Table of Contents

Message from the WGEC 2008 Program Committee Chairs .........................................xiv
 WGEC 2008 Organizing Committee ..........................................................................................xv

Session 1: Genetic Algorithms

The Application of Improved Genetic Algorithm in Fiber Bragg Grating (FBG)
Sensor Network .............................................................................................................................................................3
    Wei Wu and Xin Liu

Finding Minimum Containing Cylinder of Space Finite Points with Genetic Algorithm .........................7
    Hongfa Wang and Ming Zhou

A CGS-MSM Parallel Genetic Algorithm Based on Multi-agent .................................................................10
    Tinghong Zhao, Zibin Man, Zhijun Wan, and Guiquan Bi

Attribute Reduction of Rough Set Based on Particle Swarm Optimization with Immunity .........................14
    Weihua Lin, Yonggang Wu, Dianhui Mao, and Yan Yu

A Multi-objective Evolutionary Algorithm with Extended MGG Model and Distance-Based Density Measure .........................................................................................................................18
    Youyun Ao and Hongqin Chi

Method to Implement Hash-Linking Based Content Integrity Service ..........................................................24
    Jiahui Wang, Xukun Shen, and Yue Qi

A Hybrid Genetic Algorithm for Flexible Task Collaborative Scheduling ....................................................28
    Liyi Zhu, Jinghua Wu, Haijun Zhang, and Shijian He
Session 2: Genetic Evolution Strategies/Evolutionary Programming

Application of Adaptive Genetic Algorithm in Inversion Analysis of Permeability Coefficients ................................................................. 61
Xianghui Deng

Long-Range Monitoring System of Water-Supply Based on Multi-agent ............................................................... 66
LiZhi Yang, TingHong Zhao, and JunHu Yang

Function Finding Based on Gene Expression Programming ...................................................................................... 70
Haifang Mo, Jiangqing Wang, Jun Qin, and Lishan Kang

A Global Convergence Algorithm with Stochastic Search for Constrained Optimization Problems ................................................................. 75
Changyin Zhou and Guoping He

Exponential Type Adaptive Inertia Weighted Particle Swarm Optimization Algorithm ................................................................. 79
JianXin Wu, WenZhi Liu, WeiGuo Zhao, and Qiang Li

How to Make the Quantitative Analysis in Evolutionary Game Theory? A Forecasting Analysis of Chinese Rural Labor Transfer ...................................................................................... 83
De-hai Liu and Wei-guo Wang

Analysis the Impact of Genetic Operators in Evolution Strategies ...................................................................................... 88
Guangming Lin, Lishan Kang, Yongsheng Liang, and Ruhul Sarker

An Explanation of Evolutionary Game Theory for the Circulative Flowed Phenomenon in Chinese Rural Labor Transfer ...................................................................................... 92
De-hai Liu and Wei-guo Wang

A Tunable Constrained Test Problems Generator for Multi-objective Optimization ...................................................................................... 96
Peng Cheng
Session 3: Neural Network

Classification Techniques of Neural Networks Using Improved Genetic Algorithms ................................................. 115
Ming Chen and Zhengwei Yao

Forecasting of Government's Financial Educational Fund by Using Neural Networks Model ................................................................. 120
Kai Li

Research of Intelligent Decision Support System Based on Neural Networks...................................................................................... 124
Kai Li, Zhonghua Xu, and Baoqin Wang

Using Genetic Algorithm to Optimize Artificial Neural Network: A Case Study on Earthquake Prediction ........................................... 128
Qiuwen Zhang and Cheng Wang

Prediction of Compression Ratio of Extruded Cottonseed and Castor Bean under Mechanical Pressing Using Improved Neural Network .......................................................................................................................... 132
Xiao Zheng, Jingzhou Wang, Guoxiang Lin, Nong Wan, and Yaxin Zhang

Classification of Fabric Defect Based on PSO-BP Neural Network .............................................................................................. 137
Suyi Liu, Jingjing Liu, and Leduo Zhang

Bi-directional Reasoning Based on BAM Neural Networks ........................................................................................................... 141
Min Li, Wen Chen, Kai Li, Xianshan Zhou, Lihui Zhao, and Yuncai Zhou

The Environmental Quality Evaluation of Port Regional Based on BP Neural Network and Case Study .................................................... 145
Xin Zhang, Maicheng Guo, Qingchao Liu, Jian Sun, and Wenhui Zhu

A Modified Adaptive Genetic BP Neural Network with Application to Financial Distress Analysis .......................................................... 149
Zhibin Xiong

A Particle Swarm Optimized Fuzzy Neural Networks for Credit Risk Evaluation .............................................................................. 153
Fu-yuan Huang

