

2014 Sixth World Congress on Nature and Biologically Inspired Computing

(NaBIC 2014)

Porto, Portugal
30 July - 1 August 2014



IEEE Catalog Number: CFP1495H-POD
ISBN: 978-1-4799-5938-9

TABLE OF CONTENTS

A Hybrid Harmony Search Algorithm with Variable Neighbourhood Search for the Bin-Packing Problem	1
<i>M. Castelli, L. Vanneschi</i>	
Implementing Flower Multi-objective Algorithm for Selection of University Academic Credits	7
<i>A. Ochoa, S. Gonzalez, L. Margain, T. Padilla, O. Castillo, P. Melin</i>	
Fuzzy C-Means with Wavelet Filtration for MR Image Segmentation.....	12
<i>S. Jui, C. Lin, H. Guan, A. Abraham, A. Hassani, K. Xiao</i>	
Diversity Study of Multi-Objective Genetic Algorithm Based on Shannon Entropy.....	17
<i>E. Pires, J. Machado, P. Oliveira</i>	
Towards an Autonomous Multistate Biomolecular Devices Built on DNA.....	23
<i>T. Krasinski, S. Sakowski, T. Poplawski</i>	
Studying the Reporting Cells Strategy in a Realistic Mobile Environment.....	29
<i>V. Berrocal-Plaza, M. Vega-Rodriguez, J. Sanchez-Perez</i>	
Performance Analysis of Multiobjective Artificial Bee Colony Implementations for Phylogenetic Reconstruction	35
<i>S. Santander-Jimenez, M. Vega-Rodriguez</i>	
Extracting Three-Dimensional Cellular Automaton for Cement Microstructure Development using Gene Expression Programming.....	41
<i>Z. Liang, B. Yang, L. Wang, X. Zhang, N. He, A. Abraham</i>	
Improvement of FCM Neural Network Classifier using K-Medoids Clustering.....	47
<i>X. Zhang, B. Yang, L. Wang, Z. Liang, A. Abraham</i>	
Archives-holding XCS Classifier System: A Preliminary Study.....	53
<i>T. Komine, M. Nakata, K. Takadama</i>	
Magnetotactic Bacteria Optimization Algorithm Based On Best-Rand Scheme.....	59
<i>H. Mo, M. Geng</i>	
Si elegans: FPGA Hardware Emulation of <i>C. elegans</i> Nematode Nervous System.....	65
<i>P. Machado, J. Wade, T. McGinnity</i>	
An Ordered Approach to Minimum Completion Time in Unrelated Parallel- Machines for the Makespan Optimization.....	72
<i>A. Santos, A. Madureira, M. Varela</i>	
A Perturbation and Observation Routine Used To Control A Power Converter.....	78
<i>T. Santos, A. Galhardo</i>	
Hybridizing Evolutionary Algorithms for Creating Classifier Ensembles	84
<i>E. Dufourq, N. Pillay</i>	
Hybrid Genetic-Fuzzy Systems for Improved Performance in Residual-Based Fault Detection.....	91
<i>F. Serdio, A. Zavoiaru, E. Lughofer, K. Pichler, T. Buchegger, H. Efendic</i>	
Alternative Approaches Analysis for Scheduling in an Extended Manufacturing Environment	97
<i>A. Santos, M. Varela, G. Putnik, A. Madureira</i>	
An Architecture for User Modeling on Intelligent and Adaptive Scheduling Systems	103
<i>A. Madureira, B. Cunha, J. Pereira, I. Pereira, S. Gomes</i>	
Fuzzy Linguistic Controllers Applied to Decouple Control Loop Effects.....	109
<i>J. Calado, A. Sousa</i>	
Optimal Operation Point in Electrical Grids using a MOPSO Algorithm	115
<i>P. Pereira, S. Leitao, E. Pires</i>	
Feature Selection and Ensemble of Regression models for Predicting the Protein Macromolecule Dissolution Profile.....	121
<i>V. Ojha, K. Jackowski, A. Abraham, V. Snasel</i>	
Energy Optimization for Task Scheduling in Distributed Systems by an Artificial Bee Colony Approach.....	127
<i>M. Arsuaga-Rios, M. Vega-Rodriguez</i>	
Rapid Way Mobile Application in Wireless Sensor Network: A Practical Research in Transportation System.....	133
<i>I. Valizadeh, M. Shojafar, A. Abraham</i>	
Feedforward and Feedback Optimal Vibration Rejection for Active Suspension Discrete-Time Systems under In-Vehicle Networks	139
<i>S. Han, Y. Chen, K. Ma, D. Wang, Z. Liu, A. Abraham</i>	

