]
- 9443 OY **Sparse principle component analysis for single image super-resolution** [9443-18]
- 9443 OZ **Image quality assessment using Takagi-Sugeno-Kang fuzzy model** [9443-22]
- 9443 10 **A novel SAR fusion image segmentation method based on triplet Markov field** [9443-24]
- 9443 11 **An approach to the segmentation of multi-page document flow using binary classification** [9443-25]

- 9443 12 **Local homogeneity combined with DCT statistics to blind noisy image quality assessment** [9443-26]
- 9443 13 **KM_GrabCut: a fast interactive image segmentation algorithm** [9443-50]
- 9443 14 **Estimation of variance of sea surfaces slopes through the variance of the glitter patterns' images** [9443-55]
- 9443 15 **Effective and fully automatic image segmentation using quantum entropy and pulse-coupled neural networks** [9443-64]
- 9443 16 **Sparse representation using multiple dictionaries for single image super-resolution** [9443-65]
- 9443 17 **An image denoising algorithm based on clustering and median filtering** [9443-68]
- 9443 18 **Block-matching 3D transform-based multi-focus image fusion** [9443-17]
- 9443 19 **A combined image steganographic method using multi-way pixel-value differencing** [9443-69]
- 9443 1A **Multi-modal image fusion based on ROI and Laplacian Pyramid** [9443-119]
- 9443 1B **Image fusion based on fractional Fourier domain phase and amplitude** [9443-122]
- 9443 1C **A multi-scale fusion-based dark channel prior dehazing algorithm** [9443-131]
- 9443 1D **An optimizing processing approach to contrast correction based on nonlinear mapping of windowed tone** [9443-61]

SESSION 4 IMAGE ANALYSIS AND INFORMATION ENCRYPTION

- 9443 1E **Image haze removal algorithm for transmission lines based on weighted Gaussian PDF** [9443-125]
- 9443 1F **An improved Bayesian matting method based on image statistic characteristics** [9443-102]
- 9443 1G **Genetic algorithm for bundle adjustment in aerial panoramic stitching** [9443-41]
- 9443 1H **A new SVD-based fragile image watermarking by using genetic algorithm** [9443-53]
- 9443 1I **Dominant color correlogram descriptor for content-based image retrieval** [9443-54]
- 9443 1J **Weakly supervised glasses removal** [9443-33]
- 9443 1K **Satellite image scene classification using spatial information** [9443-11]
- 9443 1L **A comparative study on manifold learning of hyperspectral data for land cover classification** [9443-34]
- 9443 1M **A comparison of image inpainting techniques** [9443-36]

- 9443 1N **Example-based automatic generation of image filters and classifiers based on image-value pairs** [9443-49]
- 9443 1O **Learning self-adaptive color harmony model for aesthetic quality classification** [9443-95]
- 9443 1P **Image registration on fractional Fourier transform domain** [9443-134]
- 9443 1Q **A novel data hiding scheme for block truncation coding compressed images using dynamic programming strategy** [9443-135]
- 9443 1R **Artificial frame filling using adaptive neural fuzzy inference system for particle image velocimetry dataset** [9443-136]
- 9443 1S **Cropping and noise resilient steganography algorithm using secret image sharing** [9443-142]
- 9443 1T **A robust method for estimating motorbike count based on visual information learning** [9443-165]
- 9443 1U **Variational optical flow estimation for images with spectral and photometric sensor diversity** [9443-169]
- 9443 1V **Top-down vertical itemset mining** [9443-80]
- 9443 1W **Concave points for separating touching particles** [9443-161]

SESSION 5 MODELING AND VISUALIZATION

- 9443 1X **An efficient framework for modeling clouds from Landsat8 images** [9443-117]
- 9443 1Y **Heuristic-driven graph wavelet modeling of complex terrain** [9443-73]
- 9443 1Z **Modeling synthetic radar image from a digital terrain model** [9443-3]
- 9443 20 **Gaze estimation using a hybrid appearance and motion descriptor** [9443-37]
- 9443 21 **Anaglyph videoanimations from oblique stereoimages** [9443-48]
- 9443 22 **3D reconstruction and visualization of plant leaves** [9443-77]
- 9443 23 **Attitude measurement by using target Schlieren graph and 3D digital model in wind tunnel** [9443-85]
- 9443 24 **Design of 3D simulation engine for oilfield safety training** [9443-96]
- 9443 25 **Reconstruction of indoor scene from a single image** [9443-110]
- 9443 26 **Improved stereo matching applied to digitization of greenhouse plants** [9443-100]

