Contents

Part I Special Session: Advances in Nature Inspired Algorithms for Engineering Optimization Problems

An Efficient Dynamic Scheduling Algorithm for Soft Real-Time Tasks in Multiprocessor System Using Hybrid Quantum-Inspired Genetic Algorithm .................................................. 3
Debanjan Konar, Kalpana Sharma, Sri Raj Pradhan and Sital Sharma

Equitable Machine Learning Algorithms to Probe Over P2P Botnets ........................................ 13
Pavani Bharathula and N. Mridula Menon

Directed Search-based PSO Algorithm and Its Application to Scheduling Independent Task in Multiprocessor Environment .......... 23
Sneha Shriya, R.S. Sharma, Saurav Sumit and Sonu Choudhary

Part II Bioinformatics and Computational Biology

JUPred_MLP: Prediction of Phosphorylation Sites Using a Consensus of MLP Classifiers ............................... 35
Sagnik Banerjee, Debjyoti Ghosh, Subhadip Basu and Mita Nasipuri

Molecular Computing and Residual Binding Mode in ERα and bZIP Proteins from Homo Sapiens: An Insight into the Signal Transduction in Breast Cancer Metastasis .............. 43
Arundhati Banerjee and Sujay Ray

SVM-Based Pre-microRNA Classifier Using Sequence, Structural, and Thermodynamic Parameters ....................... 57
K.A. Sumaira, A. Salim and S.S. Vinod Chandra

DCoSpect: A Novel Differentially Coexpressed Gene Module Detection Algorithm Using Spectral Clustering ......................... 69
Sumanta Ray, Sinchani Chakraborty and Anirban Mukhopadhyay
Intelligent Topological Differential Gene Networks .......................... 79
Mrityunjay Sarkar and Aurpan Majumder

Part III  Signal Processing

Impact of Threshold to Identify Vocal Tract ................................. 97
Soumen Kanrar

Application of Compressed Sensing in Cognitive Radio .................. 107
Naveen Kumar and Neetu Sood

Compressed Sensing-Based NBI Mitigation in Ultra-WideBand Energy Detector .......................................................... 119
Priyanka G. Patil and Gajanan K. Birajdar

Part IV  Data Mining

A Novel Data Mining Scheme for Smartphone Activity
Recognition by Accelerometer Sensor ........................................ 131
Yajnaseni Dash, Sanjay Kumar and V.K. Patle

Mining and Ranking Association Rules in Support, Confidence,
Correlation, and Dissociation Framework .................................. 141
Subrata Datta and Subrata Bose

Mining Closed Interesting Subspaces to Discover Conducive
Living Environment of Migratory Animals ............................... 153
G.N.V.G. Sirisha and M. Shashi

Frequent Patterns Mining from Data Cube Using Aggregation
and Directed Graph .............................................................. 167
Kuldeep Singh, Harish Kumar Shakya and Bhaskar Biswas

Part V  Document Image Analysis

A Modified Parallel Thinning Method for Handwritten Oriya
Character Images .......................................................................... 181
Soumen Bag and Glory Chawpatnaik

Offline Signature Verification Using Artificial Neural Network ...... 191
Chandra Subhash, Maheshkar Sushila and Srivastava Kislay

A Simple and Effective Technique for Online Handwritten Bangla
Character Recognition ............................................................... 201
Shibaprasad Sen, Ram Sarkar and Kaushik Roy

Visual Analytic-Based Technique for Handwritten Indic Script
Identification—A Greedy Heuristic Feature Fusion Framework .... 211
Sk. Md. Obaidullah, Chayan Halder, Nibaran Das and Kaushik Roy
Offline Writer Identification from Isolated Characters Using Textural Features
Chayan Halder, Sk. Md. Obaidullah and Kaushik Roy

PWDB_13: A Corpus of Word-Level Printed Document Images from Thirteen Official Indic Scripts
Sk. Md. Obaidullah, Chayan Halder, Nibaran Das and Kaushik Roy

Part VI Applications of Metaheuristic Optimization
Application of Krill Herd Algorithm for Optimum Design of Load Frequency Controller for Multi-Area Power System Network with Generation Rate Constraint
Dipayan Guha, Provas Kumar Roy and Subrata Banerjee

