**Table of Contents**

**Message from Publication Chair**.................................................................................................xii

**Organizing Committee**..................................................................................................................xiii

**Reviewers**........................................................................................................................................xiv

---

**APWCS 2010**

Application of Support Vector Machine to Cognitive Diagnosis ..........................................................3

*Kuang Zheng, Ding Shuliang, and Xu Zhiyong*

The Research of influence on the Positioning and Extention of Brand Benefits by Emotional Value at the Age of Economic Crisis .........................................................................................7

*Tian Geng and Dai Xia*

Test Construction for Cognitive Diagnosis ............................................................................................12

*Zeng Lingyan, Ding Shuliang, and Gan Dengwen*

DSP-Controlled Three-Phase Brushless DC Motor-Driven Power System for Electric Vehicle ....................16

*Ping Wei and Dengliang Cheng*

The Risk Assessment of Bank Based on Multiple Correlation Analysis and Three-Valued Logic Neuron Model ......................................................................................................................20

*Peng Dong, Feng Dai, and Yingjiang Li*

Finding Global Minima with a Computable Quasi-filled Function for Constrained Global Optimization ..........................................................24

*Weixiang Wang and Youlin Shang*

Adaptive Synchronization of Generalized Lorenz Systems with Unknown Parameters ........................................28

*Lei Zhang*

A New Architecture of Online Trading Platform Based on Cloud Computing .............................................32

*Xiujuan Zhang and Guoqing Dong*

Design of Paper Duplicate Detection System Based on Lucene ..................................................................36

*YueHua Ding, Kui Yi, and RiHua Xiang*
Intelligent Diagnosis Techniques in Automotive Engines Fault Based on Fuzzy Support Vector Machine .................................................................40
  Maorong Weng

Accelerometer Based Transportation Mode Recognition on Mobile Phones .................................................................44
  Shuangquan Wang, Canfeng Chen, and Jian Ma

Application of Stochastic Modeling Technology to the Sha26 Block in Shanian Oilfield .................................................................47
  Fang Ding, Jinliang Zhang, and Jinkai Wang

Numerical investigation of the Different Casing Treatment in a Centrifugal Compressor .................................................................51
  Peng Gao, Youhong Zhang, and Shiving Zhang

Performance Analysis of Low Power Null Convention Logic Units with Power Cutoff .............................................................................................55
  Xuguang Guan, Yu Liu, and Yintang Yang

Thick Film Integrated Circuit Design of Multi-measurement Module .................................................................................................59
  Liu Jun, Yang Ming-xin, and Wang Jian-ho

Intelligent Firearms Management System Design .................................................................................................................................63
  Liu Jun, Chen Yong-qiang, and Yang Ming-xin

A Solution of LED Large Screen Display Based on Wireless Communication ...........................................................................................................66
  Deng Chunjian, Liu Wei, Zou Kun, and Yang Liang

A New Robust Classification Method for CRM ......................................................................................................................................................70
  Li Xiaoyu, He Changzheng, and Panos Liatsis

OS-Level IPC Implementation in Complementary Multi-processor Systems ........................................................................................................74
  Ke Pei, Gang Zhang, and Chang Qing

Sketch Animation Techniques and Applications Based on Mobile Devices ........................................................................................................78
  Tingting Yin, Danli Wang, Kun Yu, and Hao Wang

Energy-Efficient Data Collection Protocol for Wireless Sensor Network Based on Tree ........................................................................................................82
  Yong-xian Jin, Feng-zhen Chen, Gao-feng Che, and Wei Hu

An Improved Way of Multicast in Wearable WSN ..............................................................................................................................................86
  Xiaoping Li, Tao Jin, Feng Ling, Yinxiang Li, and Xiaoxing Lv

Research on Motion Detection and Target Contour Extraction in Wearable Video System ........................................................................................................90
  Xiaoping Li, Tao Li, Feng Ling, and Yinxiang Li

Application of Multi-target Pose Estimation in Wearable Monitoring System ........................................................................................................94
  Xiaoping Li, Luyang Liu, and Xiaoxing Lv