An Improved System Cloud Grey Neural Network Model ............................................................................................... 158
Sikun Yang
Optimization for Cyclosporine Blood Concentration Prediction Based on Genetic Algorithm - BP Neural Network ................................................................. 161
   Shan Li, Haibing Chen, JunXian Yun, LiuZheng Zhou, Jie Xia, Jiong Zhang, and Yasha Yin

Spam Detection with Complex-Valued Neural Network Using Behavior-Based Characteristics ........................................................................................................... 166
   Jun Hu, Zhitang Li, Zhengbing Hu, Dezhong Yao, and Junfeng Yu

Application of BP Neural Network into Prediction of Nitrobenzene Compound in Toxicity .......................................................... 170
   HuiYu Jiang, Min Dong, and Feng Yang

The Environmental Quality Evaluation of Qinhuangdao Port Regional Based on Fuzzy BP Neural Network and PSO .................................................... 174
   Dongxiao Niu, Weijun Wang, and Qingchao Liu

Session 4: Network Technology and Information Security

A Non-cooperative Power Control Algorithm for Wireless Ad Hoc and Sensor Networks .................................................................................................... 181
   Qiang Sun, Xianwen Zeng, Niansheng Chen, Zongwu Ke, and Raihan Ur Rasool

Stock Company Comprehensive Assessment Model Based on Kohonen Network ........................................................................................................... 185
   Xuming Han and Limin Wang

Quantum-Inspired Evolutionary Algorithm for Transportation Network Design Optimization ....................................................................................... 189
   Xinping Yan, Nengchao Lv, Zhenglin Liu, and Kun Xu

A New Web Services Model Based on CORBA and Push Technology in Network Management System .............................................................. 193
   Jingyang Wang, Xiaohong Wang, Liwei Guo, Min Huang, and Huiyong Wang

A 3D Web GIS System Based on VRML and X3D ................................................................................................................................. 197
   Ming Wang

Research on Web Information Extraction Based on XML ................................................................................................................................. 201
   Yan Hu and Yanyan Xuan

A Web Document Classification Method Based on Shuffled Frog Leaping Algorithm .............................................................................................. 205
   Xia Sun, Ziqiang Wang, and Dexian Zhang

A Tuplespace-Based Middleware for Semantic Web Services Using SWRL .............................................................................................................. 209
   Liang Li, Bin Li, Junwu Zhu, and Xiaowei Zhang

A TCP Based Performance Test Method and Its Application ............................................................................................................................... 213
   Lei Chen and Lu Lu

Study on Key Technologies and Software Design of BACnet Router ....................................................................................................................... 219
   Quan Liu and Ping Ren
A Personalized Recommendation System Based on Multi-agent ................................................................. 223
   Longjun Huang, Liping Dai, Yuanwang Wei, and Minghe Huang

XML-Based Multi-agent Communication System Architecture ................................................................. 227
   Longzhen Duan, Guang Zeng, Longjun Huang, and Yuhua Feng

Research of Sensor Nodes Artificial Arranging and Round-Robin Scheduling Algorithm for Aggregated Surveillance Targets ................................................................. 232
   Ke-qing Li

Optimization of the Routing Table Lookup Algorithm for IPv6 ................................................................. 236
   Jinxin Lin and Hu-min Li

Encouraging Good Interactions in Open Agent Systems ............................................................................. 240
   Bin Li, Maolin Xing, Tongsheng Che, and Xingshen Wu

Session 5: Intelligence Control Algorithm and Application

Intranet Based Security Infrastructure for Manufacturing Grid ................................................................. 247
   Niansheng Cheng and Yisheng Zhang

Fabric Sewability Evaluation Based on KPCA Using SFC-RBFNN ............................................................. 251
   Yonghui Fan

A Fuzzy Discrete Event System for Air Conditioning System Energy-Saving Control and Optimization .................................................................................. 257
   Danmei Li, Weichun Lan, Hui Zhou, and Shihuang Shao

Evolutionary Proactive P2P Worm: Propagation Modeling and Simulation .................................................. 261
   Yejiang Zhang, Zhitang Li, Zhengbing Hu, Qingfeng Huang, and Chuiwei Lu

Multi-objective Optimization Algorithm Based on Clonal Selection .......................................................... 265
   Yubo Hu and Tiejun Chen

Research on Printer Color Management Based on Ant Colony Algorithm .................................................. 269
   Xinwu Li

Mobile Robot Global Path Planning Based on Improved Augment Ant Colony Algorithm ................................ 273
   Meijuan Gao, Jin Xu, and Jingwen Tian

Intersection Signal Control Approach Based on PSO and Simulation .......................................................... 277
   Yun Wei, Qing Shao, Yin Han, and Bingquan Fan

Multi-layer Intrusion Detection and Defence Mechanisms Based on Immunity ............................................. 281
   Zhanfei Ma and Xuefeng Zheng

Improved Fast Fuzzy C-Means Algorithm for Medical MR Images Segmentation ....................................... 285
   Min Li, Tinglei Huang, and Gangqiang Zhu

