

Table of Contents – Part II

EvoCOMNET Contributions

Detection of DDoS Attacks via an Artificial Immune System-Inspired Multiobjective Evolutionary Algorithm	1
<i>Uğur Akyazı and A. Şima Uyar</i>	
Performance Evaluation of an Artificial Neural Network-Based Adaptive Antenna Array System	11
<i>Muamar Al-Bajari, Jamal M. Ahmed, and Mustafa B. Ayoob</i>	
Automatic Parameter Tuning with Metaheuristics of the AODV Routing Protocol for Vehicular Ad-Hoc Networks	21
<i>José García-Nieto and Enrique Alba</i>	
WiMAX Network Planning Using Adaptive-Population-Size Genetic Algorithm	31
<i>Ting Hu, Yanzhu Peter Chen, and Wolfgang Banzhaf</i>	
Markov Chain Models for Genetic Algorithm Based Topology Control in MANETs	41
<i>Cem Şafak Şahin, Stephen Gundry, Elkin Urrea, M. Ümit Uyar, Michael Conner, Giorgio Bertoli, and Christian Pizzo</i>	
Particle Swarm Optimization for Coverage Maximization and Energy Conservation in Wireless Sensor Networks	51
<i>Nor Azlina Ab. Aziz, Ammar W. Mohammed, and Mengjie Zhang</i>	
Efficient Load Balancing for a Resilient Packet Ring Using Artificial Bee Colony	61
<i>Anabela Moreira Bernardino, Eugénia Moreira Bernardino, Juan Manuel Sánchez-Pérez, Juan Antonio Gómez-Pulido, and Miguel Angel Vega-Rodríguez</i>	
TCP Modification Robust to Packet Reordering in Ant Routing Networks	71
<i>Malgorzata Gadomska-Kudelska and Andrzej Pacut</i>	
Solving the Physical Impairment Aware Routing and Wavelength Assignment Problem in Optical WDM Networks Using a Tabu Search Based Hyper-Heuristic Approach	81
<i>Ali Keleş, A. Şima Uyar, and Aysegül Yayınlı</i>	
A Generalized, Location-Based Model of Connections in Ad-Hoc Networks Improving the Performance of Ant Routing	91
<i>Michał Kudelski and Andrzej Pacut</i>	

Using Code Bloat to Obfuscate Evolved Network Traffic	101
<i>Patrick LaRoche, Nur Zincir-Heywood, and Malcolm I. Heywood</i>	
ABC Supported Handoff Decision Scheme Based on Population Migration	111
<i>Xingwei Wang, Hui Cheng, Peiyu Qin, Min Huang, and Lei Guo</i>	

EvoENVIRONMENT Contributions

A Hyper-Heuristic Approach for the Unit Commitment Problem	121
<i>Argun Berberoğlu and A. Şima Uyar</i>	
Application of Genetic Programming Classification in an Industrial Process Resulting in Greenhouse Gas Emission Reductions	131
<i>Marco Lotz and Sara Silva</i>	
Influence of Topology and Payload on CO ₂ Optimised Vehicle Routing	141
<i>Cathy Scott, Neil Urquhart, and Emma Hart</i>	
Start-Up Optimisation of a Combined Cycle Power Plant with Multiobjective Evolutionary Algorithms	151
<i>Ilaria Bertini, Matteo De Felice, Fabio Moretti, and Stefano Pizzuti</i>	

EvoFIN Contributions

A Study of Nature-Inspired Methods for Financial Trend Reversal Detection	161
<i>Antonia Azzini, Matteo De Felice, and Andrea G.B. Tettamanzi</i>	
Outperforming Buy-and-Hold with Evolved Technical Trading Rules: Daily, Weekly and Monthly Trading	171
<i>Dome Lohpetch and David Corne</i>	
Evolutionary Multi-stage Financial Scenario Tree Generation	182
<i>Ronald Hochreiter</i>	
Evolving Dynamic Trade Execution Strategies Using Grammatical Evolution	192
<i>Wei Cui, Anthony Brabazon, and Michael O'Neill</i>	
Modesty Is the Best Policy: Automatic Discovery of Viable Forecasting Goals in Financial Data	202
<i>Fiacca Larkin and Conor Ryan</i>	
Threshold Recurrent Reinforcement Learning Model for Automated Trading	212
<i>Dietmar Maringer and Tikesch Ramtohul</i>	

