2010 Second International Conference on Information Technology and Computer Science

(ITCS 2010)

Kiev, Ukraine
24-25 July 2010
2010 Second International Conference on Information Technology and Computer Science

**ITCS 2010**

**Table of Contents**

Message from the Conference Chairs ................................................................. xv
Organizing Committee ....................................................................................... xvi
Program Committee ........................................................................................... xvii
Reviewers ........................................................................................................... xviii

---

Second International Conference on Information Technology and Computer Science (ITCS 2010)

Research of Similarity Measurements in the Clustering Analysis ............................................. 3

*Lin Bai Li and Deng Hongyao*

A Novel Protein Secondary Structure Prediction System Based on Compound Pyramid Model ................................................................. 7

*Bingru Yang, Lijun Wang, Yun Zhai, and Wu Qu*

A Median Filter Method for Image Noise Variance Estimation .................................................. 13

*Zhijun Pei, Qingqiao Tong, Lina Wang, and Jun Zhang*

A Security Routing Algorithm of P2P Network Based on Asymmetric Nested Encryption ................................................................. 17

*Chuwei Lu and Zhengbing Hu*

Pairwise Key Management Scheme Using Sub Key Pool for Wireless Sensor Networks ................................................................. 21

*Jiamin Zhang and Yu Ding*

Adaptive Correction of Errors from Segmented Digital Ink Texts in Chinese Based on Context ................................................................. 25

*Xi-Wen Zhang, Wei-Hua An, and Yong-Gang Fu*

Summarizing Similar Questions for Chinese Community Question Answering Portals ................................................................. 36

*Yang Tang, Fangtao Li, Minlie Huang, and Xiaoyan Zhu*
Web Content Extraction based on Webpage Layout Analysis ..........................................................40
Lei Fu, Yao Meng, Yingju Xia, and Hao Yu

An Optimized Multi-class Classification Algorithm Based on SVM Decision Tree ..........................................................44
Chen Donghui and Liu Zhijing

A Novel Localization Algorithm for Wireless Sensor Network Using Two-hop Beacon Nodes ..........................................................48
Jianmin Zhang and Jian Li

Chinese Sign Language Animation System on Mobile Devices ..........................................................52
Jing Wang, Yanfeng Sun, and Lichun Wang

Energy-Balanced Scheme Based Unequal Density of Backbone for Wireless Sensor Networks Under Coal Mine ..........................................................56
Peng Ren, Qian Jian-sheng, Sun Yan-jing, Jiang Hai-feng, and Lu Zhao-lin

Higher Order Spectra Analysis of EEG Signals in Emotional Stress States ..........................................................60
Seyyed Abed Hosseini, Mohammad Ali Khalilzadeh, Mohammad Bagher Naghibi-Sistani, and Vahid Niazmand

Texture Analysis Using GMRF Model for Image Segmentation on Spectral Clustering ..........................................................64
Jin Huazhong, Ke Minyi, Yang Xiwei, and Wan Fang

An Automatic Carving Method for RAR File Based on Content and Structure ..........................................................
Yingjie Wei, Ning Zheng, and Ming Xu

Quick Recognition and Relative Minimum Distances Filtering Assisted Recognition Based on Noisy-robust Rough Set ..........................................................73
Li Yingchun, Zhu Shibing, and Yang Sheng

Finite Element Analysis of Oval Steel Coal Scuttle with Double Funnels and Its Unfolded Drawing Automatic Generation ..........................................................
Yufeng Zhang

Simplification of Unscented Kalman Filter for Orbit Object Tracking ..........................................................82
Rongtai Cai, Qingxiang Wu, Jinqing Liu, and Meigui Chen

The Politicization of China’s Stock Market and Its Consequences ..........................................................
Li Guoping

A Method for Decreasing Preheating Time of Thermoforming ..........................................................90
Guang Ma, Zhen-Zhe Li, Ming Ren, Yun-De Shen, and Seong-Yun Seol

