

2009 International Conference on Artificial Intelligence and Computational Intelligence

(AICI 2009)

**Shanghai, China
7-8 November 2009**

**Volume 1
Pages 1-633**



**IEEE Catalog Number: CFP0946G-PRT
ISBN: 978-1-4244-3835-8**

2009 International Conference on Artificial Intelligence and Computational Intelligence

AICI 2009

Table of Contents

Volume - 1

Preface - Volume 1
Organizing Committee - Volume 1
Program Committee - Volume 1
Reviewers - Volume 1

Support Vector Machine

A Face Recognition System Using Support Vector Machines and Elastic Graph Matching	3
<i>Yun-feng Li</i>	
A New Incremental Learning Support Vector Machine	7
<i>Ying-Chun Zhang, Guo-Sheng Hu, Feng-Feng Zhu, and Jin-Lian Yu</i>	
Algorithm of Shot Detection Based on SVM with Modified Kernel Function	11
<i>Wenting Tan, Jianrong Cao, and Hongyan Li</i>	
An Intrusion Detection Algorithm Model Based on Extension Clustering Support Vector Machine	15
<i>Zhao Rui, Yu Yongquan, and Cheng Mingjun</i>	
Coal Face Gas Emission Prediction Based on Support Vector Machine	19
<i>Yuncai Ning and Xiang Chen</i>	
Intrusion Detection System Based on Improved SVM Incremental Learning	23
<i>Hongle Du, Shaohua Teng, Mei Yang, and Qingfang Zhu</i>	
Predict the Time Series of the Parameter-Varying Chaotic System Based on Reduced Recursive Least Square Support Vector Machine	29
<i>Zhonghui Ou Yang, Yongsheng Wang, Dedong Li, and Changjin Wang</i>	

Support Vector Machine Combined with GARCH Models for Call Option Price Prediction	35
<i>Chih-Chaing Lu and Chih-Hung Wu</i>	
SVM Classification Based Early Warning Method of Brain Drain	41
<i>Ying Li and Qiu-lin Wang</i>	
Wavelet Transform and PSO Support Vector Machine Based Approach for Time Series Forecasting	46
<i>Xiao-Lu Wang, Jian Liu, and Jian-Jun Lu</i>	

Rough Set Theory

An Algorithm for Attribute Reduction Based on Database Technology	53
<i>Ke-yong Yuan, Xiao-guang Hong, and Fang-qiao Xiao</i>	
An Improved Incremental Updating Algorithm for the Core Computation of Decision Table	58
<i>Qiang Niu, Shixiong Xia, Guojun Tan, and Zuhui Hu</i>	
Application of Rough Sets and Data Envelopment Analysis in Performance Decision-Making of Oil Supply Chain Enterprise	63
<i>Cheng-dong Shi and Dun-xin Bian</i>	
New Algorithm for Computing the Core Based on Skowron's Discernibility Matrix	68
<i>Zhangyan Xu, Wenhao Shu, and Bo Yang</i>	
Software Operational Profile Reduction and Classification Testing Based on Entropy Theory	73
<i>Gaomin Lin and Jiyi Wang</i>	
Upper Approximation Fuzzy Rough Communication Model at a Threshold Value	78
<i>Ji-qin Liu and Xiu-mei Hao</i>	

Probabilistic Reasoning

Analyses on Limitations of Information Theory	85
<i>Yong Wang</i>	
Complexity Reduced Log-MAP Algorithm for the Turbo Decoding	89
<i>Lou Xizhong, Chen Yanmin, and Jin Ning</i>	
Knowledge Discovery on Structure System Selection of High-rise Buildings Based on Bayesian Networks	93
<i>Benliang Liang and Yue Gao</i>	

Particle Swarm Optimization

A Hybrid Particle Swarm Algorithm for Job Shop Scheduling Problems and its Convergence Analysis	99
<i>Xiaoyu Song, Lihua Sun, and Chunguang Chang</i>	
A Minimum Zone Method for Evaluating Perpendicularity Errors of Planar Lines Based on PSO Algorithm	104
<i>Ke Zhang and Xiaoming Cao</i>	
A Recursive Variable Fractional Delay FIR Filters Design Scheme Using Particle Swarm Optimization Algorithm	109
<i>Dongyan Sun, Jiaxiang Zhao, and Xiaoming Zhao</i>	
An Adaptive Inertia Weight Particle Swarm Optimization Algorithm for IIR Digital Filter	114
<i>Xia Yu, Jianchang Liu, and Hongru Li</i>	
Application of Improved CPSO-SVM Approach in Face Recognition	119
<i>Ming Li, Xiangfeng Sun, Yan Wang, Weijuan Li, and Yuanhong Hao</i>	
Coordinate Particle Swarm Optimization with Dynamic Piecewise-mapped and Nonlinear Inertia Weights	124
<i>Huailiang Liu, Ruijuan Su, Ying Gao, and Ruoning Xu</i>	
Enhance the Convergence and Diversity for epsilon-MOPSO by Uniform Design and Minimum Reduce Hypervolume	129
<i>Siwei Jiang and Zhihua Cai</i>	
Geese-Inspired Hybrid Particle Swarm Optimization Algorithm for Traveling Salesman Problem	134
<i>Jingjing Sun and Xiujuan Lei</i>	
Hill Valley Function Based Niching Particle Swarm Optimization for Multimodal Functions	139
<i>Junnian Wang, Deshun Liu, and Helen Shang</i>	
Improved Particle Swarm Optimization Algorithm Based on Social Psychology	145
<i>Wenyuan Liu, Peipei Sui, and Changwu Wang</i>	
Moving Average-Based Stock Trading Rules from Particle Swarm Optimization	149
<i>N.M. Kwok, G. Fang, and Q.P. Ha</i>	
Spatial Clustering with Obstacles Constraints by Ant Colony Optimization and Quantum Particle Swarm Optimization	154
<i>Xueping Zhang, Jianjun Wu, Haifang Si, Tengfei Yang, and Yawei Liu</i>	

Neural Computation

Lp Error Estimate of Approximation by a Feed-Forward Neural Network	161
<i>Jian-wei Zhao and Fei-long Cao</i>	
A Method for Training RBF Neural Networks Based on Population Migration Algorithm	165
<i>Weiwei Zhang, Qifang Luo, and Yongquan Zhou</i>	
IRNN-Based Modeling and Simulation of Electrical Characteristics of Proton Exchange Membrane Fuel Cells	170
<i>Yudong Tian</i>	
Learning Adaptive Correlations of Independent Components for Complex Cell Modeling	174
<i>Zhe Wang, Siwei Luo, and Yaping Huang</i>	
Local Model Networks with Modified Parabolic Membership Functions	179
<i>Oliver Bänfer, Oliver Nelles, Josef Kainz, and Johannes Beer</i>	
Neuro-computing Method for Data Mining	184
<i>Jui-Yu Wu and Chi-Jie Lu</i>	
The Forward NN-PID Controllers Based on Chaos PSO-BP Hybrid Optimization Algorithms for Decoupling Control System of Ball Mill	189
<i>Cheng Qiming, Cheng Yinman, Guo Ruiqing, and Zheng Yong</i>	
The Wall-Following Controller for the Mobile Robot Using Spiking Neurons	194
<i>Xiuqing Wang, Zeng-Guang Hou, Min Tan, Yongji Wang, and Liwei Hu</i>	
A Numerical Simulation on Coherence Resonance and Stochastic Synchrony	200
<i>Zeju Luo and Lihong Song</i>	
Application of Optimum Perturbation Algorithm for Parameter Inversion Identification of Soil Moisture Model under Ecological Slope Protection	204
<i>Qiang Xue, Qian Sheng, and Shi-jin Ma</i>	
Low Earth Orbiter Satellite Precise Orbit Determination and its Precision Analysis from Satellite-Borne GPS with LP Estimation	208
<i>Zuoya Zheng, Yamin Dang, Xiushan Lu, and Maoyi Tian</i>	
Modified Differential Evolution for the Integer Programming Problems	213
<i>Jie Gao, Hong Li, and Yong-Chang Jiao</i>	
Multiscale and Projective Interpolation Method with High Accuracy for Two Point Boundary Value Problem with Small Periodic Coefficients	220
<i>Yi-jun Wen and Xiao-qi Liu</i>	
MultiScale Asymptotic Analysis Method with High Accuracy for the Second Order Elliptic Equation with Oscillating Periodic Coefficients in Perforated Domain	225
<i>Xiao-qi Liu and Qi-ding Zhu</i>	
Peptide QSARs Study by a Novel Structure Representation Strategy	231
<i>Wei You, Yumei Ye, Yu Chen, Hongman Tian, Honglu Yang, and Yunlu Zhong</i>	

Research and Improvement of Free Search Algorithm	235
<i>Guang-Yu Zhu, Jin-Bao Wang, and Hong Guo</i>	
Self-Organization Method for Coupled Thermo-Mechanical Analysis of Micro-Structure	240
<i>Anlin Wang, Xiaofeng Wu, Zhenglin Zhou, and Bo Ma</i>	
Topology Optimization of Continuum Structures with Many Subdomains	245
<i>K. Cai, J. Shi, and H.K. Ding</i>	

Intelligent Agents and Systems

A Capability-Centered Agent Model and Dynamic Integration Framework	253
<i>Qingshan Li, Chenguang Zhao, Shaojie Mao, and Yuping Li</i>	
A Domain-Independent Exception Handling Method in Multi-agent System	258
<i>He Liu, Qingshan Li, Haishun Yun, Yang Liu, Shaojie Mao, and Yuping Li</i>	
A Scripted-Control Integration Strategy in Multi-agent System	263
<i>Weihua Sun, Qingshan Li, He Liu, Lei Wang, Shaojie Mao, and Yuping Li</i>	
An Improved Anytime RRTs Algorithm	268
<i>Qidan Zhu, Yebin Wu, Guoqiang Wu, and Xin Wang</i>	
Application of System Dynamics in the Forecasting Water Resources Demand in Tianjin Polytechnic University	273
<i>Chunjian Zhai, Hongwei Zhang, and Xuehua Zhang</i>	
Intelligent Planning and Execution of Tasks Using Hybrid Agents	277
<i>Sayyid Hasan Riyaz and Otman Basir</i>	
Process Control Analysis System Based on Data Warehouse	283
<i>Zhao Xiangdong and Ji Xiao</i>	