Optimal Allocation of Distributed Generator Using Chemical Reaction Optimization
Sneha Sultana, Santanu Roy and Provas Kumar Roy

A Novel Combined Approach of \( k \)-Means and Genetic Algorithm to Cluster Cultural Goods in Household Budget
Sara Sadat Babaie, Ebadati E. Omid Mahdi and Tohid Firoozan

A PSO with Improved Initialization Operator for Solving Multiple Sequence Alignment Problems
Rohit Kumar Yadav and Haider Banka

Profit Maximization of TSP with Uncertain Parameters Through a Hybrid Algorithm
Aditi Khanra, Manas Kumar Maiti and Manoranjan Maiti

Part VII Wireless Sensor and Ad-hoc Networks
Mitigating Packet Dropping Problem and Malicious Node Detection Mechanism in Ad Hoc Wireless Networks
Shrikant V. Sonekar and Manali M. Kshirsagar

Service Provisioning Middleware for Wireless Sensor Network
S. Sasirekha and S. Swamynathan

A Novel MTC-RB Heuristic for Addressing Target Coverage Problem in Heterogeneous Wireless Sensor Network
Sonu Choudhary, R.S. Sharma and Sneha Shriya

Part VIII Quantum Dot Cellular Automata
2-Dimensional 2-Dot 1-Electron Quantum Cellular Automata-Based Dynamic Memory Design
Mili Ghosh, Debarka Mukhopadhyay and Paramartha Dutta
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimized Approach for Reversible Code Converters Using Quantum Dot Cellular Automata</td>
<td>367</td>
</tr>
<tr>
<td>Neeraj Kumar Misra, Subodh Wairya and V.K. Singh</td>
<td></td>
</tr>
<tr>
<td>Design of a Logically Reversible Half Adder Using 2D 2-Dot 1-Electron QCA</td>
<td>379</td>
</tr>
<tr>
<td>Kakali Datta, Debarka Mukhopadhyay and Paramartha Dutta</td>
<td></td>
</tr>
<tr>
<td>Part IX Fuzzy Sets and Systems</td>
<td></td>
</tr>
<tr>
<td>Intuitionistic Fuzzy Multivalued Dependency and Intuitionistic Fuzzy Fourth Normal Form</td>
<td>393</td>
</tr>
<tr>
<td>Asma R. Shora, Afshar Alam and Ranjit Biswas</td>
<td></td>
</tr>
<tr>
<td>Parameter Reduction of Intuitionistic Fuzzy Soft Sets and Its Related Algorithms</td>
<td>405</td>
</tr>
<tr>
<td>Sumonta Ghosh and Sujit Das</td>
<td></td>
</tr>
<tr>
<td>Correlation Measure of Hesitant Fuzzy Linguistic Term Soft Set and Its Application in Decision Making</td>
<td>413</td>
</tr>
<tr>
<td>Debashish Malakar, Sulekha Gope and Sujit Das</td>
<td></td>
</tr>
<tr>
<td>Constrained Solid Travelling Salesman Problem Solving by Rough GA Under Bi-Fuzzy Coefficients</td>
<td>425</td>
</tr>
<tr>
<td>Samir Maity, Arindam Roy and Manoranjan Maiti</td>
<td></td>
</tr>
<tr>
<td>Part X Routing and Traffic Grooming</td>
<td></td>
</tr>
<tr>
<td>A Novel Multi-Criteria Multi-Agent-Based Routing Strategy Based on Tarantula Mating Behavior</td>
<td>443</td>
</tr>
<tr>
<td>Susmita Bandyopadhyay and Arindam Kumar Chanda</td>
<td></td>
</tr>
<tr>
<td>A Tree Based Multicast Routing Protocol Using Reliable Neighbor Node for Wireless Mobile Ad-Hoc Networks</td>
<td>455</td>
</tr>
<tr>
<td>Yadav Ajay Kumar and Tripathi Sachin</td>
<td></td>
</tr>
<tr>
<td>Traffic Grooming in Hybrid Optical-WiMAX Mesh Networks</td>
<td>467</td>
</tr>
<tr>
<td>Deepa Naik, Soumyadeb Maity and Tanmay De</td>
<td></td>
</tr>
<tr>
<td>Part XI Authentication and Network Security</td>
<td></td>
</tr>
<tr>
<td>Host-Based Intrusion Detection Using Statistical Approaches</td>
<td>481</td>
</tr>
<tr>
<td>Sunil Kumar Gautam and Hari Om</td>
<td></td>
</tr>
<tr>
<td>Secure Remote Login Scheme with Password and Smart Card Update Facilities</td>
<td>495</td>
</tr>
<tr>
<td>Rajeev Kumar, Ruhul Amin, Arijit Karati and G.P. Biswas</td>
<td></td>
</tr>
<tr>
<td>Generation and Risk Analysis of Network Attack Graph</td>
<td>507</td>
</tr>
<tr>
<td>Keshav Prasad, Santosh Kumar, Anuradha Negi and Aniket Mahanti</td>
<td></td>
</tr>
</tbody>
</table>
Unsupervised Spam Detection in Hyves Using SALSA. 517
Mohit Agrawal and R. Leela Velusamy

