

First International Conference on Computational Intelligence: Modeling Techniques and Applications

(CIMTA 2013)

Procedia Technology Volume 10

**Kalyani, India
27-28 September 2013**

Part 1 of 2

ISBN: 978-1-63266-346-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Part 1 of 2

Preface	1
<i>Jyotsna Kumar Mandal, Anirban Mukhopadhyay</i>	
Prioritization of Clusters for Post-genomic Analysis	3
<i>Malay Bhattacharyya, Sanghamitra Bandyopadhyay</i>	
Building and Querying Microbial Ontology	13
<i>Sreekumar Biswas, Sudeep Marwaha, P.K. Malhotra, S.D. Wahi, D.W. Dhar, Richa Singh</i>	
An Improved Minimum Redundancy Maximum Relevance Approach for Feature Selection in Gene Expression Data	20
<i>Monalisa Mandal, Anirban Mukhopadhyay</i>	
Detection of Abnormal Findings in Human RBC in Diagnosing Sickle Cell Anaemia Using Image Processing	28
<i>Pranati Rakshit, Kriti Bhowmik</i>	
Prediction of Prostate Cancer Cells Based on Principal Component Analysis Technique	37
<i>A. Ghosh, S. Barman</i>	
Automatic Detection of Atrial Fibrillation Using Empirical Mode Decomposition and Statistical Approach	45
<i>U. Maji, M. Mitra, S. Pal</i>	
Hybrid Computational Simulation and Modeling Assisted Structural Analysis of Anti-tubercular Molecules	53
<i>Sudipta Mondal, Neeraj Upamanyu, Debanjan Sen</i>	
Analysis of Features from Protein-protein Hetero-complex Structures to Predict Protein Interaction Interfaces Using Machine Learning	62
<i>Angshuman Bagchi, Matthew Mort, Biao Li, Fuxiao Xin, Carson Carlise, Tal Oron, Corey Powell, Eunseog Youn, Predrag Radivojac, David N. Cooper, Sean D. Mooney</i>	
Classifying Electrooculogram to Detect Directional Eye Movements	67
<i>Anwasha Banerjee, Shreyasi Datta, Monalisa Pal, Amit Konar, D.N. Tibarewala, R. Janarthanan</i>	
Cardiac Arrhythmia Classification Using Neural Networks with Selected Features	76
<i>Malay Mitra, R.K. Samanta</i>	
Classification of Heart Disease Using K- Nearest Neighbor and Genetic Algorithm	85
<i>M. Akhil jabbar, B.L. Deekshatulu, Priti Chandra</i>	
Stirling Transform Based Color Image Authentication	95
<i>S.K. Ghosal, J.K. Mandal</i>	
A Genetic Algorithm Based Steganography Using Discrete Cosine Transformation (GASDCT)	105
<i>Amrita Khamrui, J.K. Mandal</i>	
A Novel Approach for Text Steganography: Generating Text Summary Using Reflection Symmetry	112
<i>Anandapova Majumder, Suvamoy Changder</i>	
Authentication Through Hough Transformation Generated Signature on G-Let D3 Domain (AHSG)	121
<i>Madhumita Sengupta, J.K. Mandal</i>	
Optimized Video Steganography Using Genetic Algorithm (GA)	131
<i>Kousik Dasgupta, Jyotsna Kumar Mandal, Paramartha Dutta</i>	
Chaos Based Edge Adaptive Image Steganography	138
<i>Ratnakirti Roy, Anirban Sarkar, Suvamoy Changder</i>	
A Novel Hash Based Technique for Thermal Image Authentication	147
<i>Madhumita Sengupta, Pragati Mandal, Tanmoy Das, Abhijit Dey</i>	
Hiding & Analyzing Data in Image Using Extended PMM	157
<i>Indradip Banerjee, Souvik Bhattacharyya, Gautam Sanyal</i>	
A Text Based Steganography Technique with Indian Root	167
<i>Souvik Roy, P. Venkateswaran</i>	
A Novel EMD Based Watermarking of Fingerprint Biometric Using GEP	172
<i>Anil Kumar Shaw, Swanirbhar Majumder, Souvik Sarkar, Subir Kumar Sarkar</i>	
UDDI Extensions for Temporally Customized Web Services	184
<i>Preeti Marwaha, Hema Banati, Punam Bedi</i>	
Resistivity Imaging of a Phantom with Irregular Inhomogeneities with 32 Silver Electrodes Based Sensory System in Two Dimensional Electrical Impedance Tomography	191
<i>Deborshi Chakraborty, Madhurima Chattopadhyay, Radhaballabh Bhar</i>	
Agent Based Resource Monitoring System in IaaS Cloud Environment	200
<i>A. Meera, S. Swamynathan</i>	
Two Storage Production Model with Imperfect Quality for Decaying Items Under Preservation	208
<i>S.R. Singh, Shalini Jain, Himani Dem</i>	

