2015 International Conference on Network and Information Systems for Computers (ICNISC 2015)

Wuhan, China
23 – 25 January 2015
Preface.........................................................................................................................................................................xv
Committee List..........................................................................................................................................................xvi
Reviewers..................................................................................................................................................................xviii
Keynote Speakers ....................................................................................................................................................xix

Session 1: Computer Network

Vacuum Cavity-Assisted Generation of Entangled Photon Pairs Using the Biexciton Cascade in a Quantum Dot .............................................................................................................................................1
Pei Pei, Yan-Qing Guo, and He-Shan Song

Adaptive Parameter Adaptation in 802.11e ....................................................................................................................5
Wen-Thong Chang and Yin-Tin Din

A Framework of Linked Sensor Data Generation ........................................................................................................10
Lin-na Cuan, Yi-min Shi, Guan-yu Li, and Xue-hua Wu

Real-Time Optimization of Sampling Period for Networked Control Systems ...........................................................15
Gaofeng Che and Yueran Lu

I/O Virtualization Design of FCoE Adapter ..................................................................................................................18
Jingfeng Guo, Shaozhi Zou, Ping Lu, and Jincai Chen

Analysis of Companding Reduction of PAPR in Optical Wireless OFDM System in the Presence of LED Nonlinearity ..................................................................................................................22
You Li, Xiaolin Zhang, and Zheng Zheng

Evaluating CTP in Energy-Harvesting Wireless Sensor Networks: An Experimental Study ..........................................................26
Yan Zuo, Guodong Sun, Chao Ouyang, and Gaoxiang Yang

The Realization of Teacher Information Management System .......................................................................................34
Lijuan Wu, Jing Yuan, Na Du, and Mengjiao Li

Embedded Laboratory Monitoring System Design Based on Internet of Things ............................................................38
Minghua Zhang, Xueyu Duan, Xiaorong Niu, Han Li, and Hongwei Zhao
Research on Intelligent Campus Monitoring System Based on Internet of Things ..................................................43
  Xiguang Huo

An Anycast Routing Based on Improved Ant Colony Algorithm .................................................................................47
  Meigen Huang and Delong Gao

Optimal Algorithm of Generating Synchronous Test Sequence Based on the Auxiliary Directed Tree Model .....................................................................................................................................................50
  Xiao Wang and Jin Hua Zhang

Congestion Avoidance for Band-Typed Wireless Sensor Networks in Coalmine Tunnel ...........................................................................................................................................................................................................55
  Gongbo Zhou, Peng Zhang, Zhencai Zhu, and Shixiong Xia

Research on Modeling Method of Telecommunication Resources .................................................................................59
  Yuan Lin, Yanbin Wang, Hui Zhang, and Jiahai Yang

An Effective Improved Algorithm of RSA ..........................................................................................................................62
  Xiaolin Tang

Improved Web Page Traverse Using Genetic Algorithm ..................................................................................................66
  Man Li

Joint Cross-Layer Routing, Non-cooperative Dynamic Power Control, and Predictable Contact Schedule for Opportunistic Internet of Vehicles ............................................................................................................72
  Long Zhang, Xinxin Zhang, and Wei Huang

One ONS Anonymous Authentication Model with Trust Mechanism .............................................................................78
  Huqing Wang and Zhixin Sun

Mutual Authentication and Key Exchange Scheme for WAP ............................................................................................82
  Xuan Zheng, Jian-Zhu Lu, and Lan-Zheng Chen

A New User Privacy Protection Scheme ..........................................................................................................................86
  Long-Jun Zhang and Rui Zhao

An Algorithm of Managing the TCP Stream Based on Two-Level Hash Tables ................................................................90
  Shichang Xuan, Hewei Yu, Yanlong Liu, and Wu Yang

A Novel Object Detection Algorithm for Aerial Insulator Images ....................................................................................97
  Shenglong Liao and Jubai An

The Development Status and Trend of NetFPGA ................................................................................................................101
  Juan Cao, Xing Zheng, Lingling Sun, and Jie Jin

Distributed QoS-Aware Scheduling in Cognitive Radio Cellular Networks .......................................................................106
  Qin Xin and Xiaolan Yao

Design of Spoken Tutoring System for Shipboard Damage Controlling ..........................................................................111
  Zhi-Xiang Zhang and Xiong-Wei Shang

Data Acquisition, Hot Issues and System of Microblog Mining ........................................................................................116
  Bin Liu, Jingyuan Zhang, Qiang Liu, Han Li, Mingliang Zhang, Rui Qiu, and Jingyang Zhao
Session 2: Information System

