

Table of Contents – Part I

Theoretical Analysis of Swarm Intelligence Algorithms

Particle Swarm Optimization: A Powerful Family of Stochastic Optimizers. Analysis, Design and Application to Inverse Modelling	1
<i>Juan Luis Fernández-Martínez, Esperanza García-Gonzalo, Saras Saraswathi, Robert Jernigan, and Andrzej Kloczkowski</i>	
Building Computational Models of Swarms from Simulated Positional Data	9
<i>Graciano Dieck Kattas and Michael Small</i>	
Robustness and Stagnation of a Swarm in a Cooperative Object Recognition Task	19
<i>David King and Philip Breedon</i>	
Enforced Mutation to Enhancing the Capability of Particle Swarm Optimization Algorithms	28
<i>PenChen Chou and JenLian Chen</i>	
Normalized Population Diversity in Particle Swarm Optimization	38
<i>Shi Cheng and Yuhui Shi</i>	
Particle Swarm Optimization with Disagreements	46
<i>Andrei Lihu and Ștefan Holban</i>	
PSOslope: A Stand-Alone Windows Application for Graphical Analysis of Slope Stability	56
<i>Walter Chen and Powen Chen</i>	
A Review of the Application of Swarm Intelligence Algorithms to 2D Cutting and Packing Problem	64
<i>Yanzin Xu, Gen Ke Yang, Jie Bai, and Changchun Pan</i>	

Particle Swarm Optimization

Inertia Weight Adaption in Particle Swarm Optimization Algorithm	71
<i>Zheng Zhou and Yuhui Shi</i>	
Nonlinear Inertia Weight Variation for Dynamic Adaptation in Particle Swarm Optimization	80
<i>Wudai Liao, Junyan Wang, and Jiangfeng Wang</i>	

An Adaptive Tribe-Particle Swarm Optimization	86
<i>Yong Duan Song, Lu Zhang, and Peng Han</i>	
A Novel Hybrid Binary PSO Algorithm	93
<i>Muhammd Ilyas Menhas, MinRui Fei, Ling Wang, and Xiping Fu</i>	
PSO Algorithm with Chaos and Gene Density Mutation for Solving Nonlinear Zero-One Integer Programming Problems	101
<i>Yuelin Gao, Fanfan Lei, Huirong Li, and Jimin Li</i>	
A New Binary PSO with Velocity Control	111
<i>Laura Lanzarini, Javier López, Juan Andrés Maulini, and Armando De Giusti</i>	
Adaptive Particle Swarm Optimization Algorithm for Dynamic Environments	120
<i>Iman Rezazadeh, Mohammad Reza Meybodi, and Ahmad Naebi</i>	
An Improved Particle Swarm Optimization with an Adaptive Updating Mechanism	130
<i>Jie Qi and Yongsheng Ding</i>	
Mortal Particles: Particle Swarm Optimization with Life Span	138
<i>Yong-wei Zhang, Lei Wang, and Qi-di Wu</i>	

Applications of PSO Algorithms

PSO Based Pseudo Dynamic Method for Automated Test Case Generation Using Interpreter	147
<i>Surender Singh Dahiya, Jitender Kumar Chhabra, and Shakti Kumar</i>	
Reactive Power Optimization Based on Particle Swarm Optimization Algorithm in 10kV Distribution Network	157
<i>Chao Wang, Gang Yao, Xin Wang, Yihui Zheng, Lidan Zhou, Qingshan Xu, and Xinyuan Liang</i>	
Clustering-Based Particle Swarm Optimization for Electrical Impedance Imaging	165
<i>Gang Hu, Min-you Chen, Wei He, and Jin-qian Zhai</i>	
A PSO- Based Robust Optimization Approach for Supply Chain Collaboration with Demand Uncertain	172
<i>Yutian Jia, Xingquan Zuo, and Jianping Wu</i>	
A Multi-valued Discrete Particle Swarm Optimization for the Evacuation Vehicle Routing Problem	182
<i>Marina Yusoff, Junaidah Ariffin, and Azlinah Mohamed</i>	