Active Portfolio Management from a Fuzzy Multi-objective Programming Perspective	222
<i>Nikos S. Thomaidis</i>	
Evolutionary Monte Carlo Based Techniques for First Passage Time Problems in Credit Risk and Other Applications in Finance	232
<i>Olena Tsviliuk, Roderick Melnik, and Di Zhang</i>	
Calibrating the Heston Model with Differential Evolution	242
<i>Manfred Gilli and Enrico Schumann</i>	
Evolving Trading Rule-Based Policies	251
<i>Robert Gregory Bradley, Anthony Brabazon, and Michael O'Neill</i>	

EvoMUSART Contributions

Evolving Artistic Styles through Visual Dialogues	261
<i>Jae C. Oh and Edward Zajec</i>	
Graph-Based Evolution of Visual Languages	271
<i>Penousal Machado, Henrique Nunes, and Juan Romero</i>	
Refinement Techniques for Animated Evolutionary Photomosaics Using Limited Tile Collections	281
<i>Shahrul Badariah Mat Sah, Vic Ciesielski, and Daryl D'Souza</i>	
Generative Art and Evolutionary Refinement	291
<i>Gary Greenfield</i>	
Aesthetic Learning in an Interactive Evolutionary Art System	301
<i>Yang Li and Chang-Jun Hu</i>	
Comparing Aesthetic Measures for Evolutionary Art	311
<i>E. den Heijer and A.E. Eiben</i>	
The Problem with Evolutionary Art Is	321
<i>Philip Galanter</i>	
Learning to Dance through Interactive Evolution	331
<i>Greg A. Dubbin and Kenneth O. Stanley</i>	
Jive: A Generative, Interactive, Virtual, Evolutionary Music System	341
<i>Jianhua Shao, James McDermott, Michael O'Neill, and Anthony Brabazon</i>	
A Neural Network for Bass Functional Harmonization	351
<i>Roberto De Prisco, Antonio Eletto, Antonio Torre, and Rocco Zaccagnino</i>	

Combining Musical Constraints with Markov Transition Probabilities to Improve the Generation of Creative Musical Structures	361
<i>Stephen Davismoon and John Eccles</i>	
Dynamic Musical Orchestration Using Genetic Algorithms and a Spectro-Temporal Description of Musical Instruments	371
<i>Philippe Esling, Grégoire Carpentier, and Carlos Agon</i>	
Evolutionary Sound Synthesis: Rendering Spectrograms from Cellular Automata Histograms	381
<i>Jaime Serquera and Eduardo R. Miranda</i>	
Sound Agents	391
<i>Philippe Codognet and Olivier Pasquet</i>	
From Evolutionary Composition to Robotic Sonification	401
<i>Artemis Moroni and Jônatas Manzolli</i>	
Musical Composer Identification through Probabilistic and Feedforward Neural Networks	411
<i>Maximos A. Kaliakatsos-Papakostas, Michael G. Epitropakis, and Michael N. Vrahatis</i>	
EvoTRANSLOG Contributions	
Using an Evolutionary Algorithm to Discover Low CO ₂ Tours within a Travelling Salesman Problem	421
<i>Neil Urquhart, Cathy Scott, and Emma Hart</i>	
A Genetic Algorithm for the Traveling Salesman Problem with Pickup and Delivery Using Depot Removal and Insertion Moves	431
<i>Volkan Çınar, Temel Öncan, and Haldun Süral</i>	
Fast Approximation Heuristics for Multi-Objective Vehicle Routing Problems	441
<i>Martin Josef Geiger</i>	
Particle Swarm Optimization and an Agent-Based Algorithm for a Problem of Staff Scheduling	451
<i>Maik Günther and Volker Nissen</i>	
A Math-Heuristic for the Multi-Level Capacitated Lot Sizing Problem with Carryover	462
<i>Marco Caserta, Adriana Ramirez, and Stefan Voß</i>	
Author Index	473

