# 2015 Second International Conference on Soft Computing and Machine Intelligence

## ISCMI 2015

### Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message from General Chair</td>
<td>ix</td>
</tr>
<tr>
<td>Message from Program Chairs</td>
<td>xi</td>
</tr>
<tr>
<td>Conference Organization</td>
<td>xii</td>
</tr>
<tr>
<td>Program Committee</td>
<td>xiii</td>
</tr>
<tr>
<td>Reviewers</td>
<td>xiv</td>
</tr>
<tr>
<td>Modeling Optimization and Algorithm</td>
<td></td>
</tr>
<tr>
<td>Infinitive Impulse Response System Identification Using an Improved Particle</td>
<td>1</td>
</tr>
<tr>
<td>Swarm Optimization Algorithm</td>
<td></td>
</tr>
<tr>
<td><em>De-Xuan Zou, Suash Deb, and Gai-Ge Wang</em></td>
<td></td>
</tr>
<tr>
<td>An Improved Hybrid Encoding Firefly Algorithm for Randomized Time-Varying Knapsack Problems</td>
<td>9</td>
</tr>
<tr>
<td><em>Yanhong Feng and Gai-Ge Wang</em></td>
<td></td>
</tr>
<tr>
<td>Comparative Study of Artificial Bee Colony Algorithm and Real Coded Genetic Algorithm for Analysing Their Performances and Development of a New Algorithmic Framework</td>
<td>15</td>
</tr>
<tr>
<td><em>Avadh Kishor and Pramod Kumar Singh</em></td>
<td></td>
</tr>
<tr>
<td>A Gene-Level Hybrid Crossover Operator for Multiobjective Evolutionary Algorithm</td>
<td>20</td>
</tr>
<tr>
<td><em>Qingling Zhu, Qiu Zhen Lin, Jian Yong Chen, and Peizhi Huang</em></td>
<td></td>
</tr>
<tr>
<td>Multi-objective Quantum-Inspired Cultural Algorithm</td>
<td>25</td>
</tr>
<tr>
<td><em>Yi-nan Guo and Pei Zhang</em></td>
<td></td>
</tr>
<tr>
<td>Genetic Algorithm Based Efficient RSU Distribution to Estimate Travel Time for Vehicular Users</td>
<td>30</td>
</tr>
<tr>
<td><em>Manipriya Sankaranarayanan, C. Mala, and Samson Mathew</em></td>
<td></td>
</tr>
</tbody>
</table>
A New Improved Gravitational Search Algorithm for Function Optimization
Using a Novel "Best-So-Far" Update Mechanism .................................................................35
   Amarjeet Singh, Kusum Deep, and Atulya Nagar

Late Parallelization and Feedback Approaches for Distributed Computation
of Evolutionary Multiobjective Optimization Algorithms .................................................40
   O. Tolga Altinoz and Kalyanmoy Deb

A Novel Monarch Butterfly Optimization with Greedy Strategy
and Self-Adaptive .............................................................................................................45
   Gai-Ge Wang, Xinchao Zhao, and Suash Deb

Ranking Discrete Multi-attribute Alternatives under Uncertainty .....................................51
   Jing Zhao and Hepu Deng

An Orthogonal Matching Pursuit with Thresholding Algorithm for Block-Sparse
Signal Recovery ................................................................................................................56
   Rui Hu, Youjun Xiang, Yuli Fu, Rong Rong, and Zhen Chen

An Empty Nester Recognition Model Based On a Feed Forward Neural
Network ............................................................................................................................60
   Rui Sun, Xiancheng Feng, and Hongyi Xia

Data Mining and Application

A Short Survey on Data Clustering Algorithms ..................................................................64
   Ka-Chun Wong

Gene Expression Classification Using a Fuzzy Point Symmetry Based PSO
Clustering Technique .......................................................................................................69
   Ranjita Das and Sriparna Saha

Particle Swarm Optimization with K-Means for Simultaneous Feature Selection
and Data Clustering .......................................................................................................74
   Jay Prakash and Pramod Kumar Singh

Twitter Data Mining for Events Classification and Analysis ...........................................79
   Nausheen Azam, Jahiruddin, Muhammad Abulaish, and Nur Al-Hasan Haldar

Vision and Image Processing

A Combination of Bias-Field Corrected Fuzzy C-Means and Level Set
Approach for Brain MRI Image Segmentation ................................................................84
   Pankhuri Agarwal, Sandeep Kumar, Rahul Singh, Prateek Agarwal,
   and Mahua Bhattacharya

VPER - A Visual Helper Device for the Visually Impaired Users ....................................88
   Christine P. Chen, Leila Z. Huang, Tiffany Y. Tang, Relic Y. Wang,
   and Pinata Winoto
Motion Representation Based on Important Turning Points Set and Its Application in Dance Training ...............................................................93
Yu Wei

Experiments on Detection of Drinking from Face Images Using Neural Networks ..................................................................................97
Kenichi Takahashi, Kana Hiramatasu, and Mami Tetsuishi

Artificial Intelligence and Sensor Techniques
Solution Process Synthesized ZnO Nanoparticle for an Intelligent Humidity Sensor ..................................................................................102
Shankhya Bhattacharya and Milan Sasmal

Supporting Multiplayer Online Ball Passing at a Distance with Multiple Sets of Kinect ..............................................................................107
Tiffany Y. Tang, Pinata Winoto, and Relic Y. Wang

Computer Network and Information Processing
An Empirical Study of Spectral Social Network Partition on GPGPU Platforms .........................................................................................112
Hongguan Chen and Wenye Li

Developing a Platform That Supplies Processed Information from Internet Resources and Services ...............................................................116
Ilyas Cicekli and Nicat Suleymanov

A Family of Example-Specific Density Based Matching Kernels for Classification of Varying Length Patterns of Speech Using Support Vector Machines ...............................................................................121
Abhijeet Sachdev, A. D. Dileep, and Veena Thenkanidiyoor

Predicting Consumer's Behavior Using Eye Tracking Data .........................................................................................................................126
Shruti Goyal, K. P. Miyapuram, and Uttama Lahiri

Neural Modeling and Content Extraction .................................................................................................................................................130
B. S. Charulatha, Paulrodrigues, T. Chitrakha, Arun RajaRaman, and SasikumarSreedharan

Enhanced Virtual Password Authentication Scheme Resistant to Shoulder Surfing ......................................................................................134
Biswa Gurung, P. W. C. Prasad, Abeer Alsadoon, and Amr Elchouemi
Mechanical and Electrical Control & Equipment Maintenance

Analysis on the Benefit for the Mode of Equipment Changing Parts Repair
Based on Simio ..................................................................................................................140

Dou Peng, Zhang Yong, Sun Dong, Shao Xiang-Jun, and Wu Xiu-Peng

Study on Energy Consumption and Cable Force Optimization of Cable-Driven Parallel Mechanism in Automated Storage/Retrieval System ................................................................................144

Weifang Wang, Xiaoqiang Tang, and Zhufeng Shao

Adaptive Neuro-Fuzzy Inference System-Based Grey Time-Varying Sliding Mode Control for Power Conditioning Applications ..........151

En-Chih Chang, Rong-Ching Wu, Ke Zhu, and Guan-Yu Chen

Author Index ...................................................................................................................156