Research on Aerodynamic Multidisciplinary Design Optimization Frameworks ................................................................. 120
   Fengshun Lu, Junfeng Sun, Yufei Pang, and Yong Huang

Improved Comprehensive Measurement Feature Selection Method for Text Categorization .......................................................................................................................... 125
   LiZhou Feng, WanLi Zuo, and YouWei Wang

Center Node Based Data Community-Oriented Retrieval Method over Relational Database ................................................................. 129
   Ning Liu, Guan-yu Li, Ling-yu Li, and Jian Yang

Management System of Web-Based Cluster Deployment ............................................................................................................ 133
   Qiong Wu and Ling-Xia Meng

Multiple Antenna Wireless Communication Signal Blind Recovery Based on PARAFAC Decomposition .............................................................................................. 137
   Weiming Yi, Zuo Wang, and Jing Wang

A New Semantic Interoperability Model Based on Multi-domain Ontologies in SWoT ................................................................. 141
   Xue-Hua Wu, Yi-Min Shi, Guan-Yu Li, and Lin-Na Cuan

Entanglement Transfer and C-Not Gate Implemented in a Fiber Connected 3-Atom System .............................................................................................................. 146
   Yao Deng, Yanqing Guo, Dianmin Tong, Pei Pei, Dianfu Wang, and Dong Mi

Impact of Imperfect Channel on the Performance of Relay Selection ................................................................................................. 151
   Fei Xu and Xianyi Rui

Multidimensional Space Access Control Model ................................................................................................................................. 155
   Yu Hong, Yi Yao, Sainan Zhang, and Yanyun Liu

Equivalence Relation Based SWoT Ontology Summarization System Implementation ................................................................................................. 159
   Ning Liu, Ling Yu Deng, Guan Yu Li, Chen Qu, and Ce Li

Context-Aware Web Service Composition: A Case Study ................................................................................................................................. 164
   Baidong Sun, Xiuguo Zhang, Ke Dai, and Jingfei Zhang

Summarizing Events from Massive News Reports on the Web ................................................................................................................................. 170
   Weiyi Ge, Chang Liu, Shaoqian Zhang, and Xin Xu

The Application of Minimal Set Algorithms Based on Orthogonal Array to the Reliability Testing ................................................................................................. 175
   Qingchuan Meng, Xizhong Wang, Xiaoming Chen, Ning Cai, and Zhigang Li

Design and Typical Application of Three-Dimension Visualization Simulation Platform Based on Digital Earth ................................................................................................. 180
   Yang Gao, Jiancang Xie, Rengui Jiang, and Siyuan Liu

The Design of Brand Cosmetics Anti-counterfeiting System Based on RFID Technology ................................................................................................................................. 184
   Taolin Ma, Huixu Zhang, Jun Qian, Sha Liu, Xiaochun Zhang, and Xianduo Ma
Hash Function with Variable Output Length .............................................................. 190
   Meng-Jiao Wang and Yong-Zhen Li

BDS/GPS Satellite Signal Acquisition Algorithm Research Based of PMF (Partial
Matched Filter) and FFT .......................................................................................... 194
   Yan Ma, Huabo Sun, and Weilin Yuan

Tourism Decision Support System Based on Rough Set ......................................... 197
   Song Deng

Phototropism Spectrum Sensing in Cognitive Radio .................................................. 202
   Jin-Yong Xu, Yong Chen, and Tao Liang

Design of Wireless Sensor Networks-Based Equipment Materials Transport
and Storage Environment Monitoring System ....................................................... 206
   Longtao Wu and Tiening Wang

The Design and Implementation of Switching Power of High Power Factor
in Communication Equipment .................................................................................. 210
   Yuxuan Sun and Xi Feng

Research on the Fast Handover Algorithms of GSM-R for High-Speed Railway .......... 213
   Tengyu Sun, Kehui Zhou, Xianghua Luo, and Yuanliang Huang

Numerical Study of the Instability of the Flow between Two Coaxial Rotating
Frustums .................................................................................................................. 219
   Xue Li and Deyu Sun

Hyper-Laplacian Non-blind Deblurring Model Based on Regional Division ................. 223
   Zhi-Min Li, Yan Zheng, Wen-Feng Jing, Ren-Sheng Zhao, and Kai-Li Jing

