Fourth International Conference on Machine Vision (ICMV 2011)

Machine Vision, Image Processing, and Pattern Analysis

Zhu Zeng
Yuting Li
Editors

9–10 December 2011
Singapore

Organized by
Singapore Institute of Electronics

Sponsored by
International Association of Computer Science and Information Technology

Published by
SPIE

Volume 8349

Proceedings of SPIE, 0277-786X, v. 8349

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


ISSN 0277-786X
ISBN 9780819490254

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 © 2012, 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/12/$18.00.

Printed in the United States of America.

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

SPIEDigitalLibrary.org

Paper Numbering: Proceedings of SPIE follow an e-First publication model, with papers published first online and then in print 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

<table>
<thead>
<tr>
<th>8349 02</th>
<th>Improved ISOMAP algorithm for anomaly detection in hyperspectral images [8349-09]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L. Wang, Z. Li, J. Sun, National Univ. of Defense Technology (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 03</th>
<th>Ontology development for Sufism domain [8349-12]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R. Iqbal, Karachi Institute of Economics and Technology (Pakistan)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 04</th>
<th>The simple-distinguishability matrix in rough sets [8349-13]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S. Deng, M. Li, Nanchang Institute of Technology (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 05</th>
<th>Call-graph-based inter-class MM path generation [8349-14]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W. He, R. Zhao, Beijing Univ. of Chemical Technology (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 06</th>
<th>The design of moral education website for college students based on ASP.NET [8349-18]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C. Sui, R. Du, Tangshan Normal Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 07</th>
<th>A user context utilization approach in keyword based web service discovery [8349-41]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q. Liu, X. Huang, Tongji Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 08</th>
<th>Research and implementation of video image acquisition and processing based on Java and JMF [8349-42]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>J. Qin, Z. Li, Y. Niu, North China Electric Power Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 09</th>
<th>A novel duplicate images detection method based on PLSA model [8349-43]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X. Liao, Institute of Software (China), Graduate Univ. of the Chinese Academy of Sciences (China), and Nanchang Univ. (China); Y. Wang, L. Ding, Institute of Software (China); J. Gu, Ministry of Public Security (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 0A</th>
<th>Image denoising by block-matching and 1D filtering [8349-55]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y. Hou, T. Chen, D. Yang, L. Zhu, H. Yang, Taishan Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 0B</th>
<th>A novel multi-level segmentation method on oil spill of SAR image [8349-56]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y. Guo, X. Wang, Shanghai Maritime Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 0C</th>
<th>Research on projective distortion self-corrected photogrammetry [8349-58]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Z. Wang, Z. Lei, X. Ding, J. Gao, H. Li, Xi'an Technological Univ. (China)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8349 0D</th>
<th>Eye and mouth localization for various imaging conditions images (Invited Paper) [8349-61]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M. Hanafi, Imperial College London (United Kingdom) and Univ. Putra Malaysia (Malaysia); M. Petrou, Imperial College London (United Kingdom); A. R. Ramli, W. A. W. Adnan, Univ. Putra Malaysia (Malaysia)</td>
</tr>
<tr>
<td>Session</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>8349 0E</td>
<td>Infrared and visible image registration using feature and area for image fusion</td>
</tr>
<tr>
<td>8349 0F</td>
<td>A POCS super-resolution image reconstruction based on the projection residue</td>
</tr>
<tr>
<td>8349 0G</td>
<td>Design and development of LED-based irregular leather area measuring machine</td>
</tr>
<tr>
<td>8349 0H</td>
<td>A marked bounding box method for image data reduction and reconstruction of sole patterns</td>
</tr>
<tr>
<td>8349 0I</td>
<td>A novel multiple cues based image fusing algorithm for high dynamic range image generation</td>
</tr>
<tr>
<td>8349 0J</td>
<td>Image denoising via combining contourlet and stationary-wavelet transform</td>
</tr>
<tr>
<td>8349 0K</td>
<td>Smooth connection method of segment test data in road surface profile measurement</td>
</tr>
<tr>
<td>8349 0L</td>
<td>Fast line drawing algorithm by circular subtraction based on Bresenham</td>
</tr>
<tr>
<td>8349 0M</td>
<td>Research of image retrieval system framework based on ontology and content</td>
</tr>
<tr>
<td>8349 0N</td>
<td>The review of digital image border detection</td>
</tr>
<tr>
<td>8349 0O</td>
<td>A fuzzy optimal threshold technique for medical images</td>
</tr>
<tr>
<td>8349 0P</td>
<td>Ghost removal for background subtraction using color similarity comparison</td>
</tr>
</tbody>
</table>
Variational motion segmentation based on discontinuity-preserving optical flow estimation [8349-133]
B. Dai, Y. Fang, J. Song, National Univ. of Defense Technology (China)