Information Security

An Image Steganalysis Method Based on Characteristic Function Moments of Wavelet Subbands	291
<i>Ziwen Sun, Hui Li, Zhijian Wu, and Zhiping Zhou</i>	
A New Intrusion Detection Technology by Markov Chain	296
<i>Lai-Cheng Cao</i>	
A Reversible and Fragile Watermarking Algorithm Based on DCT	301
<i>Yi Du and Ting Zhang</i>	
A Synthesized Risk Evaluation Model of Information Security	305
<i>Jinhui Zhao, Chao Wen, Xu Qian, and Juncai Zhang</i>	
An Adaptive Synchronization of a Chaotic System with Unknown Parameters	309
<i>Xiaoming Liu, Zhicai Xiao, Wang Dong, and Junwei Lei</i>	
A Fusion Model for Network Threat Identification and Risk Assessment	314
<i>Jie Ma, Zhi-tang Li, and Hong-wu Zhang</i>	
Anomaly Detection Using Improved Hierarchy Clustering	319
<i>Liang Hu, Weiwu Ren, and Fei Ren</i>	

Design of RKE System Based on KEELOQ Encryption Technology	324
<i>Yue-li Hu, Yan Zhang, and Bin Sun</i>	
Research on the Ontology-Based Complex Event Processing Engine of RFID Technology for Agricultural Products	328
<i>Zhu Huaji, Wu Huarui, and Sun Xiang</i>	
Simple Algorithm for Improving EBS Based key Assignment in Sensor Networks	334
<i>Mi Wen, Jingsheng Lei, Zhong Tang, Haizhou Du, Kefei Chen, and Weidong Qiu</i>	
Smart Intrusion Detection Method Using Negative Selection Algorithm Based on Maximum Entropy Model	339
<i>Li-zhong Geng and Hui-bo Jia</i>	
Study of Reversible Information Hiding Scheme Based on GHM and CBP	345
<i>Shuai Ren, DeJun Mu, Tao Zhang, and Wei Hu</i>	
Genetic Algorithms	
A Destination-Oriented Multicast Trees Optimization Algorithm for Controlling P2P Traffic	353
<i>Yuhui Zhao and Yuyan An</i>	
A Hybrid Genetic Algorithm for Shape Optimization of the Truss with Discrete Variables	358
<i>Guo-fu Sun, Shu-cai Li, Chun-mei Zheng, Bo Zhang, and Sheng-bo Hou</i>	
A Modified Model with Genetic Optimization Algorithm for Land Evaluation	363
<i>Zuohua Miao, Yanzhong Liu, Yong Chen, and Xiangyang Zeng</i>	
A New Adaptive Real-Coded Memetic Algorithm	368
<i>Hadi Nobahari and Davoud Darabi</i>	
A Weight-Based Multiobjective Genetic Algorithm for Flowshop Scheduling	373
<i>Zhimin Fang</i>	
Applying Genetic Algorithm and Hilbert Curve to Capacitated Location Allocation of Facilities	378
<i>Xiang Li, Zhengjun Liu, and Xihui Zhang</i>	
Binary Scene Aggregation for Chance Discovery Based on Genetic Algorithm	384
<i>Hongmei Cheng, Zhenya Zhang, and Shuguang Zhang</i>	
Extraction of Characteristic Spectral Line Based on Gaussian Fitting Method	389
<i>Jingchang Pan and Weixiang Dong</i>	
Genetic Algorithm in Vulnerability Evaluation	392
<i>Zheng-ru Tao and Xia-xin Tao</i>	
Genetic Simulated Annealing Algorithm Used for PID Parameters Optimization	397
<i>Jiajia Wang, Guoqing Jin, Yaqun Wang, and Xiaozhu Chen</i>	

Improved Differential Evolutions Using a Dynamic Differential Factor and Population Diversity	402
<i>Jixiang Cheng and Gexiang Zhang</i>	
Joint Optimization of Feature Selection and Parameters for Multi-class SVM in Skin Symptomatic Recognition	407
<i>Qian Zhao, Jialin Cao, and Yueli Hu</i>	
Optimal Sensor Placement Based on Parallel Quantum Genetic Algorithm Integrated LS-SVMs for Self-diagnostic Smart Structures	412
<i>Jianhong Xie</i>	
Research on Floating Point Representation Denoising Mutation Based on GFMRA	416
<i>Mingyi Cui, Xinxiang Zhang, and Baiyun Su</i>	
Research on Path Planning for Tooth Movement Based on Genetic Algorithms	421
<i>Zhanli Li, Kangjun Li, and Binjie Li</i>	
Research on the Utilization Technology of Remnant Based on Genetic Algorithms	425
<i>JunXing Xiong, JinPing Zhao, HaiNing Tu, JianSheng Liu, and FangChen Xia</i>	
Rules Self-Adaptive Control System for Urban Traffic Signal Based on Genetic Study Classification Algorithm	429
<i>Anlin Wang, Xiaofeng Wu, Bo Ma, and Chenglin Zhou</i>	
SAR Image Segmentation Based on Immune Genetic Algorithm and Gaussian Mixture Models	434
<i>Ya-nan Liu, Yu-tang Guo, Qin Lin, and Bin Luo</i>	
Software Project Rescheduling with Genetic Algorithms	439
<i>Yujia Ge</i>	
The Model of Weights Optimization Based on Genetic Algorithm	444
<i>Yonghong Guo</i>	
The Research of the Logistics Distribution Routing Optimization Based on Immune Genetic Algorithm	449
<i>Chen Zhaoqiang and Shen Minde</i>	
Fuzzy Computation	
A Credibility-Based Fuzzy Programming Model for APP Problem	455
<i>Haiping Zhu and Jian Zhang</i>	
A Fuzzy AHP Approach for Evaluating New Product Projects in Mobile Commerce	460
<i>Shouming Chen and Hongliang Zheng</i>	
A Fuzzy Logic Based Green Information Technology Readiness Model	465
<i>Hepu Deng, Alemayehu Molla, and Brian Corbitt</i>	
A Novel Variable Weight Method on Fuzzy Synthetic Evaluation	471
<i>Zhonglin Chai</i>	

Aliveness of Fuzzy Dynamic Petri Net Systems	477
<i>Chengjia Li, Fuling Ding, and Ni Li</i>	
An Empirical Study of Economic Transformation and Industrial Development of Beijing	482
<i>Tao Sun, Xuehua Zhang, and Yanming Yang</i>	
An Improved Project Buffer Sizing Approach to Critical Chain Management Under Resources Constraints and Fuzzy Uncertainty	486
<i>Qian Shi and Ting Gong</i>	
Analyzing the Characteristics of Fuzzy Synthetic Decision Methods on Evaluating Student's Academic Achievement—An Empirical Investigation of Junior High School Students in Taiwan	491
<i>Ching-Sen Hsieh, Chih-Hung Wu, Tao Huang, and Yu-Wen Chen</i>	
Fuzzy Evaluation of River Basin Water Resources Allocation	496
<i>Haofang Wang and Wenyan Chen</i>	
Group Decision Making with Linguistic Preference Relations Based on Fuzzy Measures	500
<i>Chunqiao Tan</i>	
Interval-Valued Intuitionistic Fuzzy Approximate Reasoning Based on a New Similarity Measure	505
<i>Qiansheng Zhang and Shengyi Jiang</i>	
Method, Model and Application for the Conversion from Vague Sets to Fuzzy Sets	510
<i>Xing-ju Wang, Yu-wei Hao, and Ran-hang Zhao</i>	
RAGA-FAHP Based Decision-Making Model for Normal High Water Level of a Reservoir	514
<i>Mingwu Wang, Juliang Jin, and Li Li</i>	
Reconstruction Model of Agile Logistics Based on Decision-Making Method of Gray Relational Grade	518
<i>Junjie Tao, Yisong Li, and Mingzhi Yao</i>	
Stability Analysis of Adaptive Optimal Fuzzy Control Systems	523
<i>Yufei Wang, Jianwei Zhang, and Hua Xue</i>	
The Performance Evaluation of Airport Operation by Approximating Extreme Solution	528
<i>Yu-Jie Wang and Chao-Shun Kao</i>	
Evolutionary Programming	
Chaos Quantum-behaved Particle Swarm Optimization Algorithm with Hybrid Discrete Variables	535
<i>Youxin Luo and Lingfang Li</i>	

The Automatic Synthesis of Combinational Logic Circuits with Graph-Based Clonal Selection Algorithm	540
<i>Zhaohui Gan, Gang Shi, and Tao Shang</i>	
The Elite Multi-parent Crossover Evolutionary Optimization Algorithm to Optimum Design of Automobile Gearbox	545
<i>Youxin Luo and Degang Liao</i>	
Evolution Strategy	
A Charging Equalization Circuit with Odd and Even Module for Li-ion Series-Connected Batteries	553
<i>Yin-Hai Zhang, Ji-Gang Li, Jun Lin, and Jin-Fa Ge</i>	
Algorithm of Finding All Real Roots Based on Solution Space Compression	558
<i>Xinglong Zhu, Xiaobin Wei, Jiping Zhou, and Yin Zhang</i>	
An Adaptive Evolutionary Strategy and its Application in the Optimization of the Aircraft Control Law in the Large Flight Envelope	563
<i>Guangwen Li, Qiuling Jia, and Jingping Shi</i>	
Chaotic Particle Swarm Optimization Algorithm with Niche and its Application in Cascade Hydropower Reservoirs Operation	568
<i>Xiaofeng Huang, Changming Ji, and Zheyi Pei</i>	
Study on the Performance of Decision Graph Bayesian Optimization Algorithm	573
<i>Zhifu Shi, Haiyan Liu, and Yinsheng Zhu</i>	
Studying Parameter of MEC Used to Multi-modal Optimization by Two-Level MEC	577
<i>Li-ai Wang, Xu-dong Zhou, Cheng-yi Sun, and Ling Chen</i>	
Water Resources Renewability Assessment Based on TOPSIS	582
<i>Chunhui Li</i>	
Biological Computing	
A Sequential Gene Expression Data Bi-clustering Method: Clustering and Verification	591
<i>Yanjie Zhang and Zhanyi Hu</i>	
A Simple Coevolution Archive Based on Bidirectional Dimension Extraction	596
<i>Liping Yang, Houkuan Huang, and Xiaohong Yang</i>	
An Extra-Systole Arrhythmia Lowers the Scaling Exponent: DFA as a Beneficial Biomedical Tool	601
<i>Toru Yazawa and Tomoo Katsuyama</i>	
ARIMA Model on a Self-adapting Character of Weak Signals of Plants	606
<i>Lanzhou Wang and Qiao Li</i>	
Defocused Palmprint Recognition Using 2DPCA	611
<i>Haifeng Sang and Fang Liu</i>	