Based on the Renesas MCU Temperature Early Warning System Design
and Implementation .................................................................................................. 227
   Miaomiao Zhu, Guofeng Niu, and Mingxin Zhang

Research on Modified Artificial Bee Colony Clustering Algorithm ......................... 231
   Lilu Cao and Dashen Xue

Adaptive Real-Time Compressive Tracking ................................................................ 236
   Wei-Zheng Zhang, Jian-Guo Ji, Zhong-Zhao Jing, Wen-Feng Jing, and Yi Zhang

A Novel SVM-Based Image Quality Assessment System ........................................ 241
   Bingqing Luo and Zhixin Sun

A New Efficient Memory Index ............................................................................... 246
   Liming Luo and Bing Wei

Dynamic Simulation of Noise in 3D Infrared Scene Simulation .................................... 251
   Yan Wang and Xiaofang Xie

Terminal Replacement Prediction Based on Deep Belief Networks ....................... 255
   Zhikai Zhao, Jian Guo, Enjie Ding, Zongwei Zhu, and Duan Zhao
An Optimization Algorithm of Chinese Word Segmentation Based on Dictionary .................................................................259
        Jun Tang, Qing Wu, and Yinghong Li

Fault Detection with Dynamic Principal Component Analysis and Support Vector Machines ................................................263
        Liang Liang, Ming Cheng, Yong Ma, and An Liu

The Design of Intelligent Environmental Monitoring System Based on STC12C5A60S2 .................................................................266
        Yin-Hua Zhao, Shao-Dan Wang, Bo-Lin Song, Jia-Wei Shen, and Zai-Xiang Pang

The Research on Communication Networks Construction Based on Earned Value Analysis Method ..................................................270
        Juan Cai and Zhengshi Chen

A Novel Image Segmentation Algorithm via Neighborhood Principal Component Analysis and Laplace Operator ..............................273
        Yongjing Wan, Tao Lu, Wei Yang, and Wei Huang

Study of Adaptive Non-singular Fast Terminal Sliding Model Guidance Law ...............................................................................277
        Bin Zhao, Jun Zhou, and Yuhua You

**Session 3: Big Data and Cloud Computing**

The Cloud Service Agent Model Based on Service Level Agreement .........................................................................................282
        Chunzhi Wang, Liang Sun, and Hongwei Chen

Research on the Extension of Attention Set for User Focused Frequent Itemset Mining .................................................................286
        Zhenya Zhang, Weili Wang, and Hongmei Cheng

A Multi-indicator Customer Segmentation Method Based on Consuming Behaviors Analysis ................................................................289
        Xiaoqing Zeng, Qi Wang, Qiang Li, and Jinghua Jiang

The Research of Big Data Analysis Schema Based on the R Which Apply to Digital Library ..............................................................296
        Fan Yang and Ningbo Wu

An Availability Method for Information Retrieval in Cloud Service Using Work Components ........................................................301
        Jia Le Yuan

Research on SINS Static Alignment Algorithm and Experiment .................................................................................................305
        Ping Sun, Guodong Li, Zhilu Zhang, and Xiangjin Wang

G-Cloud: A Highly Reliable and Secure IaaS Platform ........................................................................................................309
        Tiantian Liu, Tongkai Ji, Qiang Yue, and Zhenchu Tang

A Hybrid Method of Scattering from Multiple Targets above a Rough Surface ........................................................................314
        Lin Li and Tian-Lin Dong

Development of Submersible Pressure Hull Design System ..........................................................................................................318
        Jian Zhang, Junchen Zhu, Wenxian Tang, Weibo Wang, and Wenwei Wu
Study and Implementation of Elastic Stream Computing in the Cloud .......................................................... 322
   Hanfeng Zhu and Gang Wu

Application of Internet Technology and Web Information Extraction Wrapper Based on DOM for Agricultural Data Acquisition .......................................................... 327
   Liming Luo, Wen Lu, Bing Wei, Ye Qin, and Yeqing Xiong

The Application of Genetic Algorithm in Task Scheduling ........................................................................ 332
   Xiaoyan Chen, Kun Zhang, Zhuang Li, and Haifeng Wang

Data Partition Based on Attribute Similarity to Preserve Data Privacy ..................................................... 335
   Dewei Peng, Yong Hu, Hongxia Wang, and Feng Geng

The Research on the Deposit Intention of Chinese Residents under the Influence of the Internet Finance ........................................................................................................ 340
   Dongmei Han, Yumeng Zhang, and Xiao Li