Robust segmentation of color image for wireless applications [8349-136]
B. Bhattacharyya, B. Mandal, T. Mukhopadhyay, Visva-Bharati Univ. (India)

Neural network-based brain tissue segmentation in MR images using extracted features from intraframe coding in H.264 [8349-156]
M. Jafari, Islamic Azad Univ. (Iran, Islamic Republic of); S. Kasaei, Sharif Univ. of Technology (Iran, Islamic Republic of)

Analyzing the medical image by using clustering algorithms through segmentation process [8349-174]
P. Kumar, S. Kumar, Govind Ballabh Pant Engineering College (India)

Research on birefringence of asymmetric photonic crystal fiber [8349-179]
M. Liu, Shijiazhuang Institute of Railway Technology (China) and Handan College (China); Y. Li, Handan College (China); Y. Yue, Hebei Univ. of Technology (China)

MACHINE VISION

A robust human face detection algorithm (Invited Paper) [8349-02]
T. Raviteja, S. Karanam, D. R. V. Yeduguru, National Institute of Technology, Warangal (India)

Applying local Gabor ternary pattern for video-based illumination variable face recognition [8349-16]
H. Wang, Y. Han, Z. Zhang, Beihang Univ. (China)

A swarm intelligence based memetic algorithm for task allocation in distributed systems [8349-19]
R. Sarvizadeh, M. Haghi Kashani, Islamic Azad Univ. (Iran, Islamic Republic of)

Object-oriented MSVL and its application [8349-24]
X. Wang, Z. Duan, C. Tian, H. Zhang, Xidian Univ. (China)

A new hybrid genetic algorithm and its application in the RCPSP [8349-32]
Z. Li, J. Qin, North China Electric Power Univ. (China)

EOTAS dynamic scheduling method based on wearable man-machine synergy [8349-33]
Z. Liu, Hebei Institute of Mechanical and Electronic Technology (China); D. Wang, Xingtai Polytechnic College (China); Y. Yang, J. Zhao, Hebei Institute of Mechanical and Electronic Technology (China)

An improved anti-leech mechanism based on session identifier [8349-37]
J. Zhang, T. Zhu, H. Zhang, L. Lin, Beijing Univ. of Technology (China)

JMF-based video monitoring system for power station equipment [8349-38]
J. Qin, Z. Li, Y. Niu, North China Electric Power Univ. (China)
Video auto stitching in multicamera surveillance system [8349-45]
B. He, G. Zhao, Q. Liu, Y. Li, Huazhong Normal Univ. (China)

The analysis of network transmission method for welding robot information [8349-54]
W. Cheng, H. Zhang, D. Liu, H. Wang, Nanchang Univ. (China)

Robust object tracking using camshift with multicue integration [8349-59]
Y. Zhong, S. Zhang, Jiangxi Univ. of Science and Technology (China)

License plate location based on improved visual attention model [8349-60]
Z. Yao, W. Yi, Graduate Univ. of the Chinese Academy of Sciences (China)

Face verification system based on texture feature with single sample per person [8349-63]
X. Wang, W. Yang, Q. Liao, Tsinghua Univ. (China)

Design and implementation of signal processing scheme in CDMA wireless location systems [8349-66]
T. Yang, H. Fu, Henan Univ. of Technology (China)

GDRMS: a system for automatic extraction of the disease-centre relation [8349-72]
R. Yang, Y. Zhang, L. Gong, Huaiyin Institute of Technology (China)

Research on virtualization-based video-on-demand services architecture [8349-80]
C. Shu, X. Zhang, South China Univ. of Technology (China)