A NichePSO Algorithm Based Method for Process Window Selection . . .	194
<i>Wenqi Li, Yiming Qiu, Lei Wang, and Qidi Wu</i>	
Efficient WiFi-Based Indoor Localization Using Particle Swarm Optimization	203
<i>Girma S. Tewolde and Jaerock Kwon</i>	
Using PSO Algorithm for Simple LSB Substitution Based Steganography Scheme in DCT Transformation Domain	212
<i>Feno Heriniaina Rabevohitra and Jun Sang</i>	
Numerical Integration Method Based on Particle Swarm Optimization	221
<i>Leila Djerou, Naceur Khelil, and Mohamed Batouche</i>	
Identification of VSD System Parameters with Particle Swarm Optimization Method	227
<i>Yiming Qiu, Wenqi Li, Dongsheng Yang, Lei Wang, and Qidi Wu</i>	
PSO-Based Emergency Evacuation Simulation	234
<i>Jialiang Kou, Shengwu Xiong, Hongbing Liu, Xinlu Zong, Shuzhen Wan, Yi Liu, Hui Li, and Pengfei Duan</i>	
Training Spiking Neurons by Means of Particle Swarm Optimization . . .	242
<i>Roberto A. Vázquez and Beatriz A. Garro</i>	

Ant Colony Optimization Algorithms

Clustering Aggregation for Improving Ant Based Clustering	250
<i>Akil Elkamel, Mariem Gzara, and Hanène Ben-Abdallah</i>	
Multi-cellular-ant Algorithm for Large Scale Capacity Vehicle Route Problem	260
<i>Jie Li, Yi Chai, Penghua Li, and Hongpeng Yin</i>	
Ant Colony Optimization for Global White Matter Fiber Tracking	267
<i>Yuanjing Feng and Zhejin Wang</i>	

Bee Colony Algorithms

An Efficient Bee Behavior-Based Multi-function Routing Algorithm for Network-on-Chip	277
<i>Junhui Wang, Huaxi Gu, Yintang Yang, and Zhi Deng</i>	
Artificial Bee Colony Based Mapping for Application Specific Network-on-Chip Design	285
<i>Zhi Deng, Huaxi Gu, Haizhou Feng, and Baojian Shu</i>	

Using Artificial Bee Colony to Solve Stochastic Resource Constrained Project Scheduling Problem	293
<i>Amin Tahoonch and Koorush Ziarati</i>	

Novel Swarm-Based Optimization Algorithms

Brain Storm Optimization Algorithm	303
<i>Yuhui Shi</i>	
Human Group Optimizer with Local Search	310
<i>Chaohua Dai, Weirong Chen, Lili Ran, Yi Zhang, and Yu Du</i>	
Average-Inertia Weighted Cat Swarm Optimization	321
<i>Maysam Orouskhani, Mohammad Mansouri, and Mohammad Teshnehlab</i>	
Standby Redundancy Optimization with Type-2 Fuzzy Lifetimes	329
<i>Yanju Chen and Ying Liu</i>	
Oriented Search Algorithm for Function Optimization	338
<i>Xuexia Zhang and Weirong Chen</i>	
Evolution of Cooperation under Social Norms in Non-Structured Populations	347
<i>Qi Xiaowei, Ren Guang, Yue Gin, and Zhang Aiping</i>	
Collaborative Optimization under a Control Framework for ATSP	355
<i>Jie Bai, Jun Zhu, Gen-Ke Yang, and Chang-Chun Pan</i>	
Bio-Inspired Dynamic Composition and Reconfiguration of Service-Oriented Internetware Systems	364
<i>Huan Zhou, Zili Zhang, Yuheng Wu, and Tao Qian</i>	
A Novel Search Interval Forecasting Optimization Algorithm	374
<i>Yang Lou, Junli Li, Yuhui Shi, and Linpeng Jin</i>	

Artificial Immune System

A Danger Theory Inspired Learning Model and Its Application to Spam Detection	382
<i>Yuanchun Zhu and Ying Tan</i>	
Research of Hybrid Biogeography Based Optimization and Clonal Selection Algorithm for Numerical Optimization	390
<i>Zheng Qu and Hongwei Mo</i>	
The Hybrid Algorithm of Biogeography Based Optimization and Clone Selection for Sensors Selection of Aircraft	400
<i>Lifang Xu, Shouda Jiang, and Hongwei Mo</i>	

A Modified Artificial Immune Network for Feature Extracting	408
<i>Hong Ge and XueMing Yan</i>	

