

Proceedings

Workshop on Intelligent Information Technology Application

IITA 2007

Zhang Jiajie, China

2–3 December, 2007

Sponsored by

Hunan Agricultural University, China
Hunan University, China
Wuhan Institute of Technology, China



Los Alamitos, California
Washington • Tokyo



Table of Contents

Workshop on Intelligent Information Technology Application 2007

IITA 2007

Preface _____	xi
Organizing Committee _____	xii
Program Committee _____	xiii

Session 1: Intelligent Computing

A Model of Volunteer Resource for Global Computing System _____ <i>Yu Wang and Zhijiang Wang</i>	1
Logic Units by Means of Neural Networks _____ <i>Jianjun Chen and Haiming Li</i>	5
Niche Gene Expression Programming Based on Clustering Model _____ <i>Yishen Lin and Hong Peng</i>	10
Research on Optimal-Selection Model Based on Genetic Algorithm Optimizing Design for Electric Plant Construction Projects _____ <i>Zhibin Liu</i>	14
Research on the Supplier Selection of Supply Chain Based on the Improved ELECTRE-II Method _____ <i>Peide Liu</i>	18
Study on Optimization of Anti-Dumping Duty Rate Based on Linear Programming Model of Input-Output Method _____ <i>Yang Yue, Gao Jiao, and He Haiyan</i>	22
A Case-Based Reasoning with Feature Weights Derived by BP Network _____ <i>Yan Peng and Like Zhuang</i>	26
Using Description Logics Reasoner for Ontology Matching _____ <i>Guohua Shen, Zhiqiu Huang, Xiaodong Zhu, Lei Wang, and Gaoyou Xiang</i>	30

Session 2: Rough Set and Data Mining

A Brief Analysis about Boundary Region Partition Reduction Standard _____ <i>Du Weifeng, Yue Guangxue, and Cheng Xu</i>	34
A New Algorithm Finding Frequent Itemsets Based on Minimum Separating into Buckets _____ <i>Zhou Qihai, Chen Yongming, and Wu Hongyu</i>	38
A New Partition Criterion for Fuzzy Decision Tree Algorithm _____ <i>Chengming Qi</i>	43
Amelioration Design of Customer-Behavior Analyzing Engine _____ <i>Liu Wenjun</i>	47

Bayesian Network Structure Learning Based on Rough Inclusion _____	51
<i>Yu-ling Li and Qi-zong Wu</i>	
Collaborative Management Mechanism of Rural Logistic Enterprise Supply Chain Based on Multi-Agent _____	55
<i>Yang Changhui</i>	

Session 3: Rough Set and Data Mining

A Business Process of Web Services Testing Method Based on UML2.0 Activity Diagram _____	59
<i>Zhang Guangquan, Rong Mei, and Zhang Jun</i>	
A Deep Web Data Integration System for Book Searching Domain _____	66
<i>Xin Zhong, Yuchen Fu, Quan Liu, Yan Wang, and Zhiming Cui</i>	
A Method of Ontology Mapping Based on Subtree Kernel _____	70
<i>Tao Jin, Yuchen Fu, Xinghong Ling, Quan Liu, and Zhiming Cui</i>	
A Semantic Knowledge Fusion Method Based on Topic Maps _____	74
<i>YingLong Wang, Bei Wu, and JinZhu Hu</i>	
An Agent-Based Framework for Intelligent and Dynamic Business Information Retrieval _____	77
<i>Hua Hu and Bin Xu</i>	
Intelligence Behavior in SE _____	82
<i>Li-jun Liu and HaiMing Li</i>	