An effective one-dimensional anisotropic fingerprint enhancement algorithm [8349-83]
Z. Ye, M. Xie, Univ. of Electronic Science and Technology of China (China)

Gear visual inspection system and application in logarithmic spiral bevel gear [8349-89]
Q. Li, Inner Mongolia Univ. of Science and Technology (China); Y. Liu, Sichuan Agricultural Univ. (China); H. Yan, Inner Mongolia Univ. of Science and Technology (China)

Fusion of inertial and vision data for accurate tracking [8349-90]
J. Chen, W. Liu, Y. Wang, J. Guo, Beijing Institute of Technology (China)

Handwritten Uighur character segmentation and performance evaluation [8349-92]
J. Li, Z. Lu, Xidian Univ. (China); A. Yimiti, Xidian Univ. (China) and Xinjiang Normal Univ. (China); F. Tan, Xidian Univ. (China)

Identity-based group key exchange protocols resistant to colluding attacks [8349-93]
Y. Jiang, Qujing Normal Univ. (China)

UsiFe: a user space file system with support for intra-file encryption [8349-99]
R. Sharma, P. Kallurkar, S. Kumar, S. R. Sarangi, Indian Institute of Technology Delhi (India)

Fault diagnosis based on signed directed graph and support vector machine [8349-100]
X. Han, Q. Lv, G. Xie, J. Zheng, Taiyuan Univ. of Xtech (China)

Extension of analog network coding in wireless information exchange [8349-108]
C. Chen, J. Huang, Huazhong Univ. of Science and Technology (China)
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>8349</td>
<td>Research on fault-relating pattern of mechanical system based on cellular automata</td>
<td>Y. Gao, X. Zhao, Yangzhou Polytechnic College (China)</td>
</tr>
<tr>
<td>8349</td>
<td>Engineering application based on fuzzy approach</td>
<td>M. Pislaru, S. Avasilcai, A. Trandabat, Gheorghe Asachi Technical Univ. of Iasi (Romania)</td>
</tr>
<tr>
<td>8349</td>
<td>Visualization of OWL DL using ORM</td>
<td>W. Pan, D. Liu, Harbin Engineering Univ. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>Using virtual machine monitors to overcome the challenges of monitoring and managing virtualized cloud infrastructures</td>
<td>M. A. Bamiah, S. N. Brohi, S. Chuprat, Univ. Teknologi Malaysia (Malaysia)</td>
</tr>
<tr>
<td>8349</td>
<td>Fuzzy regularized linear discriminant analysis for face recognition</td>
<td>M. Aghaei Taghiladabad, N. Baseri Salehi, International Sharif Univ. of Technology (Iran, Islamic Republic of); S. Kasaei, Sharif Univ. of Technology (Iran, Islamic Republic of)</td>
</tr>
<tr>
<td>8349</td>
<td>High precision and convenient extension simulation platform for satellite attitude and orbit system</td>
<td>H. Cui, C. Han, P. Chen, Q. Luo, Beihang Univ. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>Detection of navigation route in greenhouse environment with machine vision</td>
<td>H. Wang, C. Ji, Q. An, Q. Ding, Nanjing Agricultural Univ. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>Employing grayscale fonts with equivalent luminance of background colours to discourage grayscale photocopying</td>
<td>H.-C. Soong, Univ. Tunku Abdul Rahman (Malaysia)</td>
</tr>
<tr>
<td>8349</td>
<td>Developing capacitive equipment on-line monitoring intelligence software</td>
<td>W. Zhang, L. Yang, Zhejiang Wanli Univ. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>A practical real-time detection visual system for driver’s eye closure state tracking</td>
<td>T. Zhan, Z. Li, J. Zhang, Guangdong Polytechnic Normal Univ. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>MIYAESI: leveraging Java sound programming interface for automatic music transcription</td>
<td>H. Abeykoon, T. Kaushalya, N. Akram, A. Dissanayaka, S. Weerawarana, C. De Silva, Univ. of Moratuwa (Sri Lanka)</td>
</tr>
<tr>
<td>8349</td>
<td>Restoration of face images</td>
<td>A. Srinivasan, Sri Venkateswara College of Engineering (India)</td>
</tr>
<tr>
<td>8349</td>
<td>The flexible grinding technology based on the electric current control</td>
<td>L. Peng, B. Yao, F. Li, X. Wang, Xiamen Univ. (China); B. Yao, Shaanxi Hanjiang Machine Tool Co. Ltd. (China)</td>
</tr>
<tr>
<td>8349</td>
<td>The study of license plate location and character segmentation</td>
<td>Y. Lang, Y. Sun, Shenyang Aerospace Univ. (China)</td>
</tr>
</tbody>
</table>
Method of recognition and feature extraction about round and rectangular in mechanical process [8349-155]
D. Lu, C. Dai, Jiangsu Univ. of Science and Technology (China)