Vehicle Routing Problem with Time Windows Based on Improved Ant Colony Algorithm ..........................................................
Xin Ma

An Tropospheric Delay Model for GPS NET RTK ..........................................................98
Qiu Lei, Li Lei, and Wang Zemin

Using the C_net for Formalizing Workflow Patterns ..........................................................102
Liang Zhang and Shuzhen Yao
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Research of Information and Power Transmission Property for Intelligent Drillstring</td>
<td>174</td>
</tr>
<tr>
<td>Liu Xuanchao and Cheng Guojian</td>
<td></td>
</tr>
<tr>
<td>The Research on Intelligent Humidity Measurement System</td>
<td>178</td>
</tr>
<tr>
<td>Liu Xuanchao and Liu Xiaolong</td>
<td></td>
</tr>
<tr>
<td>Study on Image Identification Method of In-service Pipeline Corrosion Fault</td>
<td>182</td>
</tr>
<tr>
<td>Zhu Liang, Liu Hong-yi, and Yuan Pei-xin</td>
<td></td>
</tr>
<tr>
<td>The Variable Truth Degree of Formula in a Propositional Logic with Rhombus Evaluation Lattice</td>
<td>186</td>
</tr>
<tr>
<td>Weibing Zuo</td>
<td></td>
</tr>
<tr>
<td>Incentive Mechanism Based on Game Theory in P2P Networks</td>
<td>190</td>
</tr>
<tr>
<td>Chunzhi Wang, Li Chen, Hongwei Chen, and Ke Zhou</td>
<td></td>
</tr>
<tr>
<td>Traitor Tracing Scheme Based on Luc Public-key Cryptosystem</td>
<td>194</td>
</tr>
<tr>
<td>Shangping Wang, Linvye Du, Yaling Zhang, and Xiaofeng Wang</td>
<td></td>
</tr>
<tr>
<td>The Realization of Flight Simulation System Based on OpenGL</td>
<td>198</td>
</tr>
<tr>
<td>Yao Hong-ge</td>
<td></td>
</tr>
<tr>
<td>The Study of Unbiased-estimation Threshold Wavelet De-noising Method</td>
<td>202</td>
</tr>
<tr>
<td>Applied on Mid-wavelength Infrared Image</td>
<td></td>
</tr>
<tr>
<td>Hongfei Liu, Hualin Zhang, Yongshun Huang, and Weixiong Lin</td>
<td></td>
</tr>
<tr>
<td>Image Surveillance System in the Unattended Substation Based on SUSAN</td>
<td>206</td>
</tr>
<tr>
<td>Corner Detection</td>
<td></td>
</tr>
<tr>
<td>Song Jia and Li Yuyan</td>
<td></td>
</tr>
<tr>
<td>Models of Sequential Iterative Development Processes with Conditional Activities</td>
<td>211</td>
</tr>
<tr>
<td>Zhang Weimin, Chen Hongmin, and Liu Songyi</td>
<td></td>
</tr>
<tr>
<td>Performance Prediction of Large Scale Vacuum Furnace Using Thermal Analysis</td>
<td>215</td>
</tr>
<tr>
<td>Zhen-Zhe Li, Yong Li, Yun-De Shen, and Jae-Woo Lee</td>
<td></td>
</tr>
<tr>
<td>Modeling and Simulation for Cooling System of Thermoforming</td>
<td>218</td>
</tr>
<tr>
<td>Yun-De Shen, Zhen-Zhe Li, Ming Ren, and Seoung-Yun Seol</td>
<td></td>
</tr>
<tr>
<td>The Relationship between Japanese Manufacturing Corporations and KIBS from the Client-side Point of View</td>
<td>221</td>
</tr>
<tr>
<td>Cao Yong, Shu Shuo, and Nagahira Akio</td>
<td></td>
</tr>
<tr>
<td>Implementation on Network Teaching System Based on Java EE Architecture</td>
<td>227</td>
</tr>
<tr>
<td>Bo Song, Yue Zhang, and Chuan-Sheng Zhou</td>
<td></td>
</tr>
<tr>
<td>The Study of a Sociality Agent Architecture Based on Role</td>
<td>232</td>
</tr>
<tr>
<td>Jian Zhang, Guang-Zhou Zeng, and Zhi-Feng Li</td>
<td></td>
</tr>
<tr>
<td>Evolutionary Design of Digital Filter Using Multiple Pareto Fronts</td>
<td>236</td>
</tr>
<tr>
<td>Huicong Wu, Pang Zhou, and Dongmei Wei</td>
<td></td>
</tr>
<tr>
<td>A Method of Dealing with Numeric Attribute Based on Sample Distribution</td>
<td>240</td>
</tr>
<tr>
<td>Weidong Zhu and Yongmin Lin</td>
<td></td>
</tr>
</tbody>
</table>
A Digital Pulse Drive Circuit for Continuously Modulated Semiconductor Laser .................................................................244