Ecological Modeling and Simulation: A New Method of Impulsive Control for the Lotka–Volterra System	616
<i>Xinxin Ye, Qiang Zhang, Lifei Shan, and Yuehua Wan</i>	
Forecast of RBF Neural Networks to Weak Electrical Signals in Plant	621
<i>Jinli Ding and Lanzhou Wang</i>	
Gene Expression Data Classification Using Artificial Neural Network Ensembles Based on Samples Filtering	626
<i>Wutao Chen, Huijuan Lu, Mingyi Wang, and Cheng Fang</i>	
Using Implicit Enumeration to Solve 0-1 Planning Problem Based on DNA Computing	629
<i>Xiaohui Huang, Zhixiang Yin, Lingying Zhi, and Juan Hu</i>	

Author Index - Volume 1

2009 International Conference on Artificial Intelligence and Computational Intelligence

(AICI 2009)

**Shanghai, China
7-8 November 2009**

**Volume 2
Pages 1-580**



**IEEE Catalog Number: CFP0946G-PRT
ISBN: 978-1-4244-3835-8**

**Copyright © 2009 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP0946G-PRT
ISBN 13:	978-1-4244-3835-8
Library of Congress No.:	2009938339

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) 758-2633
E-mail: curran@proceedings.com

2009 International Conference on Artificial Intelligence and Computational Intelligence

AICI 2009

Table of Contents

Volume - 2

Preface - Volume 2
Organizing Committee - Volume 2
Program Committee - Volume 2
Reviewers - Volume 2

Artificial Life

Research on Visualization of Virtual Plant Based on Information Fusion	3
<i>Wei-dong Tang and Ping-ping Li</i>	
Using Cellular Automata for Modeling the Virus Infection Process	7
<i>Hailin Feng and Chenxi Shao</i>	

Applications of Computational Intelligence

A Comparison Study on Interest Rate Models of SHIBOR Based on MCMC Method	15
<i>Xiaojian Yu</i>	
A Contract Net Protocol Based on Information Intermediary Service in Multi-agent System	19
<i>Haishun Yun, Qingshan Li, Dan Jiang, He Liu, Shaojie Mao, and Yuping Li</i>	
A New Method for Fish Disease Diagnosis System Based on Rough Set and Classifier Fusion	24
<i>Yuan-hong Wu and Jun Liu</i>	
A New Right Angle Corner Detection Method	28
<i>Wang Min and Deng Xiaolian</i>	

A Parallel Monte Carlo Simulation on Cluster System for Particle Transport	31
<i>Rui-kai Dai, Jian-xin Li, Lei Li, Chun-li Dong, and Bin Yan</i>	
A Spatial Restricted Heuristic Algorithm of Shortest Path	36
<i>Ying-chun Liu and Dong-he Yang</i>	
A Study of Maximum Power Point Tracking in Novel Small-Scale Photovoltaic LED Lighting Systems	40
<i>Xiaojin Wu, Zhiqiang Cheng, and Xueye Wei</i>	
Adaptive Synchronization of Two Different Hyperchaotic Systems with Unknown Parameters	44
<i>Jiang-Wen Xiao, Ning Qin, Yuehua Huang, and Yan-Wu Wang</i>	
An Investigation into Berth Allocation and Quay Crane Assignment Based on Hybrid Parallel Genetic Algorithm	48
<i>Junliang He, Weijian Mi, Daofang Chang, and Wei Yan</i>	
An Overview of Semantics Processing in Content-Based 3D Model Retrieval	54
<i>Boyong Gao, Herong Zheng, and Sanyuan Zhang</i>	
Approximating Sensors' Responses of Odor Mixture on Machine Olfaction	60
<i>Ekachai Phaisangittisagul</i>	
Comparison of Pixels Unmixing Approaches and Application to MODIS	65
<i>Cong Pan and Bin Xia</i>	
Computer Simulation of Fancy Yarns Based on Structural Model of Appearance	69
<i>Ruilin Zhang, Weijie Guo, and Yan Hu</i>	
Drawing Process Design Based on Fuzzy Knowledge Reasoning	73
<i>Jun Gao, Tingwei Ji, and Guoqun Zhao</i>	
Efficient Optimization of Multi-components Separating Process	78
<i>Fu Junhui, Meng Qingbo, Li Xueyong, and Lu Jingqiao</i>	
Fuzzy Comprehensive Evaluation Based on Measure of Medium Truth Scale	83
<i>Lizhen Zhang and Zhenghua Pan</i>	
Fuzzy Synthetic Evaluation on Forming Performance of Stamped Parts	88
<i>Tingwei Ji, Jun Gao, and Guoqun Zhao</i>	
Identifying Prestress Loss of Long Span Bridge Based on Genetic Algorithm Combined with Neural Network	93
<i>Wang Ying, Liu Jianxin, Zhang Lewen, and Zhao Renda</i>	
Job Shop Scheduling Problem with a Novel Particle Swarm Optimization Based on Tabu Search	97
<i>Dejia Shi, Jing He, and Li Wang</i>	
Labview Based Dissolved Oxygen Sensor	101
<i>Fenghong Chu and Junjie Yang</i>	
Logistic Regression for Detecting Fraudulent Financial Statement of Listed Companies in China	104
<i>Dianmin Yue, Xiaodan Wu, Nana Shen, and Chao-Hsien Chu</i>	

Multiuser Detection Using Immune Ant Colony Optimization	109
<i>Hongyuan Gao and Ming Diao</i>	
Numerical Analysis of Transient Heat Transfer of Hollow Block	114
<i>Qing Wan, Hua Dong, and Enze Zhou</i>	
On-line Soft-Sensing of Germ Concentration for Fermentation Process of Glutamic Acid	118
<i>Wang Guicheng, Chen Cen, Pang Yujun, Zhao Yuanyuan, Wang Yong, Zhang Zhansheng, and Xu Xinhe</i>	
Optimization Model for Production Planning Based on Dynamic Programming	123
<i>Li-jun Liu and Da-sheng Wu</i>	
Optimization of PID Parameters for Mine Hoisting DTC System Based on Chaos Theory	128
<i>Xian-Min Ma and Lin Guo</i>	
Quantum Particle Swarm Optimization for MC-CDMA Multiuser Detection	132
<i>Hongyuan Gao and Ming Diao</i>	
Research on Effect of Power Price Adjustment on China's Price Level	137
<i>Chu Ye and Dong-xiu Niu</i>	
Spam Filtering System Based on Uncertain Learning	141
<i>Zhen Liu, Yan Fu, and Feng-zhu Xie</i>	
Study on the Soft Handoff Simulation Based on Received Signal Strength in CDMA	145
<i>Wandui Mao, Zhaofeng He, Ningning Liu, Ming Yang, and Dongmei Liu</i>	
The Algorithm for Solving All Feedback Loops of Fuzzy Cognitive Map	150
<i>Chunmei Lin and Yue He</i>	
The Application of the Fuzzy Controller Based on PLC in Sewage Disposal System	154
<i>Kang Sun, Yan-min Song, and Guo-chuan Feng</i>	
The Application of Union-Find Sets in Kruskal Algorithm	159
<i>Da-Zhi Pan, Zhi-Bin Liu, Xian-Feng Ding, and Qin Zheng</i>	
The Application of Wavelet Neural Network in Adaptive Inverse Control of Hydro-turbine Governing System	163
<i>Liao Zhong</i>	
The Library Evaluation Based on the PCA and Fuzzy-c Means	167
<i>Yong Wei and Huazhong Li</i>	
The Research of Supply Chain Modeling Based on the Improved Complex Network Theory	172
<i>Dequn Zhao</i>	
Hardware Software Partitioning Using Immune Algorithm Based on Pareto	176
<i>Yang Liu and Qing Cheng Li</i>	

A Method to Synthetically Calculate the Ontology Conception Similarity Based on the WordNet	181
<i>Hongsheng Wang and Qiuyan Liu</i>	
A Novel Acoustic Feature Extraction Algorithm for Robust Low Altitude Flying Targets Recognition	185
<i>Hui Liu and Jun-an Yang</i>	
A Novel Constructional Method for Designing a Class of Orthogonal Wavelets with Finite Support	189
<i>Shude Du and Delin Hua</i>	
An Adaptive Dead-Reckoning Updating Policy for Continuous Query	194
<i>Xun Li, Ming Huang, and FuLing Bian</i>	
Dynamic Analysis and Optimization of Parallel Manipulator	199
<i>JianXin Wu and XiaoJun Yang</i>	
Inclusion-Based Multi-level Pointer Analysis	204
<i>Yingxia Cui, Longshu Li, and Sheng Yao</i>	
Numerical Simulation of Air Gap Magnetic Field of Eddy-current Retarder	209
<i>Zhijun Long and Changyou Li</i>	
Study on a Network Communication Optimization Algorithm of P2P Mode	212
<i>Tian-shi Liu, Jiao Li, and Qing-nian Cao</i>	
The Properties of a Class of Two-Direction Compactly Supported Wavelet Packets with a Positive Integer Dilation Factor	218
<i>Xiaofeng Wang and Mei Zhou</i>	
Vector Variational Control Problems with KT-invex	223
<i>Shuli Xu, Jun Jiang, and Weiwei Ouyang</i>	

Ant Colony Algorithm

Improved Ant Algorithm Combined with Ecological Theory for Urban Power System Planning	229
<i>Gao Weixin, Luo Xianjue, Tang Nan, and Mu Xiangyang</i>	
Modeling of Fermentation Process Based on MOACO and Epsilon-SVM	234
<i>Jian-ping Zhu, Lin-cheng Zhou, and Chun-bo Liu</i>	
Partner Selection Model on Bidding Alliance for BOT Projects Based on Modified Auto-adapted Ant Colony Algorithm	240
<i>Yonghe Yu, Weimin Ma, Suyan Li, and Guo Li</i>	
Scheduling Earth Observing Satellites with Hybrid Ant Colony Optimization Algorithm	245
<i>Haibo Wang, Minqiang Xu, Rixin Wang, and Yuqing Li</i>	
Value-convergence Time Estimation of the First Order ACO on Deceptive Problems	250
<i>Ling Chen, Hai Ying Sun, and Shu Wang</i>	