SESSION 6 VIDEO ANALYSIS AND PROCESSING

- 9443 27 **An experimental evaluation of some background subtraction algorithms under a variety of video surveillance challenges** [9443-88]
- 9443 28 **Low complexity data duplication with selective slice dropping for reliable video communication** [9443-42]
- 9443 29 **Video object segmentation via adaptive threshold based on background model diversity** [9443-84]
- 9443 2A **Fast video super-resolution via sparse coding** [9443-114]
- 9443 2B **Real-time video analysis for retail stores** [9443-159]
- 9443 2C **A robust mean-shift tracking through occlusion and scale based on object trajectory for surveillance camera** [9443-103]
- 9443 2D **The application of autostereoscopic display in smart home system based on mobile devices** [9443-143]

SESSION 7 MEDICAL SIGNAL PROCESSING

- 9443 2E **Centerline-based vessel segmentation using graph cuts** [9443-57]
- 9443 2F **A statistical description of 3D lung texture from CT data** [9443-120]
- 9443 2G **Prediction of healthy blood with data mining classification by using Decision Tree, Naive Bayesian and SVM approaches** [9443-151]
- 9443 2H **Assessment of an ICA-based noise reduction method for multi-channel auditory evoked potentials** [9443-152]
- 9443 2I **Compensatory neurofuzzy model for discrete data classification in biomedical** [9443-156]
- 9443 2J **Pupil segmentation using active contour with shape prior** [9443-166]
- 9443 2K **A new algorithm for segmentation of cardiac quiescent phases and cardiac time intervals using seismocardiography** [9443-105]
- 9443 2L **SA-SVM based automated diagnostic system for skin cancer** [9443-62]

SESSION 8 SIGNAL PROCESSING

- 9443 2M **A self-adaptive anti-vibration pipeline-filtering algorithm** [9443-23]
- 9443 2N **Sensor signals monitoring and control using wavelets transform representation algorithm** [9443-35]

- 9443 2O **Groupwise surface correspondence using particle filtering** [9443-71]
- 9443 2P **Using neural networks in remote sensing monitoring of exogenous processes** [9443-44]
- 9443 2Q **Barcode localization with region-based gradient statistical analysis** [9443-6]
- 9443 2R **An artificial target location method for Curiosity rover** [9443-14]
- 9443 2S **Target confirmation and relocation using the correlation filter in mean shift tracking** [9443-98]
- 9443 2T **A novel color filter array and demosaicking algorithm for hexagonal grids** [9443-149]