An Improved Algorithm for Medical Image Segmentation ........................................................................... 289
   Ting-let Huang and Xue Bai
Session 6: Other Intelligent Algorithm and Application

A PCA Based Unsupervised Feature Selection Algorithm ................................................................. 299
Yihui Luo, Shuchu Xiong, and Sichun Wang

The Design of IIR Digital Filter Based on Chaos Particle Swarm Optimization Algorithm ................................................................. 303
Yunhong Gao, Yibo Li, and Hongjuan Qian

A Chaotic Hybrid Cultural Algorithm for Constrained Optimization .................................................. 307
Xiaohui Yuan, Anjun Su, Yanbin Yuan, Xiaopan Zhang, Bo Cao, and Bo Yang

A Decision-Making Approach to R&D Project with Uncertainty of Combining Randomness and Fuzziness ................................................................. 311
Changsheng Yi, Yufu Ning, and Qiumei Jin

Research on Optimization Algorithm for Attribute Reduction of Decision System ................................................................. 315
Yang Wang

A New Particle Swarm Optimization Algorithm and Its Convergence Analysis ................................................................. 319
Zihui Ren, Jian Wang, and Huizhe Zhang

The Tactics Analysis about Early Phase Ends of the Partial Distortion Search ................................................................. 324
Wenguang Song, Qiongqin Jiang, Min Li, Youfu Du, and Lin Chen

A New Method for Financial Performance Evaluation of Listed Power Enterprise ................................................................. 328
Dongxiao Niu, Weijun Wang, and Zilong Qiu

An Interactive Algorithm for Blurred Medical Image Segmentation Based on Curve Fitting ................................. 332
Wenming Huang

The Design and Realization of Agent Strong Migration Based on Type Inference ................................................................. 336
Hua Jiang and Xin Wang

The Application of Hidden Markov Model Based on Semantic Case Amelioration in Chinese Word Sense Tagging ................................................................. 340
Hao Fang, Yimin Ding, and Min Yang

Session 7: Evolvable Hardware and Real-World Applications

Instruction Decoder Module Design of 32-bit RISC CPU Based on MIPS ................................................................. 347
YunZhu Xiang and YueHua Ding

Autocontrol of Electronic Expansion Valve Based on Optimal Fuzzy PD Controller ................................................................. 352
Tingrui Liu, Guangqin Chen, and Jidai Wang
Improvement Program of Urban Taxi Stops Based on Simulated Annealing Algorithm in the Context of China ..........Yeqing Jia

An Improved Color-Based Particle Filtering for Object Tracking .........................................................Yuan Chen, Shengsheng Yu, Jun Fan, Wenxin Chen, and Hongxing Li

A Cultural Algorithm for Scheduling of Hydro Producer in the Power Market ......................................Xiaohui Yuan, Hao Nie, Li He, Cailin Li, and Yongchuan Zhang

Measuring System for Furrow Opener Based on Virtual Instrument Technology ................................Shucai Xu, Jinhuan Zhang, and Jianqiao Li

Research and Implementation of LFB-Resources Registration Management Method ............................Lixia Zhang, Weiming Wang, and Chuanghui Li

The Research and Implementation of Decision Support System for Oil Production Based on SOA ..................Bao rong Zhong, Hong Du, Hua yun Yu

A Virtual and Real HCI System Based on Artificial Immune System ..................................................Ming Chen, Yimin Chen, and Zhengwei Yao

Session 8: Data Mining and E-learning

Mining Crime Data by Using New Similarity Measure ..............................................................Guangzhu Yu, Shihuang Shao, and Bing Luo

A New Interestingness Measure of Association Rules ........................................................................Jianhua Liu, Xiaoping Fan, and Zhihua Qu

Research on Learners’ Personality Mining Based on Improved Decision Tree Algorithm .........................Qiang Yang and Jianli Wang

The Design of Intelligent QA Platform Based on Model of Learner’s Personality ..............................Yanhong Hu and Ming Zhao

Design and Implement on E-learning Behavior Mine System ............................................................Kebin Huang, Feimin Li, Ming Zhao, Feng Wang, and Xiaoshuang Xu

Relation Identification between Name Entities Based on Community Structure Mining .........................Gang Li and Huijuan Hu

Research on Application of Improved Association Rules Algorithm in Intelligent QA System ...............Youfu Du, Ming Zhao, Guanjun Fan

Research on CSCL Interaction Intensity Measurement Model Based on E-portfolio ...........................Hongwei Wang, Jiewu Xia, and Xianshan Zhou
Research on Improved Data-Mining Algorithm Based on Strong Correlation .......................................................... 423
Chunhong Hu and Zhengqiang Wang