Table of Contents – Part I

EvoCOMPLEX Contributions

Coevolutionary Dynamics of Interacting Species	1
<i>Marc Ebner, Richard A. Watson, and Jason Alexander</i>	
Evolving Individual Behavior in a Multi-agent Traffic Simulator.....	11
<i>Ernesto Sánchez, Giovanni Squillero, and Alberto Tonda</i>	
On Modeling and Evolutionary Optimization of Nonlinearly Coupled Pedestrian Interactions	21
<i>Pradyumn Kumar Shukla</i>	
Revising the Trade-off between the Number of Agents and Agent Intelligence.....	31
<i>Marcus Komann and Dietmar Fey</i>	
Sexual Recombination in Self-Organizing Interaction Networks.....	41
<i>Joshua L. Payne and Jason H. Moore</i>	
Symbiogenesis as a Mechanism for Building Complex Adaptive Systems: A Review	51
<i>Malcolm I. Heywood and Peter Lichodziejewski</i>	

EvoGAMES Contributions

Co-evolution of Optimal Agents for the Alternating Offers Bargaining Game	61
<i>Arjun Chandra, Pietro Simone Oliveto, and Xin Yao</i>	
Fuzzy Nash-Pareto Equilibrium: Concepts and Evolutionary Detection	71
<i>Dumitru Dumitrescu, Rodica Ioana Lung, Tudor Dan Mihoc, and Reka Nagy</i>	
An Evolutionary Approach for Solving the Rubik’s Cube Incorporating Exact Methods	80
<i>Nail El-Sourani, Sascha Hauke, and Markus Borschbach</i>	
Evolution of Artificial Terrains for Video Games Based on Accessibility.....	90
<i>Miguel Frade, Francisco Fernandez de Vega, and Carlos Cotta</i>	
Evolving Behaviour Trees for the Commercial Game DEFCON	100
<i>Chong-U Lim, Robin Baumgarten, and Simon Colton</i>	

Evolving 3D Buildings for the Prototype Video Game Subversion	111
<i>Andrew Martin, Andrew Lim, Simon Colton, and Cameron Browne</i>	
Finding Better Solutions to the Mastermind Puzzle Using Evolutionary Algorithms	121
<i>Juan J. Merelo-Guervós and Thomas Philip Runarsson</i>	
Towards a Generic Framework for Automated Video Game Level Creation	131
<i>Nathan Sorenson and Philippe Pasquier</i>	
Search-Based Procedural Content Generation	141
<i>Julian Togelius, Georgios N. Yannakakis, Kenneth O. Stanley, and Cameron Browne</i>	
Evolution of Grim Trigger in Prisoner Dilemma Game with Partial Imitation	151
<i>Degang Wu, Mathis Antony, and K.Y. Szeto</i>	
Evolving a Ms. PacMan Controller Using Grammatical Evolution	161
<i>Edgar Galván-López, John Mark Swafford, Michael O'Neill, and Anthony Brabazon</i>	
Evolving Bot AI in Unreal™	171
<i>Antonio Miguel Mora, Ramón Montoya, Juan Julián Merelo, Pablo García Sánchez, Pedro Ángel Castillo, Juan Luís Jiménez Laredo, Ana Isabel Martínez, and Anna Espacia</i>	
Evolutionary Algorithm for Generation of Entertaining Shinro Logic Puzzles	181
<i>David Oranchak</i>	
Social Learning Algorithms Reaching Nash Equilibrium in Symmetric Cournot Games	191
<i>Mattheos K. Protopapas, Francesco Battaglia, and Elias B. Kosmatopoulos</i>	
Multiple Overlapping Tiles for Contextual Monte Carlo Tree Search	201
<i>Arpad Rimmel and Fabien Teytaud</i>	