SESSION 9 INFORMATION SYSTEMS AND IMAGE PROCESSING APPLICATIONS

- 9443 2U **Privacy protection in surveillance systems based on JPEG DCT baseline compression and spectral domain watermarking** [9443-20]
- 9443 2V **Intelligent elevator management system using image processing** [9443-90]
- 9443 2W **Fast color image matting by online active contour model** [9443-70]
- 9443 2X **Image authentication via sparsity-based phase-shifting digital holography** [9443-5]
- 9443 2Y **The optimization algorithm based knot and control point automatic adjustment** [9443-10]
- 9443 2Z **Towards relative gradient and its applications** [9443-124]
- 9443 30 **A color constancy model with minimum brightness variance assumption** [9443-145]
- 9443 31 **Robust interest points matching based on local description and spatial constraints** [9443-153]
- 9443 32 **A new improved local Chan-Vese model** [9443-154]
- 9443 33 **Visible-spectrum remote eye tracker for gaze communication** [9443-164]
- 9443 34 **Crystallization mosaic effect generation by superpixels** [9443-168]
- 9443 35 **The development of automated behavior analysis software** [9443-170]
- 9443 36 **Learning historical heritage with a serious game: a user study of Heerlen Roman bathhouse** [9443-39]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Acasandrei, Laurentiu, 05
Agin, Onur, 11
Ahat, Mehmet, 11
Akdemir, Bayram, 1R
Aksoy, Muharrem Hilmi, 1R
Al-Jumaily, Adel, 2L
Álvarez-Borrego, Josué, 14
Alvi, Fahad Bashir, 0A
Aslantas, Veysel, 1H
Awang Rambli, Dayang Rohaya Bt, 06
B Tomi, Azfar, 06
B Zakaria, M Nordin, 06
Bahroun, Sahbi, 31
Bai, Xiangzhi, 23
Barraza, Juan Manuel, 1W
Barriga, Angel, 05
Bekar, Can, 11
Bell, Steven, 2H
Bengtsson, Tomas, 1U
Benlefki, Tarek, 27, 29
Benois, Jenny, 11
Bhurchandi, K. M., 0X
Bilgin, Gokhan, 1L
Bo, Pengbo, 34
Boubekour, Mohamed Bachir, 27, 29, 2C
Brüggemann, Matthias, 0V
Buttler, Alexandre, 1Y
Canli, Eyüp, 1R
Cardoso, P. J. S., 0U
Ceylan, Murat, 0O
Ceylan, Rahime, 2I
Chaisaowong, Kraisor, 2F
Chang, Ching-Chun, 1Q
Chang, Hongxing, 2S
Chaves, Deisy, 1W
Chen, Enqing, 1P
Chen, Hao, 0L, 1A, 2A
Chen, Heping, 12
Chen, Li, 12
Chen, Wen, 2X
Chen, Xudong, 2X
Chen, Yutao, 0J
Chen, Zhiyuan, 2Q
Cheng, Feiyang, 0J, 0L
Cheng, Lei, 23
Cheng, Yuanzhi, 2E
Chiang, Yu-Min, 16
Cioacă, Teodor, 1Y
Dai, Bin, 0E
Dellepiane, Silvana, 2G
Deng, Jiankang, 04
Dlay, Satnam S., 2J
Dobashi, Yoshinori, 1N
Doğan, Sercan, 1R
Dogru, Mevlut, 1H
Doi, Munehiro, 1N
Dong, Jiaquan, 2A
Đorđević, Dragana, 0Z
Du, Songlin, 15
Du, Ying, 2R
Dumitrescu, Bogdan, 1Y
Durand, Philippe, 1Z
Eidenberger, Horst, 07
Erdler, Oliver, 0V
Espejel-Trujillo, Angelina, 1S
Fairhurst, Gorry, 28
Fierro-Radilla, Atoany, 1I, 1S
Fröhlich, Alexander, 2T
Gao, Chao, 0R
Gao, Ming, 1D
Gao, Xiong, 1A
Geng, Shuze, 03
Gharbi, Hana, 31
Ghods, Vahid, 0B, 1V
Ghorbanzadeh, Dariush, 1Z
Golay, François, 1Y
Gong, Xiran, 0S
Gu, Xiaomeng, 22, 26
Guo, Jing, 1X
Guo, Xin, 1P
Hamamoto, Kazuhiko, 1T
Hänninen, Pekka, 2K
Hasebe, Naoya, 30
Hassan, Ehtesham, 2B
He, Xin, 0M
Hironaga, Mikiya, 30
Hörhan, Markus, 07
Horie, Yusuke, 33
Hosogoe, Kumiko, 35
Hou, Yan Yan, 0H
Hou, Yingkun, 18
Hu, Bin, 04
Hu, Xin, 2E
Huang, Hsiao-Shan, 19
Huang, Lei, 20
Huang, Qian, 1B