Session 4: Information Security

A Computer Forensics Model Based on Danger Theory _____	87
<i>Lingxi Peng, Zhengde Li, Jinquan Zeng, Jian Zhang, Caiming Liu, and ChunLin Liang</i>	
Research on a Security Model of Data in Computer Supported Collaborative Design Integrated with PDM System _____	91
<i>Li-hua Yao, Jian Shao, Guo-qiang Sheng, and Guo-xuan Zhang</i>	
SecureCast: A Secure Media Streaming Scheme over Peer-to-Peer Networks _____	95
<i>Rongtao Liao, Shengsheng Yu, and Jing Yu</i>	
Simulation of Attacks on Network-Based Error Detection _____	99
<i>Ming Hu and Minghua Jiang</i>	
A Denial-of-Service Resistant Authentication Solution for Security Protocols _____	103
<i>Yinqing Li and Jianhui Chen</i>	

Session 5: Circuit Design and System

A Design of Pulse Wave Signal Collecting and Analysis System Based on USB _____	107
<i>Tingyun Chen, Yimin Yang, Song Zhang, and Zhichang Luo</i>	
A New Dynamic Scheduling Algorithm for Real-Time Heterogeneous Multiprocessor Systems _____	112
<i>YuHai Yang, Shengsheng Yu, and XueLian Bin</i>	
Design of Embedded Audio and Video Compression System _____	116
<i>Yongqiang Zhang and Bing Zhang</i>	

Session 6: Multimedia Information Processing

A Fast Algorithm for Real-Time Video Tracking _____	120
<i>Shi Shi-xu, Zheng Qi-lun, and Huang Han</i>	
Application of Remote Sensing and GIS in Obtaining Agricultural Information _____	125
<i>Qiaozhen Guo, Jing Li, Yunhao Chen, and Weiguo Jiang</i>	
Study of Logistics Vehicle Routing Problem Based on GIS _____	129
<i>Mei Chen, Yu-chen Fu, Juan Ge, Xiao-ke Zhou, and Zhi-ming Cui</i>	

Session 7: Evolutionary Computation

A Modified Particle Swarm Optimization with Adaptive Mutation Operator Selection _____	133
<i>Li Jian and Wang Cheng</i>	
Hammerstein Model Identification Based on Adaptive Particle Swarm Optimization _____	137
<i>Zhixiang Hou</i>	
Image Retrieval Model Based on Immune Algorithm _____	141
<i>Fu Duan, Xiaoqin Li, Jinfeng Liu and Keming Xie</i>	
Immune Genetic Algorithm for Weapon-Target Assignment Problem _____	145
<i>Gao Shang, Zhang Zaiyue, Zhang Xiaoru, and Cao Cungen</i>	
Immune Co-Evolution Algorithm Based on Chaotic Optimization _____	149
<i>Qiuyong Zhao, Jing Ren, Zehua Zhang, and Fu Duan</i>	
The Design and Implementation of a Topic-Driven Crawler _____	153
<i>Qiong Li, Tao Jin, Yuchen Fu, Quan Liu, and Zhiming Cui</i>	

Session 8: Artificial Intelligence and Neural Network

A Motor Fault Diagnosis Method Based on Immune Mechanism _____	157
<i>Fu Duan, Ming Lei, Jianwei Li, and Yuling Tian</i>	
A Novel Model for Evaluating Performance of IT Department Based on Balanced Scorecard and Artificial Neural Network Approach _____	161
<i>Yurong Zeng, Lin Wang, and Yonggang Wang</i>	
An Intrusion Alarm System Based on Fuzzy Reasoning Machine _____	165
<i>Jiyao An, Ronghui Wu, Renfa Li, and Cheng Xu</i>	
Integration of BP Neural Network and Multistage Dynamic Fuzzy Evaluation and its Application in HRM Performance Measurement _____	169
<i>Zhibin Liu</i>	
Investigation and Countermeasure on Subhealth of Hubei Colleges Teachers _____	173
<i>Qi Luo, Weitao Zheng, and Zhang Zhihua</i>	