EvoIASP Contributions

A CNN Based Algorithm for the Automated Segmentation of Multiple Sclerosis Lesions	211
<i>Eleonora Bilotta, Antonio Cerasa, Pietro Pantano, Aldo Quattrone, Andrea Staino, and Francesca Stramandinoli</i>	

A Hybrid Evolutionary Algorithm for Bayesian Networks Learning: An Application to Classifier Combination	221
<i>Claudio De Stefano, Francesco Fontanella, Cristina Marrocco, and Alessandra Scotto di Freca</i>	
Towards Automated Learning of Object Detectors	231
<i>Marc Ebner</i>	
Markerless Multi-view Articulated Pose Estimation Using Adaptive Hierarchical Particle Swarm Optimisation	241
<i>Spela Ivekovic, Vijay John, and Emanuele Trucco</i>	
Hand Posture Recognition Using Real-Time Artificial Evolution	251
<i>Benoit Kaufmann, Jean Louchet, and Evelyne Lutton</i>	
Comparing Cellular and Panmictic Genetic Algorithms for Real-Time Object Detection	261
<i>Jesús Martínez-Gómez, José Antonio Gámez, and Ismael García-Varea</i>	
Bloat Free Genetic Programming versus Classification Trees for Identification of Burned Areas in Satellite Imagery	272
<i>Sara Silva, Maria J. Vasconcelos, and Joana B. Melo</i>	
Genetic Algorithms for Training Data and Polynomial Optimization in Colorimetric Characterization of Scanners	282
<i>Leonardo Vanneschi, Mauro Castelli, Simone Bianco, and Raimondo Schettini</i>	
New Genetic Operators in the Fly Algorithm: Application to Medical PET Image Reconstruction	292
<i>Franck Patrick Vidal, Jean Louchet, Jean-Marie Rocchisani, and Évelyne Lutton</i>	
Chaotic Hybrid Algorithm and Its Application in Circle Detection	302
<i>Chun-Ho Wu, Na Dong, Wai-Hung Ip, Ching-Yuen Chan, Kei-Leung Yung, and Zeng-Qiang Chen</i>	
Content-Based Image Retrieval of Skin Lesions by Evolutionary Feature Synthesis	312
<i>Lucia Ballerini, Xiang Li, Robert B. Fisher, Ben Aldridge, and Jonathan Rees</i>	
An Evolutionary Method for Model-Based Automatic Segmentation of Lower Abdomen CT Images for Radiotherapy Planning	320
<i>Vitoantonio Bevilacqua, Giuseppe Mastronardi, and Alessandro Piazzolla</i>	
Evolution of Communicating Individuals	328
<i>Leonardo Bocchi, Sara Lapi, and Lucia Ballerini</i>	

Dynamic Data Clustering Using Stochastic Approximation Driven Multi-Dimensional Particle Swarm Optimization	336
<i>Serkan Kiranyaz, Turker Ince, and Moncef Gabbouj</i>	
Automatic Synthesis of Associative Memories through Genetic Programming: A First Co-evolutionary Approach	344
<i>Juan Villegas-Cortez, Gustavo Olague, Carlos Aviles, Humberto Sossa, and Andres Ferreyra</i>	

EvoINTELLIGENCE Contributions

A Comparative Study between Genetic Algorithm and Genetic Programming Based Gait Generation Methods for Quadruped Robots	352
<i>Kisung Seo and Soohwan Hyun</i>	
Markerless Localization for Blind Users Using Computer Vision and Particle Swarm Optimization	361
<i>Hashem Tamimi and Anas Sharabati</i>	
Particle Swarm Optimization for Feature Selection in Speaker Verification	371
<i>Shahla Nemati and Mohammad Ehsan Basiri</i>	
Scale- and Rotation-Robust Genetic Programming-Based Corner Detectors	381
<i>Kisung Seo and Youngkyun Kim</i>	
Self-organized and Evolvable Cognitive Architecture for Intelligent Agents and Multi-Agent Systems	392
<i>Oscar Javier Romero López</i>	