Huynh, Kien C., 1T
 İlkin, Sümeyya, 0F
 Imabuchi, Takashi, 33, 35
 Ishikawa, Seiji, 2O
 Ito, Hisayoshi, 33, 35
 Jaana, Yuki, 35
 Jafari Tadi, Mojtaba, 2K
 Jaupi, Luan, 1Z
 Jia, Xingyue, 2Y
 Jiang, Jifeng, 02
 Jiao, Shuhong, 1O
 Jing, Huiyun, 0M
 Juarez-Sandoval, Oswaldo, 1S
 Kang, Bao-Sheng, 24
 Karunamurthy, Vignesh, 2V
 Kays, Rüdiger, 0V
 Khalilnezhad, Mahdieh, 2G
 Kikuchi, Hikaru, 33
 Kim, Dongyoung, 0D
 Kim, Hyoungseop, 2O
 Knuutila, Timo, 2K
 Koivisto, Tero, 2K
 Kralik, Tomas, 21
 Kuang, Zhijie, 1O
 Kukolj, Dragan, 0Z
 Kumar, Pawan, 0X
 Kumar, R. Barath, 2V
 Kummert, Anton, 2U
 Kuzu, Ridvan Salih, 09
 Labidi, Hocine, 27, 29, 2C
 Le, Sach T., 1T
 Lee, Chung-Hee, 0D
 Li, Chuanxiang, 0E
 Li, Dawei, 0G, 22, 26
 Li, Dejun, 0S
 Li, Guangxu, 2O
 Li, Hongyu, 25
 Li, Hua-Ming, 24
 Li, Jiafeng, 1A
 Li, Jianbo, 13
 Li, Jianxiang, 1E
 Li, Jicheng, 0T
 Li, Li, 17
 Li, Li, 1E
 Li, Longlong, 1B
 Li, Ming, 17
 Li, Minxian, 18
 Li, Shaomei, 0R
 Li, Shuxiao, 2S
 Li, Xing, 04
 Li, Ying, 2R
 Li, Yipeng, 0C
 Liaghati, Amir L., 0P
 Lin, Chuang, 02
 Lin, Yih-Lon, 16
 Lindström, Konstantin, 1U
 Ling, Zhi, 2D
 Liu, Changping, 20
 Liu, Honghai, 08
 Liu, Hongzhi, 2Z
 Liu, Huanyu, 0G
 Liu, Rongke, 27
 Liu, Tong, 1K
 Liu, Xiaolin, 0N, 1C
 Liu, Yanjun, 1Q
 Liu, Yaojie, 1M
 Long, Gucan, 0N
 Lu, Peng, 1O
 Lu, Xiaofeng, 0W
 Lu, Xiaofeng, 1O
 Lu, Xiaowei, 0T
 Lu, Yonghua, 2N
 Luo, Jing, 03
 Luo, Sen-Lin, 29, 2C
 Luo, Siwei, 1F
 Ma, Yide, 15
 Masood, Ammara, 2L
 Maurya, Avinash Kumar, 2B
 McKelvey, Tomas, 1U
 Minaei, Behrooz, 2G
 Mirahmadizoghi, Siavash, 2H
 Nakano-Miyatake, Mariko, 1I, 1S
 Nāpārus, Magdalena, 1Y
 Narayanan, H. Sai, 2V
 Nazir, Sajid, 28
 Nguyen, Thai-Son, 1Q
 Nie, Yiming, 0E
 Niu, Huixian, 1P
 Özgören, Muammer, 1R
 Ozturk, Ceyda Nur, 1L
 Paasio, Ari, 2K
 Pan, W. David, 0P
 Pang, Meng, 02
 Pänkäälä, Mikko, 2K
 Pătru-Stupariu, Ileana, 1Y
 Paul, Andreas, 2F
 Paul, Okuwobi Idowu, 2N
 Pears, Russel, 0A
 Peng, Jing, 2R
 Perez-Daniel, Karina, 1I
 Perez-Meana, Hector, 1S
 Peringer, Alexander, 1Y
 Poom-Medina, José Luis, 14
 Prima, Oky Dicky Ardiansyah, 33, 35
 Qi, Lin, 1P
 Qi, Wen, 36
 Qin, Shiyin, 1D
 Rodrigues, J. M. F., 0U
 Rudant, Jean Paul, 1Z
 Sablik, Thomas, 2U
 Şahin, Suhap, 0F
 Saini, Sanjay, 06
 Schelkens, Peter, 0Z
 Shang, Yang, 0N