Session 9: Intelligent Control

A New EPS Control Strategy Based on Feedback of Yaw Rate and Lateral Acceleration _____	177
<i>Hao-bin Jiang, Jing-bo Zhao, Long Chen, and Da-yu Chen</i>	
Analysis of Time Delay Stability of Force Reflection Telepresence System in Elastic Environment _____	181
<i>Wensong Hu, Min Zhu, and Xiaoyong Lu</i>	
Application of AMESim & MATLAB Simulation on Vehicle Chassis System Dynamics _____	185
<i>Long Chen, Li-min Niu, Jing-bo Zhao, and Hao-bin Jiang</i>	
Application of Genetic Algorithm in the Optimization of Water Pollution Control Scheme _____	189
<i>Rui-Ming Zhao and Dong-Ping Qian</i>	

Session 10: Wireless Computing and Mobile Computing

A New Priority-based Scheme for QoS Differentiation in Wireless LAN <i>Zhijun Yang and Dongfeng Zhao</i>	192
Acoustic Source Localization in Wireless Sensor Networks <i>Mingfei Wang, Linlin Ci, Ping Zhan, and Yongjun Xu</i>	196
Location Transparent Communications in Mobile Agent Systems <i>Shengbo Chen, Huaikou Miao, and Zhongsheng Qian</i>	200
The Research on Interactive Short Message Response <i>Di Guoqiang and Wei Baojun</i>	206
A Novel OVFSF-TH-UWB Communication System <i>Zeng Fanzi, Liang Hualin, Li Renfa, Luo Juan, and Wu Di</i>	210
The Implementation of Evidence Theory in Mobile E-Business Payment <i>Ken Chen, Cheng Xu, and Fei Yu</i>	214

Session 11: Computer Vision and Image Processing

Improvements on Electric Field Based Curve Reconstruction from Unorganized Points <i>Yihua Ding, Jianhui Zhao, Zhixu Li, Ansong Yao, Li Rao, and Chengjiang Long</i>	218
Rapeseed Seeds Classification by Machine Vision <i>Jinwei Li, Guiping Liao, Zhongbin Ou, and Jing Jin</i>	222
Research on the NURBS Unrolling & Rolling of the Columned Entity Design <i>Yu Guizhen, Ding Nenggen, and Zhang Wei</i>	227
Virtual Human of Intelligent Agriculture Behavior and Realization <i>Yisong Liu, Qingfeng Hu, and Qingbo Yang</i>	231
A Simple and Efficient Multiscale Edge Detection Method Based on Image Diffusion <i>Zhang Yingjie and Ge Liling</i>	235

Session 12: E-Learning and E-Commerce

Adaptive Approach to Concordance Readability <i>Xuri Tang, Zi Peng, and Dongmei Zhou</i>	239
Agent-Based on-Line Collaborative Learning Environment <i>Jun Tian</i>	243
An Ergonomics Study of Menu-Operation on Mobile Phone Interface <i>Xue-Min Zhang, Wen Shan, Qin Xu, Bin Yang, and Yun-Feng Zhang</i>	247
Application of Improved SPRINT Algorithm in the Graduation Design Process Management System <i>Yan-Wen Wu, Li Li, Sheng-Yi Zhao, and Xue-Yi Ai</i>	252
Improving the Educational Technology Ability of Students in Normal University by Experiential Learning <i>Egui Zhu, Qizheng Liu, Xianfa Ye, Lizhi Cheng, and Hongke Li</i>	256
SCORM-Based Courseware Design for the Personalization of E-Learning System <i>Yan Peng</i>	260

Session 13: Web Application

An Approach to Generating Test Cases for Testing Component-Based Web Applications _____	264
<i>Huaikou Miao, Shengbo Chen, Huanzhou Liu, and Zhongsheng Qian</i>	
Modeling and Analyzing Switching Cost of Service _____	270
<i>Qiaoge Liu, Jie Zhou, Jianyu Li, and Xiaolong Ma</i>	
Multi-Agent Belief Merger and Interaction Based on BDI _____	274
<i>Ge Juan, Zhang Hongbin, and Fu Yuchen</i>	
Research and Realization of Extraction Algorithm on Web Text Mining _____	278
<i>Shiqun Yin, Gang Wang, Jike Ge, Yuhui Qiu, and Xiaohong Lan</i>	