Song Zhi-yuan, Feng Li, Zhu Shao-lan, Niu Lin-quan, Song Zhi-yuan, Zhu Shao-lan, and Niu Lin-quan

Design of Analog Gaussian Filter Used in Roughness Measuring Instrument .................................................................247
Guo Jian and Zhu Jie

Application of PageRank Algorithm in Computer Forensics .................................................................250
Deguang Wang, Zhigang Zhou, and Haibo Ma

Fair Contract Signing Protocol Based on Short Signature .................................................................254
Luo Wen-jun, Tong Ling, Fu Zu-feng, and Peng Chang-gen

Multi-Agent Temperature State Recognition Based on D-S Evidence Theory .................................................................258
Guo Qiyi and Zhu Chunyang

Reverse Backtracking Research of Chinese Segmentation Based on Dictionary of Hash Structure .................................................................265
Liang Zhen and Li Yu-sheng

Study and Application of Moving Vehicle Image Matching Methods .................................................................268
Yucheng Li, Yue Zhang, and Ying Zhang

On Dual Timing Modulator for Chinese Digital Terrestrial Multimedia Broadcasting .................................................................273
Zhang Zhan, Zhang Xiao-lin, and Zhang Yan-zhong

The Prediction Model of Diurnal Ionosphere TEC Based on TWSTFT .................................................................277
Li Huiru and Yang Zhiqiang

The Design of Meteorological Data Warehouse and Multidimensional Data Report .................................................................280
Nan Ma, Mei Yuan, Youwen Bao, Zongmin Jin, and He Zhou

An Approach of Extracting Web Information Based on HTMLParser .................................................................284
Shan Lin and Yanzhong Hu

Comparison of Different Classifiers for Biometric System Based on EEG Signals .................................................................288
Hu Jian-feng

An Empirical Analysis of Returns to Education Based on Simultaneous-equation Model - Discussing about Family Influences on Children in China .................................................................292
Pingsheng Dai, Mianbi Xie, and Xiaobo Shen

Research on Multilayer Matter-Element Extension Synthesis Evaluation Method of Software Quality .................................................................296
Jianli Dong and Ning Guo Shi

Research of Intelligent Vehicle Active Safety System .................................................................301
Zhiyuan Zhang, San Li, and Jie Zhang

A Framework of E-HRM Information Systems in Fashion Enterprise .................................................................305
Xin Ma
A Survey on Key Management for Multicast

Shu-Quan Li and Yue Wu

Research on the Simulation System of Background Advertisement Setting of Sport Events

Xiao Yi, Zhang Lin, and Zhang Fengyun

Integration Management View of Information Systems in an Enterprise

Fu Xiang-ling, Song Mao-qiang, Yu Ya-nan, and Chen Mian

The Researches of Load Equalization Question in Information Construction of New Countryside