Shang, Zhiming, 1G
 Sharapov, Ruslan, 2P
 Shen, Ming, 32
 Sheng, Qian, 0S
 Shi, Zhiguang, 0T
 Shu, Chang, 1M
 Silva, Bruno, 0U
 Simpson, David, 2H
 Sohrabi, Mohammad Karim, 0B, 1V
 Song, Weiwei, 1K
 Song, Yi, 2S
 Springer, Paul, 0V
 Stoicescu, Ioana, 1Y
 Stupariu, Mihai-Sorin, 1Y
 Su, Xiaomeng, 0K
 Sulaiman, Suziah Bt, 06
 Sun, Mingui, 0L
 Sun, Wei, 1F
 Sun, Xiaoliang, 0N
 Sun, Yubao, 04
 Sun, Zhenyu, 10
 Sung, Chung-Ming, 16
 Tamori, Hideaki, 1N
 Tan, Joo Kooi, 2O
 Tang, Wenjie, 13
 Teräs, Mika, 2K
 Thai, Dung N., 1T
 Thoai, Nam, 1T
 Toriu, Takashi, 30
 Trujillo, Maria, 1W
 Ukpai, Charles O., 2J
 Ulas, Cagdas, 11
 Unterweger, Andreas, 2T
 Varlamov, Alexey, 2P
 Varol, Gül, 09
 Velten, Jörg, 2U
 Vernazza, Gianni, 2G
 Vilas, Tiago, 0U
 Vozenilek, Vit, 21
 Vukobratovic, Dejan, 28
 Wang, Bin, 2M
 Wang, Binghui, 02
 Wang, Changming, 2W
 Wang, Fei, 1B
 Wang, Haiying, 0K
 Wang, Hongmin, 1G
 Wang, Jiajing, 10
 Wang, Ke, 1K
 Wang, Kuanquan, 34
 Wang, Lei, 0W
 Wang, Wanguo, 1E
 Wang, Xiaojie, 1O
 Wang, Yang, 2Z
 Wang, Yawen, 0R
 Wang, YuLing, 17
 Wang, Zhenli, 1E
 Wang, Zhicheng, 1J
 Wen, Dunwei, 1K
 Wen, Gaojin, 1G
 Wen, Lijie, 1J
 Woo, Wai L., 2J
 Wu, Chunnan, 1G
 Wu, Di, 25
 Wu, Houde, 2M
 Wu, Jitao, 0Y
 Wu, Lina, 1F
 Wu, Tao, 0E
 Wu, Yiping, 32
 Wu, Zhonghai, 2Z
 Xiao, Qingwei, 0Q
 Xiao, Zhaoxia, 03
 Xie, Xiaomin, 2W
 Xie, Yuqi, 34
 Xiong, Chunshui, 20
 Xiu, Chunbo, 03
 Xu, Lihong, 0G, 22, 26
 Xu, Wenhai, 2M
 Xue, Bindang, 23
 Xue, Hongye, 0Q
 Yamamoto, Tsuyoshi, 1N
 Yan, Yaping, 15
 Yang, Jingyu, 18
 Yang, Kaida, 0S
 Yang, Lingxian, 12
 Yang, Sisi, 0I
 Yang, Yinong, 23
 Yao, Yiping, 13
 Yaşar, Hüseyin, 0O
 You, Yuhu, 0J, 2A
 Yu, Hui, 08
 Yu, Qin, 0I
 Yuan, Chunqiang, 1X
 Yuan, Ding, 0J, 0L, 2A
 Yuan, Ye, 34
 Zagrouba, Ezzeddine, 31
 Zang, Mujun, 1K
 Zeng, Yujun, 1C
 Zhang, Aijun, 2W
 Zhang, Chunxiao, 1G
 Zhang, Genyuan, 0I
 Zhang, Hong, 0J, 0L, 1A, 2A
 Zhang, Jingjing, 1E
 Zhang, Lin, 25
 Zhang, Peng, 22, 26
 Zhang, Qian, 1G
 Zhang, Qianying, 0Y
 Zhang, Yan, 1B
 Zhang, Yongjun, 2D
 Zhang, Zhilong, 0T
 Zhao, Chunhui, 0C
 Zhao, Jinlong, 1E
 Zhao, Ming, 2M
 Zhao, Wenjie, 0S
 Zhao, Xiuyang, 2Y

Zhao, Yuming, 2Q
Zhou, Fugen, 23
Zhou, Hong, 0I
Zhou, Yisu, 1J
Zhu, Feng, 18
Zou, Qiming, 1B

Conference Committee

Honorary Chair

David Zhang, Hong Kong Polytechnic University (Hong Kong, China)

Conference Chairs

Yulin Wang, Wuhan University (China)

Xudong Jiang, Nanyang Technological University, Beijing (China)

Program Committee

Tuan D. Pham, The University of Aizu (Japan)

Sipi Dubey, Chhattisgarh Swami Vivekanand Technical University (India)

Hui Yu, University of Portsmouth (United Kingdom)

Hou Young-Chang, Tamkang University (Taiwan, China)

Vit Vozenilek, Palacký University, Olomouc (Czech Republic)

Morshed Chowdhury, Deakin University (Australia)

Technical Committees

Maziar Loghman, Illinois Institute of Technology (United States)

Saad Mohamed Saad Darwish, Alexandria University (Egypt)