Session 14: Computer Networks

An Evolutionary Game Model of Resources-Sharing Mechanism in P2P Networks _____	282
<i>Qiang Zhang, Hui-Feng Xue, and Xiao-dong Kou</i>	
FRAID: A Networked Data Storage Layout _____	286
<i>Ming Hu and Minghua Jiang</i>	
QoS Management for High Altitude Platforms _____	290
<i>Guoliang Liu, Xin Huang, and Xi Zhou</i>	
Social Network Analysis Application in Tacit Knowledge Management _____	294
<i>Weiping Zhu, Liangshan Shao, and Zhuqing Huang</i>	

Session 15: Fuzzy System and Application

Fuzzy Reliability Analysis of Distributed Storage System for Tolerating Double Node and Disk Failures _____	298
<i>Minghua Jiang, Ming Hu, Jingli Zhou, and YiXiang Ding</i>	
Fuzzy Rule Fusing for T-S Fuzzy Systems _____	303
<i>Shao-Xian Tang, Gui-Ping Liao, and Xi-Ping He</i>	
Research on Fuzzy Intelligent Control of Coke Oven Heating _____	307
<i>Gongfa Li, Jianyi Kong, Guozhang Jiang, Jintang Yang, Hegen Xiong, and Yu Hou</i>	
Supplier Selection Using MCDM Approach Based on Vague Set _____	311
<i>Dongfeng Zhang, Jinglong Zhang, and Benhai Yu</i>	
Data Indexing of Rough Relational Database _____	315
<i>Taorong Qiu, Ding Luo, Xiaoming Bai, and Lingling Wei</i>	

Session 16: Other Applications

Growth Analysis and CUSSIM Model in Cucumber Seedling _____	319
<i>Shengen Xiao, Jinjie Shi, Zhihua Zheng, Liping Xiong, and Zhimin Liu</i>	
Research of Spatial Logistics System Based on SOA _____	323
<i>Tianyi Xin, Yuchen Fu, Yan Wang, Xiaoke Zhou, and Juan Ge</i>	
Research on Management System of Reservoir Based on Spatial Data _____	327
<i>Zhang Chengming, Zhang Jixian, Liang Yong, Sun Yongxiang, and Yin Guitang</i>	
SAOR Preconditioned Conjugate Gradient Method _____	331
<i>Jianguo Wang and Guoyan Meng</i>	
Short-Term Load Forecasting Based on Fuzzy Neural Network _____	335
<i>Cuiru Wang, Zhikun Cui, and Qi Chen</i>	
Study on Competitive Intelligence System Based on Web _____	339
<i>Li Kong, Yuchen Fu, Xiaoke Zhou, Quan Liu, and Zhiming Cui</i>	

Session 17: Advanced Control

Intelligent Building Coordinate Control System Based on MAS _____	343
<i>Mingfang Du</i>	
Inverted Pendulum Control System Based on GA Optimization _____	347
<i>Fu Wei, Giang Liangzhong, Yang Jin, and Bian Qingqing</i>	
New Control Design of Synchronization _____	351
<i>Wensong Hu, Min Zhu, and Xiaoyong Lu</i>	

Session 18: Intelligent System

Studying on Construction Programs of the Platform of Agricultural E-Commerce _____	354
<i>Xiaoming Meng</i>	
The Algorithms of Constructing Concept Lattices Based on CAT with Cognitive Diagnosis _____	358
<i>Liu Xiaojing, Wu Wenbing, Fei Yu, and Deng Chang</i>	
The Structure Model of Network Teaching System Based on Web 2.0 _____	363
<i>Zhi-jun Tan</i>	
Theory of Belief Degrees for Reasoning about Knowledge _____	367
<i>Li Jun and Lan Qian</i>	
Towards Modeling Web Navigation Using FSM and Z _____	371
<i>Zhongsheng Qian, Huaikou Miao, and Shengbo Chen</i>	
Triple Space Computing Based Semantic Web Services Communication _____	377
<i>Yide Liang, Xueli Yu, and Rui Wang</i>	

Author Index _____	381
---------------------------	-----