Green Supply Chain Model with Product Remanufacturing under Volume Flexible Environment	216
<i>U. Urvashi, S.R. Singh, N. Singh</i>	
An EOQ Model With Preservation Technology Investment When Demand Depends On Selling Price And Credit Period Under Two Level Of Trade Credit	227
<i>S.R. Singh, Vandana Gupta, Abhinav Goel</i>	
Estimating Air Shower Fluctuations from the Monte Carlo Simulation Code <i>CORSIKA</i>	236
<i>R.K. Dey, T. Sarkar, A. Bhadra</i>	
Prediction of Flow Regime for Air-water Flow in Circular Micro Channels Using ANN	242
<i>Nirjhar Bar, Sudip Kumar Das</i>	
SaaS Oriented Generic Cloud Compiler	253
<i>Chandan Banerjee, Anirban Kundu, Rana Dattagupta</i>	
Finite Element Method Based Modeling of a Sensory System for Detection of Atherosclerosis in Human Using Electrical Impedance Tomography	262
<i>Deborshi Chakraborty, Madhurima Chattopadhyay</i>	
Random Walks Based Image Segmentation Using Color Space Graphs	271
<i>Sonu Kumar Jha, Purnendu Bannerjee, Subhadeep Banik</i>	
Modelling and Simulation of Cost Effective Sensorless Drive for Brushless DC Motor	279
<i>Debjyoti Chowdhury, Madhurima Chattopadhyay, Priyanka Roy</i>	
Signal Processing Approach for Music Synthesis Using Bird's Sounds	287
<i>Hemant Sharma, E.S. Gopi</i>	
Modified Shuffled Frog Leaping Algorithm Based 6DOF Motion for Underwater Mobile Robot	295
<i>Shubhasri Kundu, Dayal R. Parhi</i>	
Generalization of Booth's Algorithm for Efficient Multiplication	304
<i>Barun Biswas, Bidyut B. Chaudhuri</i>	
Multi-scale Speaker Transformation Using Radial Basis Function	311
<i>Jagannath Nirmal, Suprava Patnaik, Mukesh Zaveri, Pramod Kachare</i>	
Multi-Echelon Supply Chain Management for Deteriorating items with Partial Backordering under Inflationary Environment	320
<i>Aditya Shastri, S.R. Singh, Dharmendra Yadav, Shalley Gupta</i>	
A Closed Loop Supply Chain System with Flexible Manufacturing and Reverse Logistics Operation under Shortages for Deteriorating Items	330
<i>S.R. Singh, Neha Saxena</i>	
A Genetic Algorithm (GA) Based Load Balancing Strategy for Cloud Computing	340
<i>Kousik Dasgupta, Brotoni Mandal, Paramartha Dutta, Jyotsna Kumar Mandal, Santanu Dam</i>	
Automated PC-based Control and Monitoring of Radio Observations Using LPDA	348
<i>A.B. Bhattacharya, K. Roy, J. Pandit, A. Nag</i>	
Random Polygon Generation through Convex Layers	356
<i>Sanjib Sadhu, Niraj Kumar, Bhudev Kumar</i>	
Cost Optimized Set of Primes Generation with Cellular Automata for Stress Testing in Distributed Computing	365
<i>Arnab Mitra, Anirban Kundu</i>	
Updation of Activation Sequence of a Chip After Its Deployment for Access Control	373
<i>Debasri Saha, Susmita Sur-Kolay</i>	
An Integrated Model with Variable Production and Demand Rate under Inflation	381
<i>S.R. Singh, Swati Sharma</i>	
An Algorithm for Generating only Desired Permutations for Solving Sudoku Puzzle	392
<i>Arnab Kumar Maji, Sunanda Jana, Rajat Kumar Pal</i>	
Computational Study on the Effect of Blade Cutback on the Performance of the Centrifugal Compressor	400
<i>S. Seralathan, D.G. Roy Chowdhury</i>	
Design and Implementation of Visualizers for TinyOS	409
<i>Atrayee Gupta, Sarbani Roy</i>	
Research and Reviews in Question Answering System	417
<i>Sanjay K. Dwivedi, Vaishali Singh</i>	
An Agentmining Framework for Intelligent Vehicular System	425
<i>Swathi Lanka, S.K. Jena</i>	
Computational Intelligence Based Triple Layer Perceptron Model Coordinated PSO Guided Metamorphosed Based Application in Cryptographic Technique for Secured Communication (TLPPSO)	433
<i>Arindam Sarkar, J.K. Mandal</i>	
Clustering Ensemble: A Multiobjective Genetic Algorithm Based Approach	443
<i>Sujoy Chatterjee, Anirban Mukhopadhyay</i>	