Feng Tian, Bournemouth University (United Kingdom)

Christos Gatzidis, Bournemouth University (United Kingdom)

Yoshio Yanagihara, Ehime University (Japan)

Atul Sajjanhar, Deakin University (Australia)

Jinsuk Kang, Ajou University (Korea, Republic of)

Cheih-Ying Chen, National Pingtung University of Education (Taiwan, China)

Hassan Saleh, Egyptian Atomic Energy Authority (Egypt)

Mohamed Khider, The University of Science and Technology Houari Boumediene (Algeria)

Thabit Sultan Mohammed, Dhofar University (Oman)

Iwan Setyawan, Satya Wacana Christian University (Indonesia)

Kuo-Cheng Liu, Taiwan Hospitality and Tourism College (Taiwan, China)

Ibrahima Faye, Universiti Teknologi PETRONAS (Malaysia)

Famao Ye, Nanchang University (China)

Dimitris Glotsos, Technological Educational Institute of Athens (Greece)

Yoshihiro Mitani, Ube National College of Technology (Japan)

Jeng-Wei Lin, Tunghai University (Taiwan, China)

Weng Kin Lai, Tunku Abdul Rahman University College (Malaysia)

Takashi Toriu, Osaka City University (Japan)
Ching-Tang Hsieh, Tamkang University (Taiwan, China)
Zhuangzhi Wu, Beihang University (China)
Kraisorn Chaisaowong, RWTH Aachen University (Germany)
Rachael E. Jack, University of Glasgow (United Kingdom)
Ulug Bayazit, Istanbul Technical University (Turkey)
Dalbir Singh, Universiti Kebangsaan Malaysia (Malaysia)
Shih-Huang Chen, Feng Chia University (Taiwan, China)
Gopinath Ganapathy, Bharathidasan University (India)
Mrudula Mukadam, Patel College of Science and Technology (India)
Goh Wei Wei, Taylor's University, Lakeside Campus (Malaysia)
Valentin Molokanov, National Research University—Higher School of
Economics (Russian Federation)
Yan Huang, Queen's University Belfast (United Kingdom)
Sukumar Senthilkumar, Vellore Institute of Technology (India)

Introduction

The Sixth International Conference on Graphic and Image Processing (ICGIP 2014) was held 24–26 October 2014, in Beijing, China.

The ICGIP 2014 is organized by Wuhan University and sponsored by the International Association of Computer Science and Information Technology (IACSIT). Scientists and researchers from around the world gathered to present their leading-edge work, expanding our community's knowledge and insight into the significant challenges currently being addressed in that research. The conference Program Committee is itself quite diverse and truly international, with membership from the Americas, Europe, Asia, Africa, and Oceania.

These proceedings record the fully refereed papers presented at the conference. The main conference themes and tracks are in graphic and image processing. The main goal of these events is to provide international scientific forums for exchange of new ideas in a number of fields that interact in-depth through discussions with peers from around the world. Inward research, core areas of graphic and image processing and outward research, multi-disciplinary, inter-disciplinary, and applications were covered during these events.

The conference solicited and gathered technical research submissions related to all aspects of major conference themes and tracks. All the submitted papers in the proceedings were peer-reviewed by reviewers drawn from the scientific committee, external reviewers, and editorial board, depending on the subject matter of the paper. Reviewing and initial selection were undertaken electronically. After the rigorous peer-review process, the submitted papers were selected on the basis of originality, significance, and clarity for the purpose of the conference. The selected papers and additional late-breaking contributions that were presented as lectures made an exciting technical program. The conference program was extremely rich, and featured high-impact presentations.

The high quality of the program—guaranteed by the presence of an unparalleled number of internationally recognized top experts—can be assessed when reading the contents of the program. The conference was a unique event, where attendees were able to appreciate the latest results in their field of expertise, and were able to acquire additional knowledge in other fields. The program was structured to favor interactions among attendees coming from many diverse horizons, scientifically and geographically, from academia and from industry.

We would like to thank the program chairs, organization staff, and the members of the program committees for their work.

We are grateful to all those who have contributed to the success of ICGIP 2014. We hope that all participants and other interested readers benefit scientifically from the proceedings, and also find it stimulating in the process.

We hope you had a unique, rewarding, and enjoyable weekend at ICGIP 2014 in Beijing, China.

Yulin Wang