A framework of Chinese semantic text mining based on ontology learning [8349-162]
Y. Zhang, Wuhan Univ. (China); F. Hu, Wuhan Univ. (China) and Guangdong Univ. of Technology (China)

Application of a neural network predictive control based on GGAP-RBF for the supercritical main steam [8349-166]
Y.-J. Li, Kunming Univ. (China) and Wuhan Univ. (China); Y. Fang, Wuhan Univ. (China); Q. Li, Naval Univ. of Engineering (China)

Application of adaptive PID control based on RBF-NN for the supercritical main steam [8349-167]
Y.-J. Li, Kunming Univ. (China) and Wuhan Univ. (China); Y. Fang, Wuhan Univ. (China)

Hybrid fuzzy regression with trapezoidal fuzzy data [8349-168]
T. Razzaghnia, S. Danesh, A. Maleki, Islamic Azad Univ. (Iran, Islamic Republic of)

Detecting outliers in fuzzy regression analysis with asymmetric trapezoidal fuzzy data [8349-169]
A. Maleki, Islamic Azad Univ. (Iran, Islamic Republic of); E. Pasha, Teacher Training Univ. (Iran, Islamic Republic of); Gh. Yari, Iran Univ. of Science and Technology (Iran, Islamic Republic of); T. Razzaghnia, Islamic Azad Univ. (Iran, Islamic Republic of)

Review of intelligent video surveillance with single camera [8349-170]
Y. Liu, J. Fan, D. Wang, Xi’an Univ. of Post and Telecommunications (China)

Influence of marine engine simulator training to marine engineer’s competence [8349-06]
P. Wang, X. Cheng, Q. Ma, X. Song, X. Liu, L. Wang, Shandong Jiaotong Univ. (China)

Research of RFID middleware model with CEP based on SOA [8349-07]
Z. Wang, Z. Ma, Hefei Univ. of Technology (China)

Design of single object model of software reuse framework [8349-08]
L. Yan, Jiangxi Blue Sky Univ. (China)

The expansion of the definition of granular sets [8349-10]
S. Guan, Nanchang Institute of Technology (China)

Improving the trust algorithm of information in semantic web [8349-17]
Z. Wan, J. Min, East China Jiao Tong Univ. (China)

Formal analysis of ORM using OWL DL [8349-20]
W. Pan, D. Liu, Harbin Engineering Univ. (China)
Intelligent management system research and design based on MSComm and Winsock [8349-26]
L. Shi, H. He, Shanghai Second Polytechnic Univ. (China)

Indemnificatory research on key services of survivable networks [8349-28]
X. Chen, J. Zhang, Transport Management Institute (China); P. Xu, Beijing Information Science and Technology Univ. (China)

The phenomenon analysis of different blowing stages under high pressure air blowing the submarine main ballast tanks [8349-30]
H. Liu, J. Pu, Q. Li, Naval Univ. of Engineering (China)

The expert system of double-stage involute cylindrical gear assistant design transmission system [8349-34]
Z. Zhang, J. Hu, Z. Yang, J. Zhang, D. Chen, C. Che, Wuhan Univ. of Technology (China)

Study of tourist motivation to Guangzhou urban ecological parks [8349-39]
M. Li, F. Wang, South China Univ. of Technology (China)

Governor foot mechanism optimum design on high-speed printing press [8349-40]
R.-M. Fang, H. Chen, H. Zhang, Beijing Institute of Graphic Communication (China)