Construction of GA-optimized Radial Basis Neural Network from HIV-1 Vpr Mutant Microarray Gene Expression Data	450
<i>Bandana Barman, Anirban Mukhopadhyay</i>	
A Computational and Mathematical Approach Towards the Design and Synthesis of Uniform Au Seed Decorated Fe₃O₄ Nanoparticle for Potential Bio-application	457
<i>Saptarshi Chatterjee, Keka Sarkar</i>	
GA Based FGP Approach for Optimal Reactive Power Dispatch	464
<i>Bijay Baran Pal, Papun Biswas, Anirban Mukhopadhyay</i>	
Time Efficient Optimal Tunning through Various Learning Rules in Unify Computing (TEOTLRUC)	474
<i>J.K. Mandal, Arghyadip Chowdhuri, Arindam Sarkar</i>	
Artificial Neural Networks Based Prediction of Insolation on Horizontal Surfaces for Bangladesh	482
<i>Md. Shafiqul Islam, Md. Monirul Kabir, Nafis Kabir</i>	
Genetic Algorithm Based Approach for Serving Maximum Number of Customers Using Limited Resources	492
<i>Soumen Atta, Priya Ranjan Sinha Mahapatra</i>	

Part 2 of 2

Neural Network Modeling of Color Array Filter for Digital Forgery Detection Using Kernel LDA	498
<i>S. Vinoth, E.S. Gopi</i>	
FGP Approach for Solving Fractional Multiobjective Decision Making Problems Using GA with Tournament Selection and Arithmetic Crossover	505
<i>Debjani Chakraborti, Papun Biswas, Bijay Baran Pal</i>	
A Light Weight Trust Based Secure and Energy Efficient Clustering in Wireless Sensor Network: Honey Bee Mating Intelligence Approach	515
<i>Rashmi Ranjan Sahoo, Moutushi Singh, Biswa Mohan Sahoo, Koushik Majumder, Sudhabindu Ray, Subir Kumar Sarkar</i>	
Detection of Blackhole Behaviour Using Triangular Encryption in NS2	524
<i>Nabaran Chatterjee, Jyotsna Kumar Mandal</i>	
QoS of MANET Through Trust Based AODV Routing Protocol by Exclusion of Black Hole Attack	530
<i>Radha Krishna Bar, Jyotsna Kumar Mandal, Moirangthem Marjit Singh</i>	
Enhancing Coverage Ratio Using Mobility in Heterogeneous Wireless Sensor Network	538
<i>Durga Pavan Nudurupati, Rajat Kumar Singh</i>	
HelloMsgC: A Practical Implementation of Hello Message Protocol in Wireless Sensor Network	546
<i>Shaik Sahil Babu, Arnab Raha, Utpal Biswas, Mrinal Kanti Naskar</i>	
Duo Triangle Shaped Microstrip Patch Antenna Analysis for WiMAX Lower Band Application	554
<i>Stuti Srivastava, Vinod Kumar Singh, Ashutosh Kumar Singh, Zakir Ali</i>	
iSENSE: Intelligent Sensor Monitoring Services with Integrated WSN Testbed	564
<i>Sovan Bisoi, Suman Sankar Bhunia, Sarbani Roy, Nandini Mukherjee</i>	
Genetic Algorithm Based Resource Broker for Computational Grid	572
<i>Susmita Singh, Madhulina Sarkar, Sarbani Roy, Nandini Mukherjee</i>	
Gravitational Search Algorithm and Lyapunov Theory Based Stable Adaptive Fuzzy Logic Controller	581
<i>Ananya Roy, Kaushik Das Sharma</i>	
Interval Goal Programming Approach to Multiobjective Fuzzy Goal Programming Problem with Interval Weights	587
<i>Shyamal Sen, Bijay Baran Pal</i>	
A Novel Selective Scale Space Based Fuzzy C-means Model for Spatial Clustering	596
<i>Parthajit Roy, J.K. Mandal</i>	
Risk Analysis in Construction Sites Using Fuzzy Reasoning and Fuzzy Analytic Hierarchy Process	604
<i>Debasish Majumder, Joy Debnath, Animesh Biswas</i>	
Fusion of Electronic Nose and Tongue Response Using Fuzzy Based Approach for Black Tea Classification	615
<i>Runu Banerjee, Angiras Modak, Sourav Mondal, Bipan Tudu, Rajib Bandyopadhyay, Nabaran Bhattacharyya</i>	
Performance Comparison of Cosine, Haar, Walsh-hadamard, Fourier and Wavelet Transform for Shape Based Image Retrieval Using Fuzzy Similarity Measure	623
<i>Alina Banerjee, Ambar Dutta</i>	
A Virtual Model for Currency Tracking Using Fuzzy Inference Rule in a Unique Identity Environment	628
<i>Sutanu Nandi, R.K. Nadesh</i>	
A Revised Multi-choice Goal Programming Framework for Economic-environmental Power Generation and Dispatch Problem	637
<i>Bijay Baran Pal, Mousumi Kumar</i>	

