Contents

Greetings
Greetings from the Conference Co-Chairs ................................................................. I
Greetings from the Program Co-Chairs ...................................................................... II

Acknowledgements ........................................................................................................ V

Keynote Speech
Lotfi Zadeh
  Title: Precisiated Natural Language (PNL)--Toward an Enlargement of the Role of Natural Languages
  in Enhancement of Machine IQ
Larry Hall
  Title: Learning from Large Amounts of Data
T.T. Lee
  Title: Some Open Questions on Soft Computation
Ruwei DAI
  Title: From Engineering Cybernetics to Metasynthetic Engineering
S.Y. Kung
  Title: Data Mining and Visualization of DNA Microarray Data

Contributed Papers (Sorted by Subjects)

Data Mining & Knowledge Discovery

The University Calculate Formula of Sigma Similarity Measure of Fuzzy Sets
  Xiaojun TONG, Sheming ZHANG and Jin XU ............................................................. 1981
Sigma Entropy and Sigma Similarity Measure of Fuzzy Sets
  Xiaojun TONG, Xiaozeng XU and Zhijun LI .......................................................... 1985
Application of Fuzzy Set Theory in Evaluation of the Logistic Distribution Center
  Xiaolin WANG, Yun ZHANG and Zhaobo QING ...................................................... 1990
A Ranking Approach on Fuzzy Judgment Matrix
  Xiaoyan ZHAI, Xinzhen ZHANG and Jinghua GAO ................................................. 1995
Qualitative Fuzzy Logic System and its Resolution Method
  Xin LIU and Li ZOU ......................................................................................... 2000
The Base of Finite EI Algebra
  Xin WANG and Xiaodong LIU ............................................................................. 2005
Research on Ill-Conditioned Problem in Grey Prediction Control Model
  Xinping XIAO, Shikuan TONG and Shuhua MAO ............................................. 2010
Generating Function Representation of RIM Quantifiers
  Xinwang LIU and Shilian HAN ........................................................................ 2014
Nonnegative Set Functions in Multiple Classifier Fusion
  Xizhao WANG and Huimin FENG ................................................................. 2020
Multiple Neural Networks Fusion Model Based on Choquet Fuzzy Integral
  Xizhao WANG and Junfen CHEN .................................................................. 2024
A New Methodology for Determining Fuzzy Densities in the Fusion Model Based on Fuzzy Integral
Xizhao WANG and Xiaojun WANG .................................................. 2028

Feature Selection Based on Fuzzy Extension Matrix for Multi-Class Problem
Xizhao WANG, Xiaoying LU and Feng ZHANG ................................. 2032

A Class of Weighted Possibilistic Mean-Variance Portfolio Selection Problems
Xun WANG, Weijun XU and Weigu ZHANG ........................................ 2036

Soft Computing for Parallel Scheduling With Setup Times
Yang YI, Huiyou CHANG, Jin WANG and Jiancong BAI .................... 2041

On the Independence of Fuzzy Vectors
Yankui LIU and Miao ZHAO .......................................................... 2047

Multicriteria Optimization Problems in Fuzzy Random Decision Systems
Yankui LIU and Yanju CHEN ......................................................... 2053

Fuzzy Quantification Method of Qualitative Concept in Artificial Intelligence
Ye YIN ......................................................................................... 2059

The Ascertainment of Scale Sampling Step for Numerical Realization Adopting Binary Pick Sampling of the
Continuous Wavelet Transform
Yifei PU, Ke LIAO, Jiliu ZHOU, Xiaoxian PU and Yi ZENG ............... 2063

Multistage Random Sampling Genetic-Algorithm-Based Fuzzy C-Means Clustering Algorithm
Yunying DONG, Yunjie ZHANG and Chunling CHANG ...................... 2069

Parallelized Protein Secondary Structure Prediction
Yutao QI and Feng LIN ................................................................. 2074

An Ideal Point Based Approach to Multi-Criteria Decision Making with Uncertain Linguistic Information
Zeshui XU ..................................................................................... 2078

Research on the Application of Fuzzy Data Fusion to Cable Fire Detecting System
Zhibin LI and Hong ZHOU .............................................................. 2083

A New Method Using Gershgorin Disks for Source Number Estimation
Zhifeng ZHONG, Biyang WEN, Qiande WANG and Qing CAO ......... 2086

An Experimental Study on Relationship Between Pruning Algorithms and Selection of Parameters in Fuzzy
Decision Tree Generation
Ziying YOU and Hongyan JI .......................................................... 2090

A Fuzzy Clustering Based Approach for Generating Interpretable Fuzzy Models
Zongyi XING, Weili HU and Limin JIA .............................................. 2093