Realization of texture synthesis algorithm based on mixed programming via COM [8349-47]
R. Qin, Y. Pu, D. Xu, Yunnan Univ. (China); H. Chen, Yunnan Normal Univ. (China)

Positive solutions of singular integro-differential equations at resonance in Banach spaces [8349-53]
J. Cao, Hunan Institute of Engineering (China) and Central South Univ. (China); H. Chen, Central South Univ. (China)

Augmenting the access grid using augmented reality [8349-57]
Y. Li, Tangshan Teachers College (China)

A vertical handoff decision algorithm based on ARMA prediction model [8349-67]
R. Li, J. Shen, J. Chen, Q. Liu, Inner Mongolia Univ. (China)

Evaluation of node importance based on topological potential in weighted complex networks [8349-71]
R. Sun, A. Mu, L. Li, M. Zhong, Sichuan Univ. (China)

A concept for making EMO mobile [8349-73]
M. Kumar, Samsung India Software Operations Pvt. Ltd. (India)

Determining the optimal number and position of damping viscose (MR) in seismic vibration control of buildings to use genetic algorithms (fuzzy engineering application) [8349-79]
F. Hatami, Research Institute of Petroleum Industry (Iran, Islamic Republic of); E. Karimi, Azad Univ. (Iran, Islamic Republic of)

Tropical cyclone center location based on Fisher discriminant and Chan-Vese model [8349-85]
W. Qiao, Y. Li, X. Wei, J. Shen, Shanghai Jiaotong Univ. (China)
A routing algorithm for industrial wireless network based on deterministic scheduling [8349-86]
H. Wang, Q. Liu, P. Wang, Z. Luo, Chongqing Univ. of Posts and Telecommunications (China)

Gas demand forecasting by a new artificial intelligent algorithm [8349-87]
V. Khatibi.B, E. Khatibi, Islamic Azad Univ. (Iran, Islamic Republic of)

Study on DFIG wind turbines control strategy for improving frequency response characteristics [8349-95]
D. Zhao, D. Wu, Y. Liu, Z. Zhou, North China Electric Power Univ. (China)

The establishment of the safety factors system of railway operation [8349-96]
Y. Wang, X. Xiao, W. Xie, Beijing Jiaotong Univ. (China)

Study on application of production flow analysis in manufacturing enterprise based on fuzzy clustering algorithm [8349-98]
Y. Du, Xi'an Technological Univ. (China)

Application safety enhancement model using self-checking with software enzymes [8349-102]
C. Subramaniam, A. Ravishankar, D. Gopal, D. Subramanian, Rajalakshmi Engineering College (India)

Error bounded conic spline approximation for NC code [8349-103]
L. Shen, Graduate Univ. of the Chinese Academy of Sciences (China)

Cutting force regression modeling approach for turning Hastelloy X alloy by genetic algorithms [8349-104]
C. Yu, J. Guo, Y. Zhang, J. Li, Shenyang Aerospace Univ. (China)

A comparison of clustering algorithms in article recommendation system [8349-105]
S. Tantanasiriwong, Asian Institute of Technology (Thailand)

Research on infrared properties modeling and image generation of aircraft [8349-107]
N. Li, D. Han, Beihang Univ. (China)

XML-based product information processing method for product design [8349-110]
Z. Y. Zhang, Zhejiang Univ. of Science and Technology (China)

Fuzzy tool for conceptual modeling under uncertainty (Invited Paper) [8349-111]
B. Walek, C. Klimes, Univ. of Ostrava (Czech Republic)