Robotics

A Fuzzy Behavior-Based Architecture for Mobile Robot Navigation in Unknown Environments	257
<i>Qing-yong Bao, Shun-ming Li, Wei-yan Shang, and Mu-jin An</i>	
A Small Window-Cleaning Robot for Domestic Use	262
<i>Jihong Liu, Hongxia Jiang, Zhengxin Li, and Hangjun Hu</i>	
A Survey of Autonomous Control for UAV	267
<i>Hai Chen, Xin-min Wang, and Yan Li</i>	
Adaptive RBFNN Based Fuzzy Sliding Mode Control for Two Link Robot Manipulator	272
<i>Fei Liu and Shaosheng Fan</i>	
Carrying Robot Walking Control Based on Genetic Algorithm	277
<i>Gui Lihua, Yang Xiuxia, Zhang Yi, and Yang Zhiyong</i>	
Efficient Algorithms for the Kinematics and Path Planning of Manipulator	282
<i>Dequan Guo, Hui Ju, Yuqin Yao, Feng Ling, and Tianxiang Li</i>	
Mobile Robot Map Building Based on Grid Arrangement	288
<i>Bingfeng Wang, Shigang Cui, Li Zhao, Genghuang Yang, and Xuelian Xu</i>	
New Parallel Robot Mechanisms Based on Chain RPC, PRS and CPS	292
<i>Xiuqing Hao and Lei Sun</i>	
Observer-Based Gain Scheduling Control of Robotic Helicopter	297
<i>Hong-Bo Zhou, Hai-Long Pei, and Bin Chen</i>	
Structure and Kinematics Decoupling Analysis of a Novel 3D Translations Spatial Parallel Robot Mechanism	303
<i>Haizhen Chen, Hongpeng Song, and Zhongyue Zou</i>	
Study on Lower Extreme Virtual Carrying Robot System Movement Control	308
<i>Yang Xiuxia, Liu Aili, and Zhang Yi</i>	
The Design of an Inspection Robot for Boiler Tubes Inspection	313
<i>Lu Xueqin, Qiu Rongfu, Liu Gang, and Huang Fuzhen</i>	
The Research and Simulation on the Path Planning Based on the Improved Grid Model	318
<i>Guo Shuai, Dai Leying, and Ouyang YuPing</i>	
The Research of Motion Planning for Humanoid Robots	322
<i>Lu Xueqin and Qiu Rongfu</i>	

Problem Solving

Dynamic Test Study on Self Aligning System of Pinion	329
<i>Zhai Yuyi, Yang Shiliang, and Liu Liang</i>	
Fault Detection for Process Monitoring Using Improved Kernel Principal Component Analysis	334
<i>Jie Xu, Shousong Hu, and Zhongyu Shen</i>	

Maximal Equation Satisfying Problem Solving in F2 Field by Velocity Perturbed Particle Swarm Algorithm	339
<i>Zhao Xinchao</i>	
Study of Underwater Positioning Based on Short Baseline Sonar System	343
<i>Zhai Yuyi, Gong Zhenbang, Wang Lei, Zhang Ruiyong, and Luo Huanxin</i>	
Study on Improved Hybrid Genetic Algorithm for Multi-depot Vehicle Routing Problem with Backhauls	347
<i>Ren Chunyu and Wang Xiaobo</i>	
Application of Improved BP Network in the Flaws Evaluation of Conductive Materials	351
<i>Yang Qingjie, Chen Yanfeng, Mao Xinhua, and Kong Xiaohong</i>	
Pattern Recognition	
2DPCA vs. 2DLDA: Face Recognition Using Two-Dimensional Method	357
<i>Xiao-ming Wang, Chang Huang, Xiao-ying Fang, and Jin-gao Liu</i>	
A Keyword Spotting Based Sports Type Determination System	361
<i>Li Lu, Ran Xu, Fengpei Ge, Qingwei Zhao, and Yonghong Yan</i>	
A Method for Recognition of Defects in Welding Lines	366
<i>Jun-jie Peng</i>	
A New Two-Directional Two-Dimensional Feature Extraction Based on Manifold Learning	370
<i>Yong-zhi Li, Guo-dong Li, and Jing-yu Yang</i>	
A Novel Solution Scheme for the Kernel MSE Model	375
<i>Jinghua Wang</i>	
A SVM-Based Text Classification Method with SSK-Means Clustering Algorithm	379
<i>Hongcan Yan, Chen Lin, and Bicheng Li</i>	
Acoustic Fault Identification of Underwater Vehicles Based on NSOM-PNN	384
<i>Ruipeng Luan, Kerong Ben, and Lilin Cui</i>	
An Image Authentication and Verification Based on Public Key	389
<i>Li Lizong, Gao Tiegang, Gu Qiaolun, and Bi Lei</i>	
Ball Detection Based on Color Information and Hough Transform	393
<i>Hongying Zhang, Yadong Wu, and Fan Yang</i>	
Biomimetic Pattern Recognition Based on the Young-Helmholtz Model of Multispectral Image	398
<i>Wenming Cao and Feng Hao</i>	
Enhanced Marginal Fisher Analysis for Face Recognition	403
<i>Pu Huang and Caikou Chen</i>	
Feature Extraction of X-ray Fracture Image and Fracture Classification	408
<i>Zheng Wei, Ma Na, Sun Huisheng, and Fan Hongqi</i>	

Flame Edge Detection Based on C-V Active Contour Model	413
<i>She Xingxing and Huang Fuzhen</i>	
Identification of Wavelet Modulation Signals Based on Time-Frequency Mixed Moment	418
<i>Xianghong Tang, Liyue Li, Ling Zhao, and Shuangxia Li</i>	
Linear CCD Based Optical Tracking Using Stereo Correspondence Algorithm	422
<i>Qiuting Wen and Jian Wu</i>	
Minimum Coverage Hypersphere Based Category-Separability Criterion and Feature Selection	426
<i>Xiaoyun Chen and Jinhua Chen</i>	
PI Diagram Based Face Detection with AdaBoost in Color Image	432
<i>ZhiSheng Gao and ChunZhi Xie</i>	
Research on Isolated Word Speech Recognition Based on Biomimetic Pattern Recognition	436
<i>Bin Lu and Jing-jing Xu</i>	
Speaker Recognition Based on APSO-K-means Clustering Algorithm	440
<i>Man Sha and Huixian Yang</i>	
SURF-Based Multi-scale Resolution Histogram for Insect Recognition	445
<i>Shi-Guo Huang, Xiao-Lin Li, Ming-Quan Zhou, and Guo-Hua Geng</i>	
The Application of Geoagent in RS Image	449
<i>Honghai Kuang and Junhua Chen</i>	
Application of Data Mining Technology Based on FRS and SVM for Fault Identification of Power Transformer	452
<i>Zhihong Xue, Xiaoyun Sun, and Yongchun Liang</i>	

Neural Networks (I)

A Divide-and-Conquer System Based Radial Basis Function Network with its Algorithm of Maximizing Conditional Probability	459
<i>Huang Rongbo and Guo Suixun</i>	
A Measurement Technique of Influence Factor for Difference Between Produce and Sale of Water Supply Company	462
<i>Zhao-ji Yu, Xiang-pei Hu, and Wen-juan Wang</i>	
A Novel Criterion for Robust Stability of Stochastic Bidirectional Associative Memory Neural Networks with Time Delays	467
<i>Xiu Kan, Zengwei Lv, and Huisheng Shu</i>	
A Soft-Sensor Method Based on Fuzzy Rules for Pulverized Coal Mass Flow Rate Measurement in Power Plant	472
<i>Guixue Cheng, Weiguo Pan, Wei Zhang, Haizhou Du, and Chao Zhang</i>	
A Speech Recognition Based on Quantum Neural Networks Trained by IPSO	477
<i>Lihui Fu and Junfeng Dai</i>	

A Steganographic Method Based on SOM and Wavelet Contrast	482
<i>Zhang Jiajia, Liu Jing, and Deng Cheng</i>	
Analog Circuit Fault Diagnose Based on Wavelet Packet Transform and SOFM Neural Network	485
<i>Tao Xie, Yigang He, Jiangang Yao, and Xiao Deng</i>	
Application of Counter Propagation Network in Fault Diagnosis of Power Transformer	490
<i>Zhongjie Wang, Zhihong Xue, and Yongchun Liang</i>	
Application of RBF Neural Network in Trajectory Planning of Robot	493
<i>Xiao-yue Wang, Zhong-kui Zhang, and Bin Zhou</i>	
Applying Neural Networks to Consumer-Oriented Product Design	497
<i>Yang-Cheng Lin, Chung-Hsing Yeh, and Chen-Cheng Wang</i>	
Artificial Neural Network Prediction for Seismic Response of Bridge Structure	503
<i>Wang Ying, Wang Chong, Li Hui, and Zhao Renda</i>	
Artificial Neural Network's Application in Intelligent Prediction of Enclosure Structure Deformation Induced by Foundation Pit Excavation	507
<i>Haiming Chen, Shengquan Zhou, Zhao Yang, and Cheng Liu</i>	
Day-Ahead Electricity Prices Forecasting Using Artificial Neural Networks	511
<i>Qi Tang and Danzhen Gu</i>	
DCNN Based Saturation Model for Round Rotor Synchronous Generator	515
<i>Danzhen Gu and Chuangxin Guo</i>	
DOA Estimation Based on RBFNN for Minimum Redundancy Linear Array (MRLA)	520
<i>Biao Wu, Hui Chen, and Yi Wang</i>	
Dynamic Characteristics Identification of Magnetic Rheological Damper Based on Neural Network	525
<i>En-li Chen, Chun-di Si, Ming-ming Yan, and Bing-yu Ma</i>	
Exponential Stability of a Class of Stochastic Interval Cellular Neural Networks	530
<i>Jin-fang Han and Ji-qing Qiu</i>	
Exponential Stability of Cohen-Grossberg Neural Networks with Delays and Impulses	535
<i>Qing Tang, Anping Liu, Huijuan Li, and Min Zou</i>	
Intelligent Learning Control of Hydraulic Flow Regulating Pump with Neural Network Load Flow Identifier	539
<i>Xiao Li</i>	
Medial Axis Extraction Using Growing Neural Gas	544
<i>Yee Zhang, Guisong Liu, Xiufen Fang, and Bo Chen</i>	
Multi-objective Optimal Design for Hybrid Active Power Filter Based on Composite Method of Genetic Algorithm and Particle Swarm Optimization	549
<i>You-hua Jiang and Dai-fa Liao</i>	

Multiperceptron Architecture Based on the Potts Model for Pattern Identification	554
<i>Vladimir Kryzhanovsky</i>	
Neuron Model and its Realization for Semiconductor Neural Computer	559
<i>Wenming Cao, Hao Feng, Lijun Ding, Jianhua Wang, and Shoujue Wang</i>	
On Delay-Dependent Exponential Stability of Neutral-Type Neural Networks with Interval Time-Varying Delays	563
<i>Hongli Wu, Yong Zhong, and Huanhuan Mai</i>	
Optimization of Solidification Process Parameters for Photosensitive Resin Based on Artificial Intelligence	570
<i>Yanjue Gong, Fu Zhao, and Qiao Bai</i>	
Performance Prediction of Solar Collectors Using Artificial Neural Networks	573
<i>Hui Xie, Li Liu, Fei Ma, and Huifang Fan</i>	
Post-Evaluation Base on the Wavelet the Particle Swarm Optimization BP Neural Network Evidence	577
<i>Li Chen</i>	