Learning & Reasoning

A New Neighborhood Structure for the Job Shop Scheduling Problem
Aihua YIN .................................................................................... 2098

Genetic Algorithm Application on the Job Shop Scheduling Problem

Hybrid Genetic Algorithm for Solving the Computable General Equilibrium Model
Chuanyu XU ............................................................................... 2107

Rough Set Approach to Improvement of Sorting Quality
Chuanyu XU ............................................................................... 2111

Two Stage Case-Based Reasoning Application Research on Steel-Making Dynamic Scheduling
Chunguang CHANG, Dingwei WANG, Kunyuan HU and Binglin ZHENG 2116

Study on Rough Set Based Reduction Technique for Case Attributes
Chunguang CHANG, Dingwei WANG, Kunyuan HU and Zhi TAO ....... 2122

Research on Case Adaptation Techniques in Case-Based Reasoning
Chunguang CHANG, Jianjiang CUI, Dingwei WANG and Kunyuan HU 2128

The Geometric Constraint Solving Based on Memory Particle Swarm Algorithm
Chunhong CAO, Wenhui LI, Yongjian ZHANG and Rongqing YI ....... 2134

A Self-Learning Algorithm for Decision Tree Pre-Pruning
Desheng YIN, Guoyin WANG and Yu WU ....................................... 2140
Human-Computer Interaction Models and Their Application in an Eye-Gaze Input System
Qijie ZHAO, Dawei TU, Daming GAO and Rensan WANG .................................................. 2274
Variable Precision Dominance Based Rough Set Model and Reduction Algorithm for Preference-Ordered Data
Qinghua HU and Daren YU .................................................................................................... 2279
An Algorithm Based on Equivalence Classes for Tableau with Equality
Quan LIU and Jigui SUN .......................................................................................................... 2285
The Particle Swarm Optimization with Division of Work Strategy
Quansheng DOU and Chunjian ZHOU ..................................................................................... 2290
The Application of Case-Based Reasoning to Defect Interpretation in Nondestructive Testing
Ri QU, Changming REN and Yanru BAO .............................................................................. 2296
Fuzzy Cognitive Map Learning Based on Improved Nonlinear Hebbian Rule
Shengjun LI and Ruimin SHEN ............................................................................................... 2301
Genetic Algorithms for Optimal Design of Underground Reinforced Concrete Tube Structure
Shengli ZHAO, Minqiang LI, Jisong KOU and Yan LIU ........................................................... 2307
The Simulant Discrimination Between Self and Non-Self by Using Strings
Shengwu XIONG and Yang WANG ......................................................................................... 2312
Improve Question and Answer System by Applying Genetic Algorithm
Tongzhen ZHANG, Yonggang FU and Ruimin SHEN .............................................................. 2317
FIR Filter Design: Frequency Sampling Filters by Particle Swarm Optimization Algorithm
Wanping HUANG, Huafang ZHOU and Jixin QIAN .............................................................. 2322
Information System Based on Sub-Consciousness and its Rough Set Method
Wei HUANG, Cong LIU and Gang ZHANG .............................................................................. 2328
An Improved Particle Swarm Optimization Algorithm with Neighborhoods Topologies
Wei JIAN, Yuncan XUE and Jixin QIAN ................................................................................. 2332
Optimum Cast Plan for Steelmaking-Continuous Casting Production Scheduling Using Artificial Fish Swarm Optimization Algorithm
Wei JIAN, Yuncan XUE and Qwen YANG ............................................................................. 2338
Modified Particle Swarm Optimization Based on Space Transformation for Solving Traveling Salesman Problem
Wei PANG, Kangping WANG, Chunjian ZHOU, Longjiang DONG, Ming LIU, Hongyan ZHANG and Jianyu WANG 2342
Genetic Programming-Based Modeling on Chaotic Time Series
Wei ZHANG, Genke YANG and Zhiming WU ....................................................................... 2347
Topological Space Properties of Rough Sets
Weijiang LIU ............................................................................................................................ 2353
A Novel Measure of Compatibility and Methods of Missing Attribute Values Treatment in Decision Tables
Weijiang LONG and Wenxiu ZHANG ..................................................................................... 2356
An Improved Real-Code Genetic Algorithm
Weiqing XIONG, Youpeng ZHANG and Ping WEI ................................................................. 2361
A New Algorithm for Handling Conditional Effects in Intelligent Planning
Weixiang GU, Rixian LIU and Minghao YIN ......................................................................... 2365
A New Algorithm for Handling Sensing Actions in Uncertainty Intelligent Planning
Weixiang GU, Guidong JIANG and Huajie OU ....................................................................... 2368
An Improved Probabilistic Planning Algorithm Based on Pgraphplan
Wei Xing GU, Huajie OU, Rixian LIU and Minghao YIN ......................................................... 2374
A Discrete PSO Method for Generalized TSP Problem
A Modified Particle Swarm Optimization for Combining Forecasting
X.Y.FENG, L.M.WAN, Y.C.LIANG, Y.F.SUN, H.P.LEE and Y.WANG ..................................... 2384
Targeting Market Selection Based-on Fuzzy Preference Relation
Xiang LI, Yaping NIU and Shuxia YANG .............................................................................. 2390
Production Index Setting of ORE Concentration Material Consumption by Case-Based Reasoning
Xiaoling HUANG, Wei LIU, Chunjian CHANG and Tianyou CHAI ........................................ 2393
A New Special-Domain and Stepwise Intelligent Development Method in Software Engineering
Xiaoping QIU, Yang XIU, Yajun DU, Xiaohong LIU, Yongchuan TANG and Hua ZHU ............ 2398
A Scalable Key Distribution Scheme for Secure Multicast
Baohong LI, Yibin HOU and Yinliang ZHAO .......................... 2532