Automatic Eye Detection Using Fast Corner Detector of North East Indian (NEI) Face Images	646
<i>Goutam Majumder, Mrinal Kanti Bhowmik, Debotosh Bhattacharjee</i>	
A Region-to-pixel Based Multi-sensor Image Fusion	654
<i>Sourav Pramanik, Swagatika Prusty, Debotosh Bhattacharjee, Piyush Kanti Bhunre</i>	
A Non-adaptive Partial Encryption of Grayscale Images Based on Chaos	663
<i>Sukalyan Som, Sayani Sen</i>	
A Bar Code Design and Encoding for Fingerprints	672
<i>Samayita Bhattacharya, Kalyani Mali</i>	
Wavelet Based Denoising of Medical Images Using Sub-band Adaptive Thresholding through Genetic Algorithm	680
<i>Somnath Mukhopadhyay, J.K. Mandal</i>	
Feature Accentuation Using Uniform Morphological Correction as Pre-processing Technique for DWT Based Face Recognition	690
<i>S.T. Roohi, D.S. Sachin, K. Manikantan, S. Ramachandran</i>	
Image Compression Based on Block Truncation Coding Using Clifford Algebra	699
<i>Kartik Sau, Ratan Kumar Basak, Amitabha Chanda</i>	
Robust Technique for Image Encryption and Decryption Using Discrete Fractional Fourier Transform with Random Phase Masking	707
<i>A. Ashutosh, Deepak Sharma</i>	
Plagiarism Detection by Identifying the Equations	715
<i>Debotosh Bhattacharjee, Sandipan Dutta</i>	
Feature Points Extraction of Thermal Face Using Harris Interest Point Detection	724
<i>Mrinal Kanti Bhowmik, Sandip Shil, Priya Saha</i>	
An Effective Approach: Image Quality Enhancement for Microaneurysms Detection of Non-dilated Retinal Fundus Image	731
<i>Niladri Sekhar Datta, Himadri Sekhar Dutta, Mallika De, Saurajeet Mondal</i>	
Segmentation of Connected Components in Arabic Handwritten Documents	738
<i>N. Aouadi, S. Amiri, A. Kacem Echi</i>	
Fusion of Directional Spatial Discriminant Features for Face Recognition	747
<i>Aniruddha Dey, Jamuna Kanta Sing, Shiladitya Chowdhury</i>	
Facial Expression Recognition Using Eigenspaces	755
<i>Debasmita Chakrabarti, Debtanu Dutta</i>	
A GIS Anchored System for Selection of Utility Service Stations Through Hierarchical Clustering	762
<i>Anirban Chakraborty, J.K. Mandal, S.B. Chandrabanshi, S. Sarkar</i>	
Analytical Design of Feature Based Ranking	773
<i>Sutirtha Kumar Guha, Anirban Kundu, Somasree Bhadra, Rana Dattagupta</i>	
Approximate Data Mining Using Sketches for Massive Data	781
<i>Parul Gupta, Swati Agnihotri, Suman Saha</i>	
Two-warehouse Inventory Model with Multivariate Demand and K-release Rule	788
<i>Neeraj Kumar, S.R. Singh, Jaivindra Tomar</i>	
Estimating Correlation Dimension Using Multi Layered Grid and Damped Window Model Over Data Streams	797
<i>Anuradha Yarlagadda, J.V.R. Murthy, M.H.M. Krishna prasad</i>	
Performance Analysis of Object Shape Classification and Matching from Tactile Images Using Wavelet Energy Features	805
<i>Shreyasi Datta, Anwesha Khasnobish, Amit Konar, D.N. Tibarewala, R. Janarthanan</i>	
Prediction of Frictional Pressure Drop Using Artificial Neural Network for Air-water Flow through U-bends	813
<i>Nirjhar Bar, Sudip Kumar Das, Manindra Nath Biswas</i>	
Shift Invariance Based Feature Extraction and Weighted BPSO Based Feature Selection for Enhanced Face Recognition	822
<i>Santhosh Shetty, Paritosh Kelkar, K. Manikantan, S. Ramachandran</i>	
Handwritten and Printed Word Identification Using Gray-scale Feature Vector and Decision Tree Classifier	831
<i>Samir Malakar, Rahul Kumar Das, Ram Sarkar, Subhadip Basu, Mita Nasipuri</i>	
Embedded System of DC Motor Closed Loop Speed Control Based on 8051 Microcontroller	840
<i>Reetam Mondal, Arumay Mukhopadhyay, Debdoot Basak</i>	
Measurement of Power Frequency with Higher Accuracy Using PIC Microcontroller	849
<i>Khairul Alam, Tanmoy Chakraborty, Srabana Pramanik, Debabrata Sarddar, Satadal Mal</i>	
Evaluation of Power Efficient FIR Filter for FPGA Based DSP Applications	856
<i>Subhankar Bhattacharjee, Sanjib Sil, Amlan Chakrabarti</i>	
Design and Simulation of Single Electron Threshold Logic Gate Based Programmable Logic Array	866
<i>Arpita Ghosh, Amit Jain, Subir Kumar Sarkar</i>	