Author Index - Volume 2

2009 International Conference on Artificial Intelligence and Computational Intelligence

(AICI 2009)

**Shanghai, China
7-8 November 2009**

**Volume 3
Pages 1-607**



**IEEE Catalog Number: CFP0946G-PRT
ISBN: 978-1-4244-3835-8**

**Copyright © 2009 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP0946G-PRT
ISBN 13:	978-1-4244-3835-8
Library of Congress No.:	2009938339

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) 758-2633
E-mail: curran@proceedings.com

2009 International Conference on Artificial Intelligence and Computational Intelligence

AICI 2009

Table of Contents

Volume - 3

Preface - Volume 3
Organizing Committee - Volume 3
Program Committee - Volume 3
Reviewers - Volume 3

Neural Networks (II)

Research of a Cervical Cell Sorter Based on BP Neural Network	3
<i>Yaosheng Lu, Yuqi Han, and Mengchun Song</i>	
Research on Pressurizer Water Level Control of Nuclear Reactor Based on CMAC and PID Controller	8
<i>Jinming Yi, Jianhua Ye, Yang Xue, Xuhong Yang, and Hong Qian</i>	
Stability Analysis of Stochastic Fuzzy Recurrent Neural Networks with Time-Varying Delays	12
<i>Li Wan and Qinghua Zhou</i>	
Stability and Existence of Periodic Solution for Impulsive Cellular Neural Networks	16
<i>Ting Liu, Qingxia Ma, Shaochen Cao, and Anping Liu</i>	
Temperature Compensation of Ultrasonic Flow Measurement Based on the Neural Network	21
<i>Yan-xia Wang and Zhi-hao Li</i>	
The Chaotic Neural Network is Used to Predict the Sea Clutter Signal	25
<i>Yan Shen and Guoqiang Li</i>	

The Forecast of Energy Demand on Artificial Neural Network	31
<i>Jin-ming Wang and Xin-heng Liang</i>	
The Intelligent System Design of Remote Fault Diagnosis of Reducer Based on GA and NN	36
<i>Jun Su</i>	
The Selection of Green Building Materials Using GA-BP Hybrid Algorithm	40
<i>Qian Shi and Yilong Xu</i>	
The Single Neuron PID Control for Large Time-Delay System Based on Grey Prediction	46
<i>Guo Ruiqing, Cheng Qiming, Du Xufeng, and Wang Mingmei</i>	
Using a Neural Network Controller to Control Chaos in the Rossler System	50
<i>Li-Xin Yang, Zhong-Rong Zhang, and Jian-Gang Zhang</i>	
Natural Language Processing	
A New Text Categorization Method Based on SVD and Cascade Correlation Algorithm	57
<i>Yan Xia Wang and Wei Deng</i>	
An Event Model Adapted for Analysis of Verb Sense in Natural Language	61
<i>Xu Wei, Zhao Ke, and Li Yatao</i>	
Dealing with Chinese Overlapping Ambiguity Based on Type Functional Application	67
<i>Dongping Gao and Jiahong Guo</i>	
Measuring Word Similarity Based on Pattern Vector Space Model	72
<i>Lei Liu, Maosheng Zhong, and Ruzhan Lu</i>	
Research of Automatic Indexing Based on Semantic and Statistic Feature	77
<i>Yue Zhang, Xueqiang Lv, Shuicai Shi, and Hongwei Wang</i>	
Sentiment Analysis for Product Features in Chinese Reviews Based on Semantic Association	81
<i>Chunxia Yin and Qinke Peng</i>	
The Method of Extracting Domain and Situation in Chinese Sentence Groups	86
<i>Xiangfeng Wei and Quan Zhang</i>	
Topic Discovery Based on LDA Model with Fast Gibbs Sampling	91
<i>Shi Jing and Li Wanlong</i>	
Machine Vision	
2D Line Matching Using Geometric and Intensity Data	99
<i>Dong-Min Woo, Dong-Chul Park, Seung-Soo Han, and Seunghwa Beack</i>	
A Boiler Flame Detecting System Based on TMS320DM642	104
<i>Rong-xing Duan, Jian-hua Wu, Zhi-bin Zhao, and Yun Zhang</i>	
A Hierarchical Pose Estimation Method Based on Graph Model	108
<i>Yan Tian, Junxiang Gao, Hao Zhang, and Yong Liu</i>	

A Hybrid Algorithm of Eyes Localization in Color Facial Region	113
<i>Yihu Yi, Daokui Qu, and Fang Xu</i>	
A Method of Fruits Recognition Based on SIFT Characteristics Matching	119
<i>Wan-gan Song, Hong-xia Guo, and Yan Wang</i>	
A Novel Method to Construct Visual Vocabulary Based on Maximization of Mutual Information	123
<i>Li-Jun Guo, Jie-Yu Zhao, and Rong Zhang</i>	
A Self-Calibration Method for Rotational Stereo Vision	128
<i>Beili Guo, Qiu Guan, and S.Y. Chen</i>	
An Improved Method for Image Edge Detection Based on GM(1,1) Model	133
<i>Jianxin Zhang and Lang Wu</i>	
Apple Shape Classification Using Level Set and Motion Estimation	137
<i>Jiangsheng Gui, Zhouxiang Shou, DongHe Yang, and Hongchun Chen</i>	
Hand Tracking Using Kernel Density Approximation	142
<i>Aras Dargazany and Ali Soleimani</i>	
Human Action Recognition Using Latent-Dynamic Condition Random Fields	147
<i>Guangfeng Lin, Yindi Fan, and Erhu Zhang</i>	
Image Matching for Workpiece Based on Genetic Algorithm	152
<i>Wang Yan, Fu Weiping, Zheng Chensheng, and Wang Hongtao</i>	
Outdoor Target Tracking and Positioning Based on Fisheye Lens	158
<i>Qingjie Liu and Zuoliang Cao</i>	
Point Cloud Simplification Based on an Affinity Propagation Clustering Algorithm	163
<i>Lanlan Li, S.Y. Chen, Qiu Guan, Xiaoyan Du, and Z.Z. Hu</i>	
Robust 3D Shape Reconstruction from a Single Image Based on Color Structured Light	168
<i>Zhengzhou Hu, Qiu Guan, Sheng Liu, and S.Y. Chen</i>	
Some Remarks on FCMLS and its Application to Natural Fruit Image Segmentation	173
<i>Zhenping Xie</i>	
Space Debris Detection Algorithm Based on Mathematical Morphology	178
<i>Kezhao Li, Qin Zhang, Zengzhang Guo, Jiangping Yuan, Chaoying Zhao, and Keke Xu</i>	
Structure Extracting and Matching Based on Similarity-Pictorial Structure Model for Microscopic Images	181
<i>Sheng Liu, Xiaoyan Du, and Jianhua Zhang</i>	
The Application Research of Robot Vision Technique on Piston's Online Recognition and Selection	186
<i>Sheng-xi Jiao, Li-hui Zhang, Jiang Jiang, and Dan-dan Chen</i>	
The Depth Estimate of Interesting Points from Monocular Vision	190
<i>Xiangming Lin and Hui Wei</i>	

View Planning Method Based on the Visual Region of the Vision System	196
<i>Xiaolong Zhou, Bingwei He, and Y.F. Li</i>	

Machine Learning

A Novel Network Intrusion Detection Algorithm Based on Density Estimation	203
<i>Jiang Zhong, Xiongbing Deng, Luosheng Wen, and Yong Feng</i>	
An Uncertainty Sampling-Based Active Learning Approach for Support Vector Machines	208
<i>HaiLong Xu, Xiaodan Wang, Yong Liao, and Chunying Zheng</i>	
Decision Tree Merging Branches Algorithm Based on Equal Predictability	214
<i>Daojing Hu, Quan Liu, and Qicui Yan</i>	
Error Analysis of Euclidean Reconstruction from Translational Motion	219
<i>Tao Lin, Sheng Liu, and S.Y. Chen</i>	
Extension CBR Retrieval	224
<i>Zhiwei Ni, Dan Han, Gongrang Zhang, and Yazhuo Gao</i>	
Feature Extraction Methods for Fault Classification of Rolling Element Bearing Based on Nonlinear Dimensionality Reduction and SVMs	228
<i>Yizhuo Zhang, Guanghua Xu, Lin Liang, and Jing Wang</i>	
Intrusion Detection Using Isomap and Support Vector Machine	235
<i>Kai-mei Zheng, Xu Qian, Yu Zhou, and Li-juan Jia</i>	
Optimized Synchronization Algorithm Based on OFDM Training Sequence	240
<i>Zhi-jian Wei</i>	
Pruning Decision Tree Using Genetic Algorithms	244
<i>Jie Chen, Xizhao Wang, and Junhai Zhai</i>	
Research on Ensemble Learning	249
<i>Faliang Huang, Guoqing Xie, and Ruliang Xiao</i>	
Research on the Intelligent Control Strategy Based on Improved FNNC for Hydraulic Turbine Generating Units	253
<i>Shuqing Wang, Zipeng Zhang, and Hui Liu</i>	
Study of Integrating AdaBoost and Weight Support Vector Regression Model	258
<i>Guo-Sheng Hu, Feng-Feng Zhu, Ying-Chun Zhang, and Jin-Lian Yu</i>	

Logic Reasoning and Theorem-Proving

A Combined Method Based on Extension Rule and Resolution	265
<i>Xia Wu, Haihong Yu, and Ying Li</i>	
Formal System and Semantics of NSigma-Labeled Calculus	270
<i>Yasuwo Ikeda, Tetsuya Mizutani, and Masayuki Shio</i>	

Knowledge Representation and Acquisition

A UML-Based Describing and Organizing Approach for Complex Domain Knowledge and its Usage in Composite Materials Manufacture	277
<i>Hui Wei and Yan Ma</i>	
Optimization of Sheet Flanging Forming Based on Kriging Metamodel	282
<i>Yanmin Xie, Xiaomei Xu, and Yue Ma</i>	
Extracting Chemical Laws from Chinese Scientific Literatures	287
<i>Jinguo Yao, Yan Ma, Zhilong Dai, Junyu Niu, and Hui Wei</i>	
Relationship Mining Among the Entities Associated with GPCRs	292
<i>Zhiqiang Chang, Yan Xu, Shanzhen Zhang, Wen Hu, Zhenqi Li, Xing Wang, Lili Yu, and Huizi DuanMu</i>	