W. Li, Dalian Maritime Univ. (China)

The abstract model of dynamic evolution based on services [8349-115]
Y. Qian, T. Li, Y. Li, H. Gu, Yunnan Univ. (China)
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>Research of data quality control based on quality grading</td>
<td>S. H. Liu, J. G. Yu, Y. L. Yu</td>
<td>Zhengzhou Institute of Aeronautical Industry Management (China)</td>
</tr>
<tr>
<td>33</td>
<td>E-badge-based access control model</td>
<td>Y. Shi, Z. Si</td>
<td>Information Engineering Univ. (China)</td>
</tr>
<tr>
<td>34</td>
<td>Design of a robust and adaptive fuzzy-logic-based power system stabilizer (RAFLPSS) for damping low frequency electromechanical oscillations</td>
<td>M. Abdurrahim, Al Ghurair Univ. (United Arab Emirates); A. K. M., B.S. Abdurrahman Univ. of Science and Technology (India); A. A. Edriss, Al Ghurair Univ. (United Arab Emirates)</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Heartbeat-based error diagnosis framework for distributed embedded systems</td>
<td>S. Mishra, P. M. Khilar</td>
<td>National Institute of Technology Rourkela (India)</td>
</tr>
<tr>
<td>36</td>
<td>Accident patterns for construction-related workers: a cluster analysis</td>
<td>C.-W. Liao, Y.-Y. Tyan</td>
<td>China Univ. of Technology (Taiwan)</td>
</tr>
<tr>
<td>37</td>
<td>Development stage and monetization model of micro-blog in China</td>
<td>T. Xu, L. Sun, Y. Yang, H. Ma</td>
<td>Capital Univ. of Economics and Business (China)</td>
</tr>
<tr>
<td>38</td>
<td>Stabilization ball and beam by fuzzy logic control strategy</td>
<td>H. Asadi, A. Mohammadi, M. Oladazimi</td>
<td>Univ. of Malaya (Malaysia)</td>
</tr>
<tr>
<td>39</td>
<td>Fuzzy-control-based five-step Li-ion battery charger by using AC impedance technique</td>
<td>H. Asadi, S. Hr. Aghay Kaboli, A. Mohammadi, M. Oladazimi</td>
<td>Univ. of Malaya (Malaysia)</td>
</tr>
<tr>
<td>3A</td>
<td>DTMF-based pH-COP system</td>
<td>M. F. Shakila, P. Miriyala Premnath</td>
<td>R.M.D. Engineering College (India)</td>
</tr>
<tr>
<td>3B</td>
<td>Design and development of the mobile game based on the J2ME technology</td>
<td>J. He</td>
<td>Huangshi Institute of Technology (China)</td>
</tr>
<tr>
<td>3C</td>
<td>Modeling and optimizing electrodischarge machine process (EDM) with an approach based on genetic algorithm</td>
<td>I. Zabbah</td>
<td>Islamic Azad Univ. (Iran, Islamic Republic of)</td>
</tr>
<tr>
<td>3D</td>
<td>A genetic algorithm for replica server placement</td>
<td>G. Eslami, A. Toroghi Haghighat</td>
<td>Qazvin Azad Univ. (Iran, Islamic Republic of)</td>
</tr>
<tr>
<td>3E</td>
<td>Fuzzy based power factor improvement strategy for a multiple connected AC-DC converter fed drive</td>
<td>R. N., R. Muthiah</td>
<td>Annamalai Univ. (India)</td>
</tr>
<tr>
<td>3F</td>
<td>Efficient indexing and searching framework for unstructured data</td>
<td>K. N. Aye, N. L. Thein</td>
<td>Univ. of Computer Studies, Yangon (Myanmar)</td>
</tr>
<tr>
<td>3G</td>
<td>An application of ranking function of fuzzy numbers to solve fuzzy revised simplex algorithm and fuzzy decomposition algorithm</td>
<td>M. Rostamy-Malkhalifeh</td>
<td>Islamic Azad Univ. (Iran, Islamic Republic of); H. Farajollahi, Teacher Training Univ. (Iran, Islamic Republic of)</td>
</tr>
</tbody>
</table>
8349 3H  **Longest jobs first algorithm in solving job shop scheduling using adaptive genetic algorithm (GA)** [8349-164]
V. Alizadeh Sahzabi, I. Karimi, N. Alizadeh Sahzabi, P. Mamaani Barnaghi, Islamic Azad Univ. (Iran, Islamic Republic of)

8349 3I  **Architecture for decision making in a home safety system** [8349-172]
I. Uusitalo, M. Mantere, VTT Technical Research Ctr. of Finland (Finland)