A Hybrid Filter/Wrapper Gene Selection Method for Microarray Classification
Bin NI and Juan LIU .......................................................... 2537

A Parallel Evolutionary Programming Based Optimal Power Flow Algorithm and its Implementation (Invited paper)

RBF Neural Network Image Reconstruction for Electrical Impedance Tomography
Chao WANG, Jian LANG and Huaxiang WANG .................................................. 2549

Parallel Computing for the Longest Common Subsequences in Network Intrusion Detection System
Cheng ZHONG, Guoling CHEN and Jiahua HE .......................... 2553

Color Image Adaptive Segmentation Based on Rival Penalized Competitive Learning
Chengwan AN, Guizhi LI, Guosheng YANG and Min TAN .......................... 2558

A Pr/T-Net Formalism for HPSG Parsing
Erqing XU .......................................................... 2563

Interpolated Probabilistic Tagging Model Optimized with Genetic Algorithm
Fai WONG, Sam CHAO, Dongcheng HU and Yuhang MAO .......................... 2569

A Novel Approach to Obtain Relative Reduct
Fan YANG, Lin CHEN and Hao LI ........................................... 2575

Intrusion Detection Based on Multi-Layer Minimax Probability Machine Classifier
Fang LIU and Zhenguo CHEN ........................................... 2580

Data Mining-Based Credit Evaluation for Users of Credit Card
Fei LI, Jun ZOU, Zhitong DOU and Yalou HUANG .......................... 2586

An Absolute Non-Collision Hash Algorithm
Fengjun SHANG and Yingjun PAN ........................................... 2592

Study on a Reliable Transport Technology for MPRN
Fuguo DONG, Da YUAN and Hui FAN ........................................... 2596

Study on the Location of Distribution Center: a Genetic Algorithm Combining Mechanism of Simulated Annealing
Guangbin CUI and Yijun LI ........................................... 2601

Application of Neural Network for Traffic Forecasting in Telecom Networks
Guofeng ZHAO, Hong TANG, Wenbo XU and Yaheng ZHANG .......................... 2607

Chinese Unknown Word Identification as Known Word Tagging
Guohong FU and Kangkwong LUKE ........................................... 2612

Parsing Chinese with Head-Driven Model
Hailong CAO, Tiejun ZHAO, Muyun YANG and Sheng LI .......................... 2618

Design of an Artificial-Neural-Network-Based Application-Oriented Grid Resource Discovery Service
Haopeng CHEN, Jianwei LIANG and Baowen ZHANG ........................................... 2623

A Personalized Products Selection Assistance Based on E-Commerce Machine Learning
Hongwei YANG, Zhigeng PAN, Xizhao WANG and Bing XU .......................... 2629

Machine Learning-Based Intelligent Recommendation In Virtual Mall
Hongwei YANG, Zhigeng PAN, Bing XU and Mingmin ZHANG ........................................... 2634

Agent Based Intrusion Detection for Wireless Local Area Network
Hongyu YANG and Lixia XIE ........................................... 2640

An Intrusion-Tolerant Cots-Based Server on Heterogeneous Platforms
Huicheng WANG, Xi RONG, Ye DU and Bingyang LI ........................................... 2644

A Discrete Particle Swarm Optimization Algorithm for Phylogenetic Tree Reconstruction
Huiying LV, Wengang ZHOU and Chunguang ZHOU ........................................... 2650