Prototype of an Adaptive Decision Support System for Interactive Scheduling with MetaCognition and User Modeling Experience.....	145
<i>A. Madureira, S. Gomes, B. Cunha, J. Pereira, J. Santos, I. Pereira</i>	
Information Acquisition Performance by Supervised Information-Theoretic Self-Organizing Maps.....	151
<i>R. Kamimura</i>	
Optimization of Interval Type-2 Fuzzy Logic Systems Using Tabu Search Algorithms	158
<i>M. Almaraashi, A. Hedar</i>	
Scheduling Single-Machine Problem Based on Just-in-time Principles A Case Study	164
<i>J. Dantas, L. Varela</i>	
Comparative Analysis of Scheduling Rules Through Arena for Parallel Machines A Case Study.....	170
<i>F. Teixeira, L. Oliveira, L. Varela</i>	
Efficient Approaches to Interleaved Sampling of training data for Symbolic Regression	176
<i>R. Azad, D. Medemach, C. Ryan</i>	
Fall Avoidance of BipedalWalking Robot by Profit Sharing that Can Learn Deterministic Policy for POMDPs Environments	184
<i>T. Suzuki, Y. Osana</i>	
Automatic Melody Generation considering Chord Progression by Genetic Algorithm	190
<i>M. Kikuchi, Y. Osana</i>	
Scheduling in Product Oriented Manufacturing Systems Comparing Hybrid Flowshop with Parallel-machine flowshop-an Industrial Study	196
<i>N. Costa, M. Varela, S. Carmo-Silva</i>	
A Multi-Objective Imperialist Competitive Algorithm to Solve a New Multi-Modal Tree Hub Location Problem	202
<i>R. Tavakkoli-Moghaddam, S. Sedehzadeh</i>	
Genetic Algorithm versus Memetic algorithm for Association Rules Mining	208
<i>H. Drias</i>	
An Experimental Analysis of the Echo State Network Initialization Using the Particle Swarm Optimization	214
<i>S. Basterrech, E. Alba, V. Snasel</i>	
Optimization of Structures Modeled with a Meshfree Approach.....	220
<i>G. Bernardo, M. Loja</i>	
Reg4OptFlux: an OptFlux Plug-in that Comprises Meta-heuristics Approaches for Metabolic Engineering Using Integrated Models.....	226
<i>O. Rocha, P. Vilaca, M. Rocha, R. Mendes</i>	
Effect of Communication Topologies on Hybrid Evolutionary Algorithms	232
<i>W. Franz, P. Thulasiraman</i>	
On The Efficiency of Multi-core Grammatical Evolution (MCGE) Evolving Multi-Core Parallel Programs	238
<i>G. Chennupati, J. Fitzgerald, C. Ryan</i>	
Towards a low-cost framework for Intelligent Robots	244
<i>P. Goncalves, F. Santos, P. Torres</i>	
Genetic Algorithm for Solving Survivable Network Design Problem with Extending-Cycle-Based Protected Working Capacity Envelope	250
<i>L. Tuan, H. Binh</i>	
Portfolio Diversification Using Ant Brood Sorting Clustering	256
<i>O. Oduntan, P. Thulasiraman, R. Thulasiram</i>	
Incremental Clustering of Data Stream Using Real Ants Behavior	262
<i>N. Masmoudi, H. Azzag, M. Lebbah, C. Bertelle</i>	
Parallel Machines Scheduling with Fuzzy Simulated Annealing	269
<i>A. Santos, M. Varela, A. Madureira, R. Ribeiro</i>	
Logarithmically Proportional Objective Function for Planar Surfaces Recognition in 3D Point Cloud	275
<i>M. Bazargani, L. Mateus, M. Loja</i>	
Deleting or Keeping Outliers for Classifier Training?	281
<i>A. Tallon-Ballesteros, J. Riquelme</i>	
Multiobjective Optimization For Volt/Thd Problem In Distribution System.....	287
<i>A. Almeida, F. Pamplona</i>	
Optimal Location of Supports in Beam Structures Using Genetic Algorithms.....	293
<i>D. Loureiro, M. Loja, T. Silva</i>	
Manufacturing Rush Orders Rescheduling: a Supervised Learning Approach	299
<i>A. Madureira, J. Santos, S. Gomes, B. Cunha, J. Pereira, I. Pereira</i>	

Demonstrating the Power of Object-Oriented Genetic Programming via the Inference of Graph Models for Complex Networks	305
<i>M. Medland, K. Harrison, B. Ombuki-Berman</i>	
Reusable Knowledge by Linkage-Classifier in Accuracy-based Learning Classifier System.....	312
<i>K. Usui, M. Nakata, K. Takedama</i>	
Author Index	