Differential Evolution

Novel Binary Encoding Differential Evolution Algorithm	416
<i>Changshou Deng, Bingyan Zhao, Yanling Yang, Hu Peng, and Qiming Wei</i>	
Adaptive Learning Differential Evolution for Numeric Optimization	424
<i>Yi Liu, Shengwu Xiong, Hui Li, and Shuzhen Wan</i>	
Differential Evolution with Improved Mutation Strategy	431
<i>Shuzhen Wan, Shengwu Xiong, Jialiang Kou, and Yi Liu</i>	
Gaussian Particle Swarm Optimization with Differential Evolution Mutation	439
<i>Chunqiu Wan, Jun Wang, Geng Yang, and Xing Zhang</i>	

Neural Networks

Evolving Neural Networks: A Comparison between Differential Evolution and Particle Swarm Optimization	447
<i>Beatriz A. Garro, Humberto Sossa, and Roberto A. Vázquez</i>	
Identification of Hindmarsh-Rose Neuron Networks Using GEO metaheuristic	455
<i>Lihe Wang, Genke Yang, and Lam Fat Yeung</i>	
Delay-Dependent Stability Criterion for Neural Networks of Neutral-Type with Interval Time-Varying Delays and Nonlinear Perturbations	464
<i>Guoquan Liu, Simon X. Yang, and Wei Fu</i>	
Application of Generalized Chebyshev Neural Network in Air Quality Prediction	472
<i>Fengjun Li</i>	
Financial Time Series Forecast Using Neural Network Ensembles	480
<i>Anupam Tarsauliya, Rahul Kala, Ritu Tiwari, and Anupam Shukla</i>	
Selection of Software Reliability Model Based on BP Neural Network . . .	489
<i>Yingbo Wu and Xu Wang</i>	

Genetic Algorithms

Atavistic Strategy for Genetic Algorithm	497
<i>Dongmei Lin, Xiaodong Li, and Dong Wang</i>	

An Improved Co-evolution Genetic Algorithm for Combinatorial Optimization Problems	506
<i>Nan Li and Yi Luo</i>	
Recursive Structure Element Decomposition Using Migration Fitness Scaling Genetic Algorithm	514
<i>Yudong Zhang and Lenan Wu</i>	
A Shadow Price Guided Genetic Algorithm for Energy Aware Task Scheduling on Cloud Computers	522
<i>Gang Shen and Yan-Qing Zhang</i>	
A Solution to Bipartite Drawing Problem Using Genetic Algorithm	530
<i>Salabat Khan, Mohsin Bilal, Muhammad Sharif, and Farrukh Aslam Khan</i>	

Evolutionary Computation

Evaluation of Two-Stage Ensemble Evolutionary Algorithm for Numerical Optimization	539
<i>Yu Wang, Bin Li, Kaibo Zhang, and Zhen He</i>	
A Novel Genetic Programming Algorithm For Designing Morphological Image Analysis Method	549
<i>Jun Wang and Ying Tan</i>	

Fuzzy Methods

Optimizing Single-Source Capacitated FLP in Fuzzy Decision Systems	559
<i>Liwei Zhang, Yankui Liu, and Xiaoqing Wang</i>	
New Results on a Fuzzy Granular Space	568
<i>Xu-Qing Tang and Kun Zhang</i>	
Fuzzy Integral Based Data Fusion for Protein Function Prediction	578
<i>Yinan Lu, Yan Zhao, Xiaoni Liu, and Yong Quan</i>	

Hybrid Algorithms

Gene Clustering Using Particle Swarm Optimizer Based Memetic Algorithm	587
<i>Zhen Ji, Wenmin Liu, and Zexuan Zhu</i>	
Hybrid Particle Swarm Optimization with Biased Mutation Applied to Load Flow Computation in Electrical Power Systems	595
<i>Camila Paes Salomon, Maurilio Pereira Coutinho, Germano Lambert-Torres, and Cláudio Ferreira</i>	

Simulation of Routing in Nano-Manipulation for Creating Pattern with Atomic Force Microscopy Using Hybrid GA and PSO-AS Algorithms . . .	606
<i>Ahmad Naebi, Moharam Habibnejad Korayem, Farhoud Hoseinpour, Sureswaran Ramadass, and Mojtaba Hoseinzadeh</i>	
Neural Fuzzy Forecasting of the China Yuan to US Dollar Exchange Rate—A Swarm Intelligence Approach	616
<i>Chunshien Li, Chuan Wei Lin, and Hongming Huang</i>	
A Hybrid Model for Credit Evaluation Problem	626
<i>Hui Fu and Xiaoyong Liu</i>	
Author Index	635