Ma Yu-bao, Mei Shen-xin, and Ding Ren-yuan

Research on the Effects of Strategy-Oriented Organizational Innovation on Dynamic Core Competence of Enterprise

Han Fengjing and Shi Chunsheng

A Study of Pseudo-Automorphism Group about the C_n

Yanzhong Hu, Shan Lin, Huazhong Jin, and Hao Li

Research of CPRI Protocol Based on High-Speed Fiber Link

Yao Chun-Hui and Cheng Xin

The Application of Theory and Method of Time Series in the Modeling of Software Reliability

Chen Zhongmin and Wu Yeqing

Design and Implementation of Automatic Generation of Test Cases Based on Model Driven Architecture

Yang Liu, Yafen Li, and Pu Wang

Application and Study on Preconditioned Conjugate Gradient Method Algorithm in Concrete Ultrasonic Computerized Tomography

Fan Yao and Chu Yanli

Research on Visualization of Radar Beam Considering Virtual Environment Effect

Guo Ying, Liu Weyuan, Lei Lei, and Guo Shuxia

Multipurpose USB Hard Disk: Your Mini Laptop

Anil Kumar Karna

Online Tests Participation/Performance is a Determinant of Final Grades in Physiology

Yuemin Ding and Xiong Zhang

Research of Ontology-Based Model Representation Method

Dai Chao-fan, Feng Yang-he, and Zhang Peng-cheng

Study of Image Display with NetCDF Data on WebGIS

Xiong Cong-cong and Wang Li-ying

Design and Research of Marine Search and Rescue Simulation System

Fangbing Xiao, Yicheng Jin, Yong Yin, and Yongjin Li
Test CSRC’s Ability to Select Firms for IPO and Public Offering .......................................................... 377
   Li Guoping
A Study of Teaching Evaluation in Adult Higher Education Based on Decision
   Tree .................................................................................................................................................. 381
   Jiabin Deng, Juan Li Hu, Hehua Chi, and Juebo Wu
Dynamic Performance Analysis of a Certain Solid Rocket Motor Flexibility
   Nozzle .................................................................................................................................................. 386
   Liu Wenzhi, Tian Weiliang, Wu Jianxin, and Li Xiaojin
Analysis and Research on Network Trust Models Based on Multi-CA ............................................. 390
   Su Bing, Lv Fang-fang, You Jing, and Wang Hong-yuan
Processing Method of Optical Grating Scale Output Signal .............................................................. 394
   Xiwei Yang, Tianxiao Yang, Huazhong Jin, and Zhiwei Ye
A Service-oriented E-government Support Platform for Integration
   of Application and Data ....................................................................................................................... 398
   Hua Ma
Research and Development on Experimental Teaching System for Computer
   Graphics .............................................................................................................................................. 402
   Ling Lu, Lei Wang, Yong Yang, and Yin Gui
Planning Program for CSF-based Training Management Informationization ................................... 405
   Wang Jianhang and Shao Qian
PPP Security Mechanism Analysis and Improvement ........................................................................... 409
   Li Hua Li, Shu Quan Wei, and Ling Lu
Design and Implementation of Vehicle Monitoring System Based
   on GSM/GIS/GPS ............................................................................................................................... 413
   Hui Tan
The Study and Application of Cisco Mobile Wireless Router in CDMA
   Network .............................................................................................................................................. 417
   Qingxia Dong and Chunmiao Yuan
Design and Implementation of Communication Network based on AT89C52
   Microcomputer ................................................................................................................................. 421
   Sun Yuan and Liu Bingwu
A Model of Performance & Achievement of Administrative Organizations
   Based on Knowledge-sharing .............................................................................................................. 425