Cryptanalysis of a Chaotic Map-Based Authentication and Key Agreement Scheme for Telecare Medicine
Information Systems 527
Sandip Roy and Santanu Chatterjee

Improving the Accuracy of Intrusion Detection Using GAR-Forest with Feature Selection 539
Navaneeth Kumar Kanakarajan and Kandasamy Muniasamy

Part XII Text Processing

Sentiment Analysis with Modality Processing 551
Surabhi Jain, Louella Mesquita Colaco and Okstynn Rodrigues

Query-Based Extractive Text Summarization for Sanskrit 559
Siddhi Barve, Shaba Desai and Razia Sardinha

Code Obfuscation by Using Floating Points and Conditional Statements 569
Chandan Kumar Behera and D. Lalitha Bhaskari

Privacy Preserving Spam Email Filtering Based on Somewhat Homomorphic Using Functional Encryption 579
Sumit Jaiswal, Subhash Chandra Patel and Ravi Shankar Singh

Part XIII Image Processing

Digital Image Watermarking Scheme Based on Visual Cryptography and SVD 589
Ajay Kumar Mallick, Priyanka and Sushila Maheshkar

Compression of Hyper-Spectral Images and Its Performance Evaluation 599
K. Subhash Babu, K.K. Thyagarajan and V. Ramachandran

Hand Gesture Recognition for Sign Language: A Skeleton Approach 611
Y.H. Sharath Kumar and V. Vinutha

Modified Cuckoo Search-Based Image Enhancement 625
Lalit Maurya, Prasant Kumar Mahapatra and Garima Saini

A Novel Iterative Salt-and-Pepper Noise Removal Algorithm 635
Amiya Halder, Sayan Halder and Samrat Chakraborty
Part XIV Intelligent System Planning

Queuing Model for Improving QoS in Cloud Service Discovery ........ 647
V. Viji Rajendran and S. Swamynathan

Adaptive Multilayer Routing for Incremental Design of an SoC ........ 657
Debasri Saha

Analyzing and Modeling Spatial Factors for Pre-decided Route Selection Behavior: A Case Study of Fire Emergency Vehicles of Allahabad City .................................................. 667
Mainak Bandyopadhyay and Varun Singh

Fault Tolerant Scheduling with Enhanced Performance for Onboard Computers: Evaluation ................................. 677
Archana Sreekumar and V. Radhamani Pillay

A Multiagent Planning Algorithm with Joint Actions ............... 691
Satyendra Singh Chouhan and Rajdeep Niyogi

4-Directional Combinatorial Motion Planning Via Labeled Isotonic Array P System ............................................. 701
Williams Sureshkumar and Raghavan Rama

Intelligent Control of DFIG Using Sensorless Speed Estimation and Lookup Table-Based MPPT Algorithm to Overcome Wind and Grid Disturbances ........................................ 711
D.V.N. Ananth and G.V. Nagesh Kumar

Author Index ............................................................. 727
Proceedings of the 4th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA)
2015
2016, XX, 729 p. 258 illus. in color., Softcover