EvoNUM Contributions

Investigating the Local-Meta-Model CMA-ES for Large Population Sizes	402
<i>Zyed Bouzarkouna, Anne Auger, and Didier Yu Ding</i>	
Exploiting Evolution for an Adaptive Drift-Robust Classifier in Chemical Sensing	412
<i>Stefano Di Carlo, Matteo Falasconi, Ernesto Sánchez, Alberto Scionti, Giovanni Squillero, and Alberto Tonda</i>	
Automatically Modeling Hybrid Evolutionary Algorithms from Past Executions	422
<i>Santiago Muelas, José-María Peña, and Antonio LaTorre</i>	

Gaussian Adaptation Revisited – An Entropic View on Covariance Matrix Adaptation	432
<i>Christian L. Müller and Ivo F. Sbalzarini</i>	
Parallel Genetic Algorithm on the CUDA Architecture.....	442
<i>Petr Pospichal, Jiri Jaros, and Josef Schwarz</i>	
A New Selection Ratio for Large Population Sizes	452
<i>Fabien Teytaud</i>	
Multi-Objective Probability Collectives	461
<i>Antony Waldock and David Corne</i>	
Parallel Random Injection Differential Evolution	471
<i>Matthieu Weber, Ferrante Neri, and Ville Tirronen</i>	
Effect of Spatial Locality on an Evolutionary Algorithm for Multimodal Optimization	481
<i>Ka-Chun Wong, Kwong-Sak Leung, and Man-Hon Wong</i>	
A Directed Mutation Operator for Real Coded Genetic Algorithms	491
<i>Imtiaz Korejo, Shengxiang Yang, and Changhe Li</i>	
Speedups between $\times 70$ and $\times 120$ for a Generic Local Search (Memetic) Algorithm on a Single GPGPU Chip	501
<i>Frédéric Krüger, Ogier Maitre, Santiago Jiménez, Laurent Baumes, and Pierre Collet</i>	
Advancing Model-Building for Many-Objective Optimization Estimation of Distribution Algorithms	512
<i>Luis Martí, Jesús García, Antonio Berlanga, and José M. Molina</i>	
Estimation Distribution Differential Evolution	522
<i>Ernesto Mininno and Ferrante Neri</i>	
Design of Continuous Controllers Using a Multiobjective Differential Evolution Algorithm with Spherical Pruning	532
<i>Gilberto Reynoso-Meza, Javier Sanchis, Xavier Blasco, and Miquel Martínez</i>	
Parameter Tuning of Evolutionary Algorithms: Generalist vs. Specialist	542
<i>S.K. Smit and A.E. Eiben</i>	

EvoSTOC Contributions

Memory Design for Constrained Dynamic Optimization Problems	552
<i>Hendrik Richter</i>	

Multi-population Genetic Algorithms with Immigrants Scheme for Dynamic Shortest Path Routing Problems in Mobile Ad Hoc Networks	562
<i>Hui Cheng and Shengxiang Yang</i>	
Measuring Fitness Degradation in Dynamic Optimization Problems	572
<i>Enrique Alba and Briseida Sarasola</i>	
Handling Undefined Vectors in Expensive Optimization Problems	582
<i>Yoel Tenne, Kazuhiro Izui, and Shinji Nishiwaki</i>	
Adaptive Noisy Optimization	592
<i>Philippe Rolet and Olivier Teytaud</i>	
Noise Analysis Compact Genetic Algorithm	602
<i>Ferrante Neri, Ernesto Mininno, and Tommi Kärkkäinen</i>	
Author Index	613