Intelligent Signal Processing

A New Semi-fragile Watermarking for Audio Authentication	299
<i>Hong Zhao and Dong-sheng Shen</i>	
Battery Model Parameters Estimation with the Sigma Point Kalman Filter	303
<i>Zhiwei He, Mingyu Gao, Jie Xu, and Yuanyuan Liu</i>	
Blind Source Separation Based on Improved Particle Swarm Optimization	307
<i>Ming Li, Weijuan Li, Yan Wang, and Xiangfeng Sun</i>	
Comparative Study of Improving Recognition about Modal Parameter by Using Different Methods	311
<i>Zhuan-yun Yang</i>	
Design and Study on the State of Charge Estimation for Lithium-ion Battery Pack in Electric Vehicle	316
<i>Jie Xu, Mingyu Gao, Zhiwei He, Jianbin Yao, and Hongfeng Xu</i>	
Marginalized Particle Filter based Track-Before-Detect Algorithm for Small Dim Infrared Target	321
<i>Cui-yun Li and Hong-bing Ji</i>	
Multi-satellite Combined Orbit Determination Parameterized Fusion Model and Optimal Estimation Algorithm	326
<i>Deyong Zhao, Xu Lu, and Hua Zhang</i>	
Study on Dummy Time Reversal Mirror Passive Localization Based on Vertical Array	331
<i>Xueli Sheng, Xizhong Bao, Fangfang Luo, and Xiaowu Jia</i>	
Survey of Kalman Filters and Their Application in Signal Processing	335
<i>Thanh Binh Ngo, Hung Lan Le, and Thanh Hai Nguyen</i>	
The Method for Pulse Wave Velocity Measurement Based on Chaotic Oscillator	340
<i>Chen Deng and WanQing Song</i>	
Wavelet Neural Network Equalization Algorithm Based on Spatial Diversity	345
<i>Ye-cai Guo, Ji-cheng Lin, Min Gao, and Xue-qing Zhao</i>	

Intelligent Scheduling

A Multitask Scheduling Algorithm for Vxworks: Design and Task Simulation	353
<i>Ren Peng and Xiang Zheng</i>	
Improved ACO Algorithm for Resource-Constrained Project Scheduling Problem	358
<i>Yumiao Zhou, Qingshun Guo, and Rongwei Gan</i>	
Study and Design on Single-Controller and Multi-loops Networked Control System Based on the Task Scheduling with Self-Adaptive Prior	366
<i>Liu Dianting, Zhou Dejian, and Li Mingtao</i>	
Task Scheduling for Heterogeneous Computing Based on Learning Classifier System	370
<i>Jiadong Yang, Hua Xu, and Peifa Jia</i>	

Intelligent Information Retrieval

A Study on Pseudo Labeled Document Constructed for Document Re-ranking	377
<i>Chong Teng, Yanxiang He, Donghong Ji, Guimin Lin, and Zhewei Mai</i>	
Automatic Scoring of Pronunciation Quality with Hybrid Measure	381
<i>Bin Dong, Fengpei Ge, Fuping Pan, and Shui-duen Chan</i>	

Intelligent Information Fusion

A Modified Dempster-Shafer Combination Rule Based on Evidence Ullage	387
<i>Yi-jie Ding, She-liang Wang, Xin-dong Zhao, Miao Lv, and Xi-qin Yang</i>	
Cooperative Multi-robot Map-Building Under Unknown Environment	392
<i>Chunyang Liu, Yingwei Ma, and Chang'an Liu</i>	
Credit Risk Assessment Using BP Neural Network with Dempster-Shafer Theory	397
<i>Lin Lin and Nantian Huang</i>	
Fusion Segmentation Algorithm for SAR Images Based on the Persistence and Clustering in the Contourlet Domain	402
<i>Yan Wu, Ping Xiao, Haitao Zong, Xin Wang, and Ming Li</i>	
Passive Acoustic Sensor Network Time-Delay Probabilistic Localization Algorithm	407
<i>Yuesong Lin, Wei Du, and Yunfei Guo</i>	
Research on Health Diagnosis Method Based on Fuzzy Sets and Information Fusion	412
<i>Xin Wang and Qing-lin Ma</i>	
Research on Structure of Humanized Perceptron in Artificial Life	417
<i>Tie-qiang Sun, Yi-xin Yin, and Xu-yan Tu</i>	
Two Efficient Combination Rules for Conflicting Belief Functions	421
<i>Li Bicheng, Huang Jie, and Yin Hujun</i>	

Water Environment Monitoring System Based on Neural Networks for Shrimp Cultivation	427
<i>Xiaojing Shen, Ming Chen, and Jiang Yu</i>	
Intelligent Image Processing	
An Algorithm of Fabric Image Mosaic Based on SIFT Feature Matching	435
<i>Lu Bei and Zheng Haizhen</i>	
A Fast Algorithm for Variational Image Inpainting	439
<i>Cheng-wu Lu</i>	
A High Efficient System for Traffic Mean Speed Estimation from MPEG Video	444
<i>Fu Yuan Hu, Hichem Sahli, Xing Fa Dong, and Jian Wang</i>	
A Method of Image Matching Used in Image-Based Modeling System	449
<i>Chengtao Yi, Xiaotong Wang, and Xiaogang Xu</i>	
A New Laser Collimating Method Based on Image Processing	452
<i>Lou Yuehuan and He Ping'an</i>	
A New Scheme for Decomposition of Mixed Pixels Based on Modified Nonnegative Matrix Factorization and Genetic-Algorithm	457
<i>Zhao Liaoying, Lv Yali, Zhang Kai, and Li Xiaorun</i>	
A Novel Rate Control for H.264 with Adaptive Rounding Offset Determination	462
<i>Jie Jiang, Baolong Guo, and Wei Mo</i>	
A Simple and Fast Segmentation Approach for Sport Scene Images	466
<i>Yongquan Xia, Weili Li, and Shaohui Ning</i>	
Building a Robust Appearance Model for Object Tracking	471
<i>Zhijun Yao, Bin Feng, Junwei Wang, and Wenyu Liu</i>	
Color Image Edge Detection using Dempster-Shafer Theory	476
<i>Zhao Chunjiang and Deng Yong</i>	
Color Image Filter Based on Predator-Prey Particle Swarm Optimization	480
<i>Xian-cheng Zhou</i>	
Digital Image Stabilization Based on Phase Correlation	485
<i>Ruiming Jia, Hong Zhang, Lei Wang, and Junwei Li</i>	
Equivalence Relation Between Intersecting Cortical Model and Binary Mathematic Morphology in Image Processing	490
<i>Shan Gao and Du-yan Bi</i>	
Face Detection Method Based on Skin Color Segmentation and Eyes Verification	495
<i>Yihu Yi, Daokui Qu, and Fang Xu</i>	
Fast Multilevel Thresholding Based on Simulated Water Flooding	502
<i>Yongfeng Cao and Hui Yin</i>	

Fingerprint Classification Based on Improved Singular Points Detection and Central Symmetrical Axis	508
<i>Feng Wang , Yun Chen, Hao Wang, and Xiu-you Wang</i>	
Fuzzy Expert Systems Based on Membership Functions and Fuzzy Rules	513
<i>Dhawan Avneet Kaur and Kirti Kaur</i>	
Human Tracking Based on Mean Shift and Kalman Filter	518
<i>Shimin Feng, Qing Guan, Sheng Xu, and Fang Tan</i>	
Image Denoising Based on Adaptive Filtering and Multi-frame Averaging Filtering	523
<i>Xie Qinlan and Chen Hong</i>	
Iterative Quadtree Decomposition Segmentation of Liver MR Image	527
<i>Chi Dongxiang and Lu Tiankun</i>	
NonSubsampled Contourlet Transform Combined with Energy Entropy for Remote Sensing Image Fusion	530
<i>Juan Lu, Changjiang Zhang, Min Hu, and Huiyu Chen</i>	
PCNN Edge Detection of Sintering Pellets Image Based on Hybrid Harmony Search Algorithm	535
<i>Jie-sheng Wang and Xian-wen Gao</i>	
PDE-Based Finger Image Denoising	540
<i>Ming Liu, Kunlun Li, Tianshu Zhang, Baozong Yuan, and Zhenjiang Miao</i>	
Real-Color Image Denoised and Enhanced Synchronously Based on Wavelet Transform	544
<i>Li-na Han, Guo-hua Geng, and Xiong Jie</i>	
Research on the Pre-processing Method of Automatic Reading Water Meter System	549
<i>Zhijia Zhang and Yuan Li</i>	
Soft-Threshold De-noising Method of Medical Ultrasonic Image Based on PCNN	554
<i>Ye-cai Guo, Long-qing He, and Shao-bo Wang</i>	
Textile Image Segmentation Based on Semi-supervised Clustering and Bayes Decision	559
<i>Xiao-min Bao, Xiao Peng, Ya-ming Wang, and Zuo-bao Cao</i>	
The Segmentation of Overlapping Milk Somatic Cells Based on Improved Watershed Algorithm	563
<i>Su Na and Xue Heru</i>	

Intelligent Control (I)

A Control Method of Dissolved Oxygen in Sewage Treatment Based on Fuzzy-Smith	569
<i>Zaiwen Liu, Wandong Li, Xiaoyi Wang, Zhen Su, Xiaofeng Lian, and Dengyu Xie</i>	
A Dynamic Balance Testing Framework for Gyroscope Based on Embedded System	573
<i>Zhiyuan Liang and Jianqing Zhang</i>	
An Intelligent Fuzzy Controller for Air-condition with Frequency Change	578
<i>Zipeng Zhang, Shuqing Wang, and Xiaohui Yuan</i>	
A New Self-Adaptive Control Model and Application Basis on Optimum Fuzzy-RBFNN	582
<i>Yi Wan, Lei Xiao, and Chengwen Wu</i>	
Application of State Observer in the Logistics Alliance Stability	586
<i>Cheng-dong Shi and Dun-xin Bian</i>	
Automatic Control of Supercritical CO ₂ Fluid Dyeing	590
<i>Laijiu Zheng, Dawei Gao, Shihui Gao, and Bing Du</i>	
Competitive Coevolutionary Genetic Algorithms for Multiobjective Optimization Problems	594
<i>Jian-guo Liu</i>	
Design of a Backstepping Controller for a Class of High-Supersonic Missiles	598
<i>Junwei Lei, Shaowu Dai, and Zuo Fan</i>	
Efficiency Evaluation of Provincial Grain Production Based on DEA	603
<i>Haitao Su, Ruiqing Jiang, Ni Lin, and Xiaowei Ma</i>	