  Xiaoxing Lv, Xiaoping Li, Luyang Liu, and Yinxiang Li

Research of One Mobile Wireless Net Problem Based on the IPv6 Protocol Stack ........................................................................................................104
  Xiaoping Li, Xiaoxing Lv, Yinxiang Li, Lin Zhang, Shuaizong Wang, and Liangliang Ji
Research on the Developed Intelligent Mobile Agent Communication Model in Wearable System ................................................................. 108
   Xiaoping Li, Xiaoxing Lv, Xinxin Sun, Zhenchuan Zhang, and Yinxiang Li
Secret Image Sharing Based on Array Codes ................................................................. 113
   Wang Yiding, Wang Xiaojing, and Tang Dan
Algorithm Research for Vector-Linked List Sparse Matrix Multiplication .................. 118
   Jikuan Hu and Weiqing Wang
Displacement Measurement Algorithm Using Handheld Device with Accelerometer ............................................................. 122
   Tianhuang Chen, Weiyi Hu, and Ran Sun
Research on Architecture and Key Technology of a Medical Capsule Micro-robot in Intestinal Inspection ......................................................... 127
   Lejiang Guo, Penju Cao, and Xiaoli Pan
Thin Cloud Removing Approach of Color Remote Sensing Image Based on Support Vector Machine .......................................................... 131
   Jie Kong, GenSheng Hu, and Dong Liang
A New Discretization Approach of Continuous Attributes ........................................ 136
   E. Xu, Shao Liangshan, Ren Yongchang, Wu Hao, and Qiu Feng
A SVM Based Relevance Feedback Algorithm for 3D Model Retrieval ...................... 139
   Yi Pan, Mingquan Zhou, Yachun Fan, and Shaode Yu
The Implementation and Applied Research of Blog in Education and Teaching ................ 143
   Zhang Ping
A New Virtual View Rendering Method Based on Depth Image .................................. 147
   Xue Jiufei, Xi Ming, Li Dongxiao, and Zhang Ming
A Formal Model Description for Service Agents Negotiation .................................. 151
   Zhai Sheping, Wei Juanli, and Li Zengzhi
Research on Time Synchronization for Wireless Sensor Networks Based on Bayesian Estimation .............................................................. 155
   Tian Xian-zhong, Miao Yong-Gang, Xu Wei, Fan Bo-Jie, and Pan Jian
PDA Based Electronic Chart Pilotage System .......................................................... 159
   Xing Shengwei and Zhang Yingjun
Analysis and Comparison of Dimensional Reduction Based on Capture Data .............. 163
   Zhijun Zheng
Mining Association Rules Based on Cloud Model and Application in Credit Card Marketing ................................................................. 165
   Yan-li Zhu, Yu-Fen Wang, Shun-Ping Wang, and Xiao-juan Guo
Equilibrium Strategy for Two-Person Zero-Sum Matrix Game with Random Fuzzy Payoffs ................................................................. 169
   Lin Xu and Jidong Li
Study of Cognitive Radio Spectrum Detection in OFDM System .................................................. 235
Zengyou Sun, Qianchun Wang, and Chenghua Che

Analysis and Optimization Design of M57959L Module-Based IGBT Drive Circuit ................................................................. 239
Huang Yushui, Zhu Ling, and Xin Yugang

An Approach to Information Hiding Based on Rough Set .......................................................... 243
Taorong Qiu, Zhijun Xiong, Xiaoming Bai, and Shujie Xiong

An Information Retrieval Method Based on Sequential Access Patterns ........................................... 247
Xiaogang Wang, Yan Bai, and Yue Li

Parallel Model of Evolutionary Computing Based on Genetic Algorithm .................................... 251
Xiaogang Wang, Yan Bai, and Yue Li

An Improved Trust Model Based on Reputation in P2P Networks .................................................. 255
Tu Chao, Hu Chaoji, and Li Shengli

An Improved Blind Particle Filtering Algorithm in Flat Fading Channel ...................................... 259
Zhang Hongyan, Donghong Fan, and Jinghai Bao

The Design and Application of Two New Technology-Transferred Network Modes ........................................... 262
Ming Qi and Xiao Xin Hu

Analytical Solution of the Residual Stress when the Inflexion of the Retaining Ring is on the Top .................................................. 266
Qiumei Liu, Jincai Chang, Junling Zheng, and Shiqiu Zheng

Comprehensive Performance Evaluation of the Listed Companies in Coal Mining Industry Based on Factor Analysis and Cluster Analysis .................................................. 270
Ying Yue, Xinghua Ma, and Chenghu Zhang

Methods and Measures Research of Technical Mathematics Competition .................................. 274
Yang Aimin, Liu Baoxiang, Zheng Shi Qiu, and Feng Lichao

Model of Both-Branch Fuzzy System Set Pair Analysis Dynamic Decision-Making .................................................. 278
Liu Chunfeng, Zhang Chunying, and Li Zibiao

Numerical Method Research of Burgers Equation Boundary Value Problems .............................. 282
Yamian Peng, Shaohong Yan, LinLin Liu, and Jingguo Qu

The Study of the Solution on Multi-objective Linear Programming Problem under Fuzzy ........................................................................... 286
Yuhuan Cui, Jingguo Qu, Yamian Peng, Ling Wang, and Baofeng Li