Research on SOA-Based Education Resource Service System .......................................................... 427
Feimin Li, Kebin Huang, Bin Yang, Huixia Wang, Zhaoxia Dai, and Hui Ma

**Session 9: Evolutionary Techniques and Quantum Computing**

Robust Facial Attribute-Specific Subspace-Based Principal Component Analysis for Face Recognition .......................................................... 433
Chun-ming Xu, Hai-bo Jiang, Cai-geng Zhou, and Jian-jiang Yu

Weighted Latent Dirichlet Allocation for Cluster Ensemble ................................................................................. 437
Hongjun Wang, Zhishu Li, and Yang Cheng

Research on the Application of Improved Text Classific Algorithm in Intelligent Learning Platform ................................................................................................................................442
Rurui Zhou, You-fu Du, and Ming Zhao

The Evaluation of Success Degree in Electric Engineering Projects Based on Improved Variable Weight Grey Cluster ................................................................................................... 447
Baoqian Duan, Lijun Zhao, Qingchao Liu, and Li Tian

A New Parallel Algorithm of Adaptive QPSO to Solve Constrained Optimization Problems .............................................................................................................................................. 451
Yang Liu and Yan Ma

An Algorithm for Synthesis of Optimal 3-qubit Reversible Circuits Based on Bit Operation ............................................................................................................................................................. 455
Zhiqiang Li, Hanwu Chen, Baowen Xu, Xiaoyu Song, and Xiling Xue

On the Research of BDD Based Simulation of Grover’s Algorithm ......................................................................... 459
Xiling Xue, Hanwu Chen, Kaizhong Chen, and Zhiqiang Li

Research on Application of Improved Text Cluster Algorithm in Intelligent QA System ........................................................................................................................................... 463
Ming Zhao, Jianli Wang, and Guanjun Fan

A Reinforced Self-Escape Discrete Particle Swarm Optimization for TSP ............................................................... 467
Liaoliao Li, Zhongkui Zhu, and Wenfeng Wang

Authenticated Deterministic Secure Quantum Communication Based on Entanglement Swapping ........................................................................................................................................... 471
Wenjie Liu, Hanwu Chen, Zhihao Liu, and Wenbo Hu

Construction and Complete Circuit for Quantum Low Density Parity Check Code ................................................. 476
Sheng-mei Zhao and Bao-yu Zheng

A Study on Sunspot Number Time Series Prediction Using Quantum Neural Networks ........................................ 480
Xin Li, Chun-Tian Cheng, Wen-Chuan Wang, and Feng-Ying Yang
Session 10: Other Topics

The Realization of the Passive Caller Resumption about Mobile System Core Pool .................................................................487
Qiongqin Jiang, Wenguang Song, Min Li, Youfu Du, Lin Chen, and Hang Zhang

The Relationship between Hierarchical Databases and the Internet Using Titi .................................................................491
Liang Chen, Li-fang Chen, and Jing-hong Fu

An Improved Image Scrambling Algorithm .........................................................................................................................495
Shengbing Che, Zuguo Che, and Bin Ma

Application of Decision Support System to Three Gorges Cascade Hydropower Station .................................................................500
Jiaping Liao, Li He, Xiaohui Yuan, and Hui Li

An Improved Fingerprint Recognition Algorithm Using EBFNN .............................................................................................504
Jing Luo, Shuzhong Lin, Jianyun Ni, and Ming Lei

Blind Multiuser Detection Based on Affine Projection Algorithm for MC-CDMA Uplink .................................................................508
Zheng-Qiang Wang and Ming Zhao

Conceptual Design Knowledge Management Based on Rule and User’s Feedback .................................................................513
ZhenQiang Bao, Lei Guo, Hui Zhong, and Rong Luo

A Grid and Density-Based Clustering Algorithm for Processing Data Stream ........................................................................517
Chen Jia, ChengYu Tan, and Ai Yong

Combining KPCA with LSSVM for the Mooney-Viscosity Forecasting ..............................................................................522
Mei Liu, Daoping Huang, Zonghai Sun, and Zhengshi Chen

Computation of Semantic Models Directed by Categorial Expressions ..................................................................................527
Xiaoli Xu and Tao Zhu

PSO: The Reason for the Randomicity ..................................................................................................................................531
Renyue Xiao, Chunchun Wang, and Jinhai Yu

Control of Fractional Order Chaotic Systems .......................................................................................................................535
Gai-yun Wang and Yi Chen

Improvement of Fusion Algorithm Based on Evidence Theory .............................................................................................539
Yi Chen, Gai-yun Wang, and Bing Li

Approach to Data Table Decomposition Based on Rough Set Attribute Selection Measure .....................................................543
Wenbing Jin

A Hybrid Evolutionary Algorithm for Mixed-Integer Nonlinear Bilevel Programming Problems ................................................549
Hong Li and Yong-Chang Jiao

Author Index ............................................................................................................................................................................555