Author Index - Volume 3

2009 International Conference on Artificial Intelligence and Computational Intelligence

(AICI 2009)

**Shanghai, China
7-8 November 2009**

**Volume 4
Pages 1-610**



**IEEE Catalog Number: CFP0946G-PRT
ISBN: 978-1-4244-3835-8**

**Copyright © 2009 by the Institute of Electrical and Electronic Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP0946G-PRT
ISBN 13:	978-1-4244-3835-8
Library of Congress No.:	2009938339

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) 758-2633
E-mail: curran@proceedings.com

2009 International Conference on Artificial Intelligence and Computational Intelligence

AICI 2009

Table of Contents

Volume - 4

Preface - Volume 4
Organizing Committee - Volume 4
Program Committee - Volume 4
Reviewers - Volume 4

Intelligent Control (II)

Global Sliding Mode Control for Brushless DC Motors by Neural Networks	3
<i>Zhiqiang Cheng, Chongsheng Hou, and Xiaojin Wu</i>	
Importance Performance Analysis Based Fuzzy Neural for Determining Critical Service Attributes	7
<i>Hong-Zhen Zheng, Dian-Hui Chu, and Xiaofei Xu</i>	
Leader-Following Control of Multi-agent Consensus for a Discrete-Time Case	11
<i>Bo Liu, Haili Liang, Jie Zhang, and Jianwen Wang</i>	
Model Reference Adaptive Control of a Class of Uncertain Nonlinear Systems Based on Neural Networks	16
<i>Pengnian Chen</i>	
Multi-objective PID Controller Based on NSGA-II Algorithm with Application to Main Steam Temperature Control	21
<i>Xiang-zhong Guan</i>	
Neural Network Control Techniques of Hybrid Active Power Filter	26
<i>You-hua Jiang and Yong-wei Chen</i>	

Nonlinear Fuzzy Robust Adaptive Control of a Longitudinal Hypersonic Aircraft Model	31
<i>Yanbin Liu and Yuping Lu</i>	
Research on Fuzzy-PID Composite Control Strategy for Hydroelectric Generating Unit	36
<i>Shuqing Wang, Zipeng Zhang, and Hui Liu</i>	
Study on Framework of STEP-NC Controller with On-machine Inspection	40
<i>Junzhe Tan, Chengrui Zhang, Riliang Liu, and Xihui Liang</i>	
Study on Intelligent Communication Module for Programmable Logic Controller	45
<i>Sheng Lu, Zhong-Jian Cai, and Tan Liu</i>	
TCP Vegas-like Expert-Controlled Multicast Congestion Control Algorithm for Wireless Networks	50
<i>Qiaoyan Kang, Jianfeng Wang, and Xiangru Meng</i>	
The Research of Complex BP Neural Network PID Control	55
<i>Yang Xue, Jian-hua Ye, Hong Qian, and Xu-hong Yang</i>	
The System of Lifetime Prediction for VFD Based on VB and MATLAB	59
<i>Jianping Zhang, Ruitao Wang, and Lingling Pan</i>	
Variable Universe Adaptive Fuzzy Control on the Triple Inverted Pendulum and Choosing Contraction-Expansion Factor	63
<i>Xiaofeng Gong, Hongxing Li, Guannan Deng, and Haigang Guo</i>	
Heuristic Searching Methods	
A Novel PSO for Multi-stage Portfolio Planning	71
<i>Zhangjun Wu, Zhiwei Ni, Chang Zhang, and Lichuan Gu</i>	
Optimizing Highway Tolls with an Intelligent Simulated Annealing Method	78
<i>Wei Liu and J.T. Ma</i>	
Fuzzy Logic and Soft Computing	
A Quantitative Method for Reasoning about Knowledge	85
<i>Qian Lan and Teng Ma</i>	
An Application of Fuzzy Cognitive Map Based on Active Hebbian Learning Algorithm in Credit Risk Evaluation of Listed Companies	89
<i>Dong-Sheng Zhai, Ya-Nan Chang, and Juan Zhang</i>	
Application of ANN in the Thickness Measuring of Conductive Materials	94
<i>Wei Zhang, Surong Qu, Li Li, Qinglin Miao, and Changyuan Song</i>	
Design of Self-Adapting Fuzzy Controller with Two Stages Variable Universe	98
<i>Jianliang Meng and Guangxing Yang</i>	
Fuzzy Multi-attribute Decision Making Based on Degree of Grey Incidence and TOPSIS in Open Tender of International Project about Contractor Prequalification Evaluation Process	101
<i>Donghong Cui and Rong Yang</i>	

Parametric Modeling of Learning Management System Using Fuzzy Logic and Intelligent Decision Vectors	106
<i>Gupta Lovi Raj, Dhawan Avneet Kaur, and Kirti Kaur</i>	
Multivariate Linear Regression Model Based on Fuzzy Variable in Econometrics	111
<i>Kaiqi Zou, Xiaoyue Zhou, and Ying Liu</i>	
NRFCM: A New Robust Fuzzy Clustering Algorithm for Image Segmentation	115
<i>Guochen Zhang and Ming Yang</i>	
Soft Computing-Based Cutter Layout Design of Rock Tunnel Boring Machine	120
<i>Zhijie Liu and Hongfei Teng</i>	
Studies on the Extensions of BL Algebra	125
<i>Yingcang Ma</i>	
Study of Fuzzy Control in Direct Torque Control system	129
<i>Baishan Mei, Haihua Liu, and Jinping Zhang</i>	
TSK Fuzzy Modeling Based on Kernelized Fuzzy Clustering and Least Squares Support Vector Machines	133
<i>Wei Liu</i>	

Expert Systems

A Method of Fuzzy Reasoning Based on Semantic Similarity and Bipartite Graph Matching	141
<i>Qiang Niu, Shixiong Xia, Guojun Tan, and Zuhui Hu</i>	
Evaluation of Intelligent Greenhouse Climate Control System, Based Fuzzy Logic in Relation to Conventional Systems	146
<i>Payam Javadikia, Ahmad Tabatabaeefar, Mahmoud Omid, Reza Alimardani, and Madjid Fathi</i>	
Expert Consulting Service Platform for Forest Pests and Diseases Prevention of Rapid-Growing and High-Yield Forest in Northeast of China	151
<i>Wang Nihong, Li Dan, Pan Hua, and Zhang Yanrong</i>	
Prediction of Probable Tuna Fishing Grounds Based on Bayesian Theorem	156
<i>Sufang Zhou, Wei Fan, and Jianping Wu</i>	

Distributed AI and Agents

A Hybrid E-institution Model: From the Static to the Dynamic	165
<i>Youming Zhou and Ji Gao</i>	
An Agent-Based Simulation Model of Options Market	175
<i>Zhang Jie, Cui Jing, Zhai Dongsheng, and Zhang Quan</i>	
Fuzzy Logic to Support Bilateral Agent Negotiation in E-commerce	179
<i>Bao-he Zuo and Yu Sun</i>	
Multi-agent Based Power Grid Data Integration and Sharing Platform	184
<i>KeHe Wu, Cheng Duan, and QianHui Shi</i>	

RA-An Agent BDI Model Based on Role	189
<i>Jian Zhang and Guang-Zhou Zeng</i>	

Decision Support Systems

A Bayesian-Based Decision-Making Process for IDM-T	197
<i>Chunrong Gao and Kerong Ben</i>	
A Model for Fuzzy Multiple Attribute Group Decision Making and Fuzzy Simulation Algorithm	201
<i>Ling Zeng</i>	
Decision Support System of Fire Station Distribution and Responsible Area Zoning in Nanjing, China	206
<i>Xiang Zhang, Jian-gang Xu, and Yi Qi</i>	
Effect of Training Artificial Neural Networks on 2D Image: An Example Study on Mammography	214
<i>Xuejun Zhang, Hiroshi Fujita, Jing Chen, and Zuojun Zhang</i>	
Multi-level Grey Evaluation for Competence of Knowledge Worker	219
<i>Jingfang Liu, Ping Zou, Pengzhu Zhang, and Zhaoqing Jia</i>	
Novel Data Processing Mechanism of Grey Control Model	224
<i>Cheng Wang and Wenlue Chen</i>	
Pricing Model of Higher Education Tuition Based on Multivariate Linear Regression	228
<i>Congjun Rao and Huanbin Liu</i>	
Research on Multi-criterion Group Decision Making Cases Based Reasoning	232
<i>Xinqiao Yu, Wenfei Chen, and Bo Meng</i>	
Research on Ontology-Based Case Indexing in CBR	238
<i>Dong Wang, Yang Xiang, Guobing Zou, and Bo Zhang</i>	
Research on WLMS-Oriented Fuzzy Clustering Method and its Application	242
<i>Renwang Li, Gui Yang, Zefei Zhu, Zhiyu Zhou, and Hao Luo</i>	
Resource Selection Game with Cost Constraint Oriented to Microeconomic Data Mining	247
<i>Jin Li, WeiYi Liu, and Kun Yue</i>	

Data Mining and Knowledge Discovering

A Framework for Video Event Detection Using Weighted SVM Classifiers	255
<i>Jianjiang Lu, Yulong Tian, Yang Li, Yafei Zhang, and Zining Lu</i>	
A Grid and Density Based Fast Spatial Clustering Algorithm	260
<i>Ming Huang and Fuling Bian</i>	
A New Algorithm for Clustering Based on Particle Swarm Optimization and K-means	264
<i>Jinxin Dong and Minyong Qi</i>	