The Analysis of Several Common Easily Confused Basic Concepts in Unary Function Calculus .................................................. 291
Zhao Chen Xia, Yu Ying, Xiao Cui Yu, and Chen Wei Li

The Building of E-Commerce Transaction Network Based on Multi-agent and CAS Theory .................................................. 295
Xu Hao, Liu Duo-lin, and Lu Zhi-jie
The Research on E-commerce Website Success Mode .................................................................299
Xu Hao, Liu Duo-lin, and Lu Zhi-jie

Query Transformation in Ontology-Based Relational Data Integration ......................................303
Jinpeng Wang, Yafei Zhang, Zhuang Miao, and Jianjiang Lu

Video Analysis and Trajectory Based Video Annotation System ..............................................307
Yang Li, Yafei Zhang, Jianjiang Lu, Ran Lim, and Jiabao Wang

A Path Planning Method of Contingency Logistics Based on Max-Min Ant System .......................311
Baohua Jin and Liang Zhang

Linear-Regression Model Based Wavelet Filter Evaluation for Image Compression ......................315
Wei Gaofeng, Jiang Hongxu, and Yang Rui

Research on the Feature Displacement Map of the Facial Expression ..........................................319
Wenbai Chen and Guanghua Gu

Routing Topology Identification Based on Multiple Sources End-to-End Measurements ...............322
Guangli Tian and Wandong Cai

A Novel Optimising Handover Method Based on User Behavior ..............................................326
Bo Wang, Xiangning Wen, Wei Zheng, and Yong Sun

An Approach for Metabonomics Data Analysis Based on Orthogonal Signal Correction Partial Least Square Discriminate Analysis .......................................................330
Guoliang Xu, Bingtao Li, Qiyun Zhang, Xilan Tang, Hongning Liu, Bing Nie, and Riyue Yu

Research on Experimental Control System for Rich- or Pure-Oxygen Roller Kilns .....................334
Chen Jing, Xiao Junjie, and Zhu Huaibin

Multi-hop Routing for Wireless Network in Underground Mines .............................................337
Chen Wengi and Xu Zhao

Implementation of Gigabit Ethernet Network Based on SOPC ................................................341
Yafang Wang, Cheng Zhang, Yanli Hou, and Boning Hu

The Fourth Order Cumulants Based Modified MUSIC Algorithm for DOA in Colored Noise ..........345
Zhu Zhou-hua

Studying Logistics Storage Match Highway Conveyance Force on Dynamics Simulation ..........348
Liu Jun-min and Wang Yi-shan

Optimization Management System for Level Crossing Traffic Based on RFID ..........................352
Huanqi Tao, Min Zou, and Wencong Liu

Integration of Inventory and Transportation in Retail Chain Enterprises ..................................355
Yi Yanhong, Song Fugen, and Wu Xiaowei

Situational Creation of Simulated Teaching in Electrical-Mechanics Major ..............................359
Huang Bo, Fan Qing, Zhang Yi, and Lin Yi
A Survey on the Development of Multi-touch Technology .......................................................... 363
   Rong Chang, Feng Wang, and Pengfei You
The Representation of Virtual Cultural Heritage Based on Key Events .................................. 367
   Zheng Zhong, Ling Zhang, and Chuanming Sun
A Mathematical Model of Magnetic Bearing Control Based on Fuzzy Logic
and Single Neuron ........................................................................................................................ 371
   Zhenhe Wang, Shaocong Guo, and Fuyuan Zhang
The Determinants for Adoption of Wearable Computer Systems in Traditional Chinese Hospital .......................................................... 375
   Ying Su and Raj Gururajan
Method of Risk Assessment Based on Classified Security Protection
and Fuzzy Neural Network .......................................................................................................... 379
   Chaoju Hu and Chunmei Lv
Software Engineering Knowledge Representation Based on Ontology
for Multisite Software Development ......................................................................................... 383
   Xue Qing Ji
An Efficient Architecture for Semi-real-Time Graphical Simulation Based
on Mobile Computing Devices in Wireless WMS system .......................................................... 387
   Yuanyan Gu and Mande Xie
Analysis of a Class of Ubiquitous Computing Systems ............................................................ 391
   Jiemin Zhao
On the Global Stability Problem of a Class of Computing Systems ........................................ 395
   Jiemin Zhao
Stability of a Class of Computing Systems ............................................................................... 399
   Jiemin Zhao
A MOPSO Approach to Grid Workflow Scheduling ................................................................. 403
   Yunxia Pei
The Application of Rough Comprehensive Evaluation Method ................................................. 407
   Liu Wenjun
A New Research of Resource Scheduling Based on Multi-agent Manufacturing Grid .................. 411
   Qiao Lu, Ning Song, and Shibing Zhou

Author Index .................................................................................................................................. 415