8349 3J  **Data warehouse model design technology analysis and research** [8349-175]
W. Jiang, Hangzhou Engineering Construction Quality and Safety Supervise Administration (China); Q. Li, Zhejiang Unv. of Technology (China)

8349 3K  **AgiSim: a simulator for real-time transaction scheduling and concurrency control** [8349-176]
J. Xu, H. Li, Graduate Univ. of Chinese Academy of Sciences (China); Q. Wang, Beijing Chinsoft Technology Co., Ltd. (China)

8349 3L  **Study on Chinese question classification based on SVM multi-category classification** [8349-171]
W. Zhang, Shanxi Medical College for Continuing Education (China) and Taiyuan Univ. of Technology (China); L. Duan, J. Chen, Taiyuan Univ. of Technology (China)

8349 3M  **NBTI aware HLS using latches** [8349-173]
R. Jangir, K. S. Yadav, Government Polytechnic Hisar (India) and NIIT, Delhi (India)

**Author Index**
Conference Committee

Conference Chairs

Safaa S. Mahmoud, Ain Shams University (Egypt)
Shehroz S Khan, National University of Ireland, Galway (Ireland)

Program Committee Chairs

Nazar Zaki, United Arab Emirates University (United Arab Emirates)
Taweepol Suesut, King Monkut’s Institute of Technology (Thailand)
Zhongwei Li, Huazhong University of Science and Technology (China)

Conference Steering Committee

Xuesong Zhang, Claremont Graduate University (United States)
S. M. Aqil Burney, University of Karachi (Pakistan)
Jun Guo, East China Normal University (China)
Selwyn Piramuthu, University of Florida (United States)

Organizing Chairs

Venkatesh Mahadevan, Swinburne University of Technology (Australia)
Steve Thatcher, University of South Australia (Australia)

Technical Committee

M. S. Vijaya, GR Govindarajulu School of Applied Computer Technology (India)
Waleed Oransa, Arab Academy for Science and Technology (Egypt)
S. T. Gandhe, University of Mumbai (India)
Anton Satria Prabuwono, Universiti Teknologi Malaysia (Malaysia)
Taweepol Suesut, King Monkut’s Institute of Technology (Thailand)
Vickneswaran Jeyabalan, Multimedia University (Malaysia)
Fa-quan Zhang, Zhengzhou University of Light Industry (China)
Rayner Alfred, Universiti Malaysia Sabah (Malaysia)
Kashif Zafar, National University of Computer and Emerging Science (Pakistan)
Garje G. V., Pune Vidyarthi Griha’s College of Engineering and Technology (India)
Introduction

Dear Distinguished Delegates and Guests,


The ICMV 2011 was organized by the Singapore Institute of Electronics (SIE) and cosponsored by the International Association of Computer Science and Information Technology (IACSIT). The ICMV 2011 was organized to gather members of our international community scientists so that researchers from around the world can 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.

This proceedings volume records the fully refereed papers that were presented at the ICMV 2011. The main conference themes and tracks are machine vision. 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 their peers from around the world. Both inward research; core areas of machine vision and outward research; multidisciplinary, interdisciplinary, and applications will be covered during these events.

The conference solicited and gathered technical research submissions related to all aspects of major conference themes and tracks. All of the submitted papers in these proceedings have been peer reviewed by the reviewers drawn from the scientific committee, external reviewers, and editorial board, depending on the subject matter of the paper. Reviewing and initial paper selection was 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 presented as lectures made for an exciting technical program. The conference program was extremely rich, featuring high-impact presentations.

The high quality of the program – which was 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 therefore a unique event, where attendees appreciated the latest results in their field of expertise, and acquired additional knowledge in other fields. The program was structured to favor interactions among attendees coming from many diverse backgrounds.
horizons, scientifically, geographically, from academia and from industry. Social events at prestigious sites favored interactions among the attendees.

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 ICMV 2011. We hope that all participants and other interested readers benefit scientifically from these proceedings and also find it stimulating in the process. Finally, we would like to wish you success in your technical presentations and social networking.

We hope that you had a unique, rewarding, and enjoyable week at ICMV 2011 in Singapore.

With our warmest regards,

The Organizing Committees
9–10 December 2011
Singapore