   Sun Pei-shan, Fan Zhi-ping, and Sun Xin-bo
A WSN-Based Experiment Platform for Monitoring ............................................................................ 431
   Deng Chen, Chen YiPing, and Song WanQing
Research on the E-Commerce Development of Industry Sectors in Wuhan
   Metropolitan Area  WRONG PAPER ................................................................................................. 435
   Xiang Lin
A Multidimensional Evaluation Model Study on Information System from E-commerce Perspective ........................................................................................................................................439
  Song Wang, Xinmin Liu, and Fang Li
Research on the SOA-based Service Granularity Control ..................................................................................................................................................443
  Hong Ying, Yu Wu, and Fuming Liu
Application Research on Web-based Smart Sensor Platform ................................................................................................................................................447
  Cai Limin and Qian Tonghui
Research and Design of an Instant Messaging Based Online Collaborative Learning Supporting Tool ..................................................................................................................451
  Jing Du and Fei Li
The Design of Cased Hole Formation Resistivity Logging of Preamplifier Circuits ........................................................................................................................................455
  Jiutian Zhang, Feifei Huo, and Zhengguo Yan
Generalized Causal Qualitative Networks and Its Fusion Model for Qualitative Modeling of Bayesian Networks ..........................................................................................459
  Hong-bin Fang
Design of Remote Upgrade of Equipment Monitoring System Software ......................................................................................................................................462
  Zhichao Dai and Ying Xiang
Design and Realization of Equipment's Archives Management System Based on Struts2 and Hibernate .........................................................................................................................................466
  Yang Guigui, Cheng Gengguo, Bao Kaomin, and Wu Li
Telehealth Services in the Context of Zambia, a Developing Country ........................................................................................................................................470
  Nchimunya Chaamwe
Wireless Sensor Networks in the Context of Zambia: A Developing Country ........................................................................................................................................474
  Nchimunya Chaamwe, Wenyu Liu, and Hongbo Jiang
The Research on EAI Framework Based on Workflow and SOA ........................................................................................................................................479
  Li Xiaojun and Zhang Xiao
An Improved Correlation Algorithm in Coriolis Flow Meter ..................................................................................................................................................483
  Yang Jun and Zhao Xianhong
The Research and Reality of DHCP Access and Authentication Based on Embedded Terminal ..................................................................................................................487
  Bing Li, Songyuan Li, and Bao Ma
Research Off Electromice Commerce Security Evaluation ..................................................................................................................................................491
  Shuliang Liu, Yanling Bai, and Congyi Zou
Design and Implementation of GSP Management System Based on Workflow ..................................................................................................................................................495
  Pan Qingxian, Lou Lanfang, and Qu Linjie