Salient Features of Cluster Based Routing for Mobile Networks	875
<i>Parag Kumar Guha Thakurt</i>	
The Path Length Prediction of MANET Using Moving Average Model	882
<i>Arindrajit Pal, Jyoti Prakash Singh, Paramartha Dutta</i>	
Towards Bengali DBpedia	890
<i>Arup Sarkar, Ujjal Marjit, Utpal Biswas</i>	
Multicast Traffic Grooming Based Light-tree in WDM Mesh Networks	900
<i>Ashok Kumar Pradhan, Tanmay De</i>	
Assignment of Static Light Trail in WDM Networks	910
<i>Sampa Rani Bhadra, Utpal Biswas, Mrinal Kanti Naskar</i>	
An Improved Parallel Prefix Computation on 2D-Mesh Network	919
<i>Sudhanshu Kumar Jha</i>	
PAPR Reduction in SC-FDMA Using NCT Technique	927
<i>Sandeep Shukla, Saurabh Shukla, Neetesh Purohit</i>	
Securing Message Using Recursive Modulo-2 and Key Rotation Operation (RMRO)	935
<i>J.K. Mandal, P.K. Jha</i>	
Security Based Domotics	942
<i>Rishabh Das, Sayantan Dutta, Kaushik Samanta, Anusree Sarkar, Debasis Das</i>	
Modified Compression Techniques Based on Optimality of LZW Code (MOLZW)	949
<i>Utpal Nandi, Jyotsna Kumar Mandal</i>	
Generation of AES S-boxes with Various Modulus and Additive Constant Polynomials and Testing their Randomization	957
<i>S. Das, J.K.M.S. Uz Zaman, R. Ghosh</i>	
Detection of Profile-injection Attacks in Recommender Systems Using Outlier Analysis	963
<i>Parthasarathi Chakraborty, Sunil Karforma</i>	
Offline Signature Verification Using Pixel Matching Technique	970
<i>Indrajit Bhattacharya, Prabir Ghosh, Swarup Biswas</i>	
Preservation of IPR of Songs Through Embedding Secret Song (IPRSESS)	978
<i>Uttam Kr. Mondal, J.K. Mandal</i>	
Modelling and Simulation: Cyber War	987
<i>Bimal Kumar Mishra, Apeksha Prajapati</i>	
Author Index	