A New Method of Periods' Identification in Hydrologic Series Based on EEMD	269
<i>Yan-Fang Sang, Dong Wang, Ji-Chun Wu, Qing-Ping Zhu, and Ling Wang</i>	
A New Method of Using Contextual Information to Infer the Semantic Orientations of Context Dependent Opinions	274
<i>Chunxu Wu, Lingfeng Shen, and Xuan Wang</i>	
A Novel Clustering Algorithm for Graphs	279
<i>Dongming Chen</i>	
A Novel Fast Clustering Algorithm	284
<i>Xia Li, Sheng-Yi Jiang, and Xiao-Ke Su</i>	
A Novel Tree Cluster Approach Based on Least Closed Tree	289
<i>Xin Guo, Yun Li, Yunhao Yuan, Jia Wu, and Ling Chen</i>	
A Privacy-Preserving Distributed Method for Mining Association Rules	294
<i>Qiong Gui and Xiao-hui Cheng</i>	
A Spatial Clustering Algorithm Based on Spatial Topological Relations for GML Data	298
<i>Genlin Ji, Jianxin Miao, and Peiming Bao</i>	
An Approach for Analyzing Infrequent Software Faults Based on Outlier Detection	302
<i>Jiadong Ren, Qunhui Wu, Changzhen Hu, and Kunsheng Wang</i>	
An Improved Perceptron Tree Learning Model Based Intrusion Detection Approach	307
<i>Qinzheng Xu, Zhimao Bai, and Luxi Yang</i>	
An Improved Top-Down Data Mining Algorithm for Long Frequents	312
<i>Gang Fang, Yu-Lu Liu, Jiang Xiong, and Hong Ying</i>	
Data Mining for the Analytical Redundancy of Power Plant Critical Parameters	317
<i>Tao Jin, Zhongguang Fu, Gang Liu, and Yongping Yang</i>	
Discovery Algorithm for Mining both Direct and Indirect Weighted Association Rules	322
<i>Weimin Ouyang and Qinhua Huang</i>	
Feature Selection with Discrete Binary Differential Evolution	327
<i>Xingshi He, Qingqing Zhang, Na Sun, and Yan Dong</i>	
Fining Frequent Itemsets from Uncertain Transaction Streams	331
<i>Bo Li</i>	
Frequent Items Mining on Data Stream Based on Time Fading Factor	336
<i>Shan Zhang, Ling Chen, and Li Tu</i>	
Immune Optimization Based Genetic Algorithm for Incremental Association Rules Mining	341
<i>Genxiang Zhang and Haishan Chen</i>	

Integrated Study in Incomplete Information System	346
<i>Rui Zhang</i>	
Learning Naive Bayes Classifiers with Incomplete Data	350
<i>Cuiping Leng, Shuangcheng Wang, and Hui Wang</i>	
Manufacturing Knowledge Subject Mining and Ranking for Mass Customization	354
<i>Xinsheng Xu, Xin Cheng, and Zhengxiang Li</i>	
Mining Concept-Drifting and Noisy Data Streams Using Ensemble Classifiers	360
<i>Zhenzheng Ouyang, Min Zhou, Tao Wang, and Quanyuan Wu</i>	
Multiple-Step Rule Discovery for Associative Classification	365
<i>Tien Dung Do, Siu Cheung Hui, and Alvis C.M. Fong</i>	
Multi-relational Classification Based on the Contribution of Tables	370
<i>Yun Li, Luan Luan, Yan Sheng, and Yunhao Yuan</i>	
Reckon the Parameter of DBSCAN for Multi-density Data Sets with Constraints	375
<i>Tian-qiang Huang, Yang-qiang Yu, Kai Li, and Wen-fu Zeng</i>	
Study on Comparison of Discretization Methods	380
<i>Liu Peng, Wang Qing, and Gu Yujia</i>	
Study on Data Mining in First Period of Jiangzhai Site Based on the Association Algorithms	385
<i>Shuoben Bi, Yin Xu, Feng Jiao, Guonian Lü, and Anping Pei</i>	
Study on the Improvement of K-Nearest-Neighbor Algorithm	390
<i>Bo Sun, Junping Du, and Tian Gao</i>	
Automatic Programming	
An Algorithm of Tool-Path Optimization for High-Speed Machining Deep-Cavity Precision Forging Die	397
<i>Q.P. Sun, Q.L. Chen, Q.F. Wang, and W.H. Liao</i>	
The Combination Forecasting Model for Power Load Based on Evidential Theory	402
<i>Dongxiao Niu, Bingen Kou, and Ye Chu</i>	
Automated Problem Solving	
Concurrency and Collision Workflow Model Based on Petri Net in Electric Power Monitoring System	409
<i>Weicheng Xie and Yi Xie</i>	
Map Polygon-Polygon Objects Spatial Conflicts Solution Using Simulated Annealing	414
<i>Youliang Chen and Zhaoru Wang</i>	
Research on Coordination Platform for Distributed Manufacturers Using Multi-agent	418
<i>Pengcheng Su, Guihe Wang, Wanshan Wang, and Ying Liu</i>	

The Control Theory and Implementation Method of Clamping Force on Metal Belt CVT	422
<i>Lei Zhang, Huiwu Li, and Guoning Li</i>	

Applications of Artificial Intelligence

A Batch Dyeing Machine's Controller Based on Embedded System	429
<i>Jianxin Zhang, Zhiyu Zhou, and Zhen Zhang</i>	
A Novel Longitudinal Speed Estimator for Fully Automation Ground Vehicle on Cornering Maneuver	433
<i>Guanyu Wang and Shengbo Li</i>	
Application and Development of Artificial Intelligence Technology for the Data Management and Analysis in Forestry	438
<i>Wei-Zhan Guo, Liu-Jin Hao, and Wu-Jia Di</i>	
Application of Artificial Intelligence (AI) in Power Transformer Fault Diagnosis	442
<i>Qi-Ping Yang, Meng-Qun Li, Xue-Yun Mu, and Jun Wang</i>	
Augmented LQG Optimal Control of Dynamic Performance for ETG System	446
<i>Gui-chen Zhang</i>	
Bilevel Programming Model for Optimal Number and Scale of Coal Mining Companies	451
<i>Deyin Wang, Kejun Zhu, and Guangmin Wang</i>	
Complex Network Study of Yantai Tourism Industry	454
<i>Jun-yi Ren</i>	
Design and Implementation of the Emotional Pedagogical Agent	459
<i>Xuejing Gu, Zhiliang Wang, Siyi Zheng, and Wei Wang</i>	
Diagnosis of Transformer Dissolved Gas Analysis Based on Multi-class SVM	463
<i>Zhe Zhang, Yong-Li Zhu, Zhong-Li Wu, and Kai Han</i>	
Distributed Intelligent Maintenance System for CNC Machine Tools Based on Kansei Engineering	467
<i>Yang Yong and Wen Shan</i>	
Feature Extraction Combining PCA and Immune Clonal Selection for Hyperspectral Remote Sensing Image Classification	472
<i>Xiangrong Zhang, Runxin Li, and Licheng Jiao</i>	
Fuzzy Multi-objective Programming Approach to Hazard Materials Treatment Center Location	477
<i>Wenqiang Dai and Qian Huang</i>	
Hopf Bifurcation in a Delayed Predator-Prey Model with a Holling-Type IV Functional Response	482
<i>Huaxiang Liu</i>	
Improved on Maximum Intensity Projection	491
<i>Feng Ling and Ling Yang</i>	

Intelligent Visual Surveillance System Based on DSP	496
<i>Shu-man Zheng, Qing Guan, Sheng Xu, and Ying Li</i>	
Modeling a Complex Socioeconomic Systems Using Multi-agent Platform	501
<i>Minhua Zhao, Junqi Yu, and Guanghua Zhao</i>	
Multisource Traffic Data Fusion with Entropy Based Method	506
<i>Zhanquan Sun, Mu Guo, Wei Liu, Jinqiao Feng, and Jiaxing Hu</i>	
Opportunities for AI in Intelligent Web-Based Technology-Supported Learning	510
<i>Carsten Ullrich, Jian Wang, Ruimin Shen, and Frank Quosdorf</i>	
Optimal Reliability Allocation for Modular Software Systems Basis on Support Vector Clustering and Fuzzy Decision	515
<i>Yi Wan and Chengwen Wu</i>	
Power Transformer Condition Monitoring Based on MAS	520
<i>Guping Zheng and Fugui Dai</i>	
Refreezing Process of Ground for Concrete Pile Group Foundation with Hydration Heat in Cold Regions	524
<i>Yaping Wu, Chunxiang Guo, Yanfeng Zhu, and Xiaojun Wang</i>	
Strategy Analysis of the Management of Natural Resources and the Urban-Heat Island Effect Using a Fuzzy Analytic Hierarchy Process in the Miaoli County of Taiwan	529
<i>Kuei-Yang Wu, Hong-Di Huang, and Wei-Cheng Chao</i>	
Study and Realization of Multimedia Intelligent Tourism Navigation System	534
<i>Tian Gao, Junping Du, and Su Wang</i>	
Study on ARM-Based Embedded NC System	538
<i>Jun Wang</i>	
Study on Bidding Schemes and Decision-Making Method for Power Plant in Day-Ahead Power Market	545
<i>Zhongxiong Yuan and Danzhen Gu</i>	
Study on the Spatial Variability of Farmland Soil Nutrient Based on the Kriging Interpolation	550
<i>Hongbo Zheng, Jianping Wu, and Shan Zhang</i>	
Study on Tourism Video Active Service System	556
<i>Baozeng Wang, Junping Du, and Tian Gao</i>	
Study on Travel Route Intelligent Navigation System Based on WEBGIS	560
<i>Jun Lin, Junping Du, and Su Wang</i>	
The Application of Self Immune Genetic Arithmetic in Fault Diagnose of Electric System	565
<i>Shurong Liu and Xingping Meng</i>	
The Performance Improvements of an Active Suspension with Grey-Fuzzy Algorithm Employing Passenger Car	570
<i>Chien-Yu Ji and Jui-Chun Chang</i>	

Transformer Oil Dissolved Gas Concentration Prediction Based on Genetic Algorithm and Improved Gray Verhulst Model	575
<i>Rui-rui Zheng, Ji-yin Zhao, and Bao-chun Wu</i>	
Brain Actuated Interaction: An Application of BCI	580
<i>Rajesh Singla and Bhupender Singh</i>	
A Web-Based Intelligent Tutoring System for English Dictation	583
<i>Xuechen He</i>	
A Method for 2D Image Texture Synthesis Based on LBP	587
<i>ZhaoHui Zhang, YuKun Yan, RuiQing Chen, and HuiQing Cui</i>	
Application of Gray Analytic Hierarchy Process in Project Risk Evaluation	592
<i>Dong-hong Cui and Xi-yan Zhang</i>	
On the Functional Equation for the Hurwitz Zeta-function	595
<i>Ming-shun Yang</i>	
Spatial Data Mining on Cultural Stratums for Field Archaeology Based on Geography Information System Databases	598
<i>Shuoben Bi, Xiaoqing He, Feng Jiao, Guonian Lü, and Anping Pei</i>	
The Application of the Least Square Method in Back Analysis of 3D Initial Geostress	603
<i>Chun-mei Zheng, Wei-shen Zhu, and Guo-fu Sun</i>	
Application of Simulated Annealing Particle Swarm Algorithm in Optimal Scheduling of Hydropower Plant	608
<i>Li Bin and Rui Jun</i>	

Author Index - Volume 4