Apply the RS / GIS Technology to Local Geography Teaching through Integration of Local Resources - Case Study on Dianchi Lake ..................................................................................499
  Jingxiang Zhang, Shengtian Yang, Qingqiu Chen, and Chaowen Dong
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology of Temporal and Spatial Database Management for Remote</td>
<td>503</td>
</tr>
<tr>
<td>Sensing Dynamic Monitoring</td>
<td></td>
</tr>
<tr>
<td><em>Peng Ling, Zhang Zhihui, and Yang Lina</em></td>
<td></td>
</tr>
<tr>
<td>A Multi-Agent Based Personalized Search Engine</td>
<td>506</td>
</tr>
<tr>
<td><em>Mengqiang Xiao and Fengqing Zhang</em></td>
<td></td>
</tr>
<tr>
<td>Design and Development of SBA-based Virtual Vehicles</td>
<td>509</td>
</tr>
<tr>
<td><em>Xuehang Xu and Lei Zou</em></td>
<td></td>
</tr>
<tr>
<td>The Security and Promotion Method of Transport Layer of TCP/IP Agreement</td>
<td>513</td>
</tr>
<tr>
<td><em>Wang Hao-yu, Cao Hui-zhi, Zhu Xu, Ji Chao-jun, and Ji Xiao-juan</em></td>
<td></td>
</tr>
<tr>
<td>Health Information System Grid Based on WSRF</td>
<td>518</td>
</tr>
<tr>
<td><em>Han Ping and Wang Xin-Lei</em></td>
<td></td>
</tr>
<tr>
<td>Research on Automatic Examination Arrangement Algorithms for Invigilator</td>
<td>522</td>
</tr>
<tr>
<td><em>Yong Ou Yang and Hong Li</em></td>
<td></td>
</tr>
<tr>
<td>Regarding the Promotion Effects of E-learning Makes on the Undergraduates’ Quality Education</td>
<td>526</td>
</tr>
<tr>
<td><em>Xiaoyun Li</em></td>
<td></td>
</tr>
<tr>
<td>Trust-QoS Based Semantic Web Service Discovery Technology</td>
<td>529</td>
</tr>
<tr>
<td><em>Juan Zhou and Shuyu Li</em></td>
<td></td>
</tr>
<tr>
<td>Web-Based Instruction Diffusion and Adoption Model</td>
<td>534</td>
</tr>
<tr>
<td><em>Yajie Wang, Hongyu Du, and Ying Hao</em></td>
<td></td>
</tr>
<tr>
<td>Fluid Model Driven by an M/M/1 Queue with Exponential Vacation</td>
<td>539</td>
</tr>
<tr>
<td><em>Bingwei Mao, Fu-wei Wang, and Naishuo Tian</em></td>
<td></td>
</tr>
<tr>
<td>Study of Handles Mechanism in WRK</td>
<td>543</td>
</tr>
<tr>
<td><em>Chunxia Zhang, Xing Lin, Shuguang Lin, and Xudong Li</em></td>
<td></td>
</tr>
<tr>
<td>Research on Optimization of SDO with Cache Mechanism</td>
<td>548</td>
</tr>
<tr>
<td><em>Chunxia Zhang, Wenpu Huang, Tao Xu, and Xudong Li</em></td>
<td></td>
</tr>
<tr>
<td>On the Essence and Characteristics of Inter-disciplinary Innovative Talents for Information-Based Entrepreneurship</td>
<td>552</td>
</tr>
<tr>
<td><em>Delin Sun, Chuansun Wu, Jinyun Xue, Yanyan Hu, Fang Hu, Zhenyan Cai, Youlin Zhu, and Zhongliang Zhang</em></td>
<td></td>
</tr>
<tr>
<td>Promoting Effects of Network Class in Probability</td>
<td>556</td>
</tr>
<tr>
<td><em>Zhang Meng, Bai Yu, Zhang Yan, and Wang Xiaoqiang</em></td>
<td></td>
</tr>
<tr>
<td>Research on Layered Learning in Network Environment</td>
<td>560</td>
</tr>
<tr>
<td><em>Huang Dongming, Zheng Hua-an, and Nie Zhenwen</em></td>
<td></td>
</tr>
<tr>
<td>Application on the All-electronic Execution Unit for Railway Signaling</td>
<td>563</td>
</tr>
<tr>
<td><em>Tao He</em></td>
<td></td>
</tr>
<tr>
<td>Designing of a Sensor Network Monitoring Server</td>
<td>566</td>
</tr>
<tr>
<td><em>Yang Jun and Zhao Xianhong</em></td>
<td></td>
</tr>
<tr>
<td>FLIR Image Denoising with Morphological Filters on Complete Lattice</td>
<td>569</td>
</tr>
<tr>
<td><em>Hu Xin and Duan Chen-dong</em></td>
<td></td>
</tr>
</tbody>
</table>
Study on the Model of CPI Prediction Based on BP Neural Network ................................................................. 573
   Hu Wang and Gengyao Fan
Research and Implementation of Key Technology in Training Simulation
System of Aircraft ........................................................................................................................................... 577
   Gao Ying, Yin Yun-feng, Lei Lei, Ma Xiao-hui, and Guo Shu-xia
Understanding the Approach for Auditing of Cloud Computing System ......................................................... 581
   Jian Chen, WenRong Jiang, and Jihong Yan

Author Index ............................................................................................................................................... 584