A Survey on Scheduling Workflows in Cloud Environment ........................................................................ 344
   Xin Ye, Jiwei Liang, Shihao Liu, and Jia Li

Parallelization of Revised Simplex Algorithm on GPUs ............................................................................... 349
   Zhicheng Zhong, Minghan Feng, and Duo Liu

On the Research of Data Warehouse in Big Data ...................................................................................... 354
   Hai-Fei Qin, Zhi-Ming Qian, and Yong-Chao Zhao

Distributed Parallel Needleman-Wunsch Algorithm on Heterogeneous Cluster System ......................... 358
   Bailong Feng and Jing Gao

Double System Co-Evolutionary Gene Expression Programming and Its Application in Function Finding Problems ....................................................................................... 362
   Chao-Xue Wang, Shu-Ling Wu, Jing-Jing Zhang, Chang-Hua Li, and An-Jun Zhao

The Research of Location of Moving Objects on the Lake ........................................................................ 367
   Weihu Wang and Yanshen Liu

Trust Management Model of Cloud Computing Based on Multi-agent ..................................................... 370
   Xiaolan Xie and Yang Li

Research Distributed Search Engine Based on Hadoop ............................................................................. 373
   Rui Gu

Session 4: Computer Network and Information System Application

Hybrid Active Contour Method Combining Local and Differential Image Information for Image Segmentation ................................................................................................. 376
   Zhiqin Wan, Kaiqiong Sun, and Chengcai Leng

An Optimal Ontology Selecting Method ...................................................................................................... 381
   Xiang Li and Guan-Yu Li

Design of an Enhanced 10Gb/s Ethernet MAC Controller for DCB Offloading on FPGA ......................... 385
   Ting Xiao, Songsong Sun, Meng Feng, Wenbin Min, Zheng Chen, and Wenli Zhou

x
A Study on a Decentralized SaaS Business Model ......................................................389
   Jinyi Wu, Pinata Winoto, and Woojin Paik

A Position-Correction Algorithm Based on Hop Distance of DV-Hop ................................395
   Chuxi Yang, Zhihong Qian, Guang Ji, Xiaohui Liu, and Xue Wang

Geospatial Grid Display of Internet Public Opinion Information about Natural Disasters ..........................................................399
   Xuefeng Lv and Dong Chen

Development Model of Agricultural Product Information Platform Based on RFID Technology .........................................................404
   Licheng Xu, Zhanghe He, Zhaoqing Wang, and Yu Zhang

Adaptive Cluster Matrix Projective Synchronization of Complex Dynamical Networks with Coupling Time-Varying Delays ..................................................408
   Haitao Cao and Shuguo Wang

Detecting Spammers on Twitter Based on Content and Social Interaction .................................................................413
   Hua Shen and Xinyue Liu

An Empirical Research on Relation Model of Campus Social Networks Based on Centrality Analysis ..........................................................418
   Kun Wang and Duoyong Sun

Tibetan Entity Relationship Extraction Based on Shallow Semantic Parsing .................................................................423
   Yuan Sun and Zhen Zhu

A User Model Based Ranking Method of Query Results of Meta-Search Engines ..................................................................426
   Yan Lu, Yuanyi Li, Meng Xu, and Weihui Hu

Study on Rainfall Information Integration System Based on Java Web Start .................................................................431
   Yirong Shen, Yongjin Zhang, Jiancang Xie, Rengui Jiang, and Hao Han

The Design and Implementation of an Innovative Mobile Payment System Based on QR Bar Code ..................................................................435
   Taolin Ma, Huixu Zhang, Jun Qian, Xinglong Hu, and Yufei Tian

Research on Global Security Degree of Airport Enclosures ..................................................................441
   Changyong Zhang and Ge Yang

Corporate Governance and Performance of E-commerce Enterprises: Evidence from Chinese Listed Companies ..................................................................446
   Wenqiang Xu

The Application of Campus Smart Card’s Security Strategies in Library System ..................................................................450
   Chunhong Gu and Hua Li

   Zhimei Li, Changshou Luo, and Junfeng Zhang

Internet Crime Analysis Method Based on Non-equilibrium Theory ..................................................................457
   Lihua Duan
Based on the Research of Manufacturing Enterprise Inventory Management Optimization—Take a Company as the Inventory Management Optimization Based on Instances ................................................................. 461

Xin Sun and Dashen Xue

Application of Intelligent Computing in the Process Quality Control ................................................................. 466

Xuancai Li and Qiu-Ming Wang

Studies on Quality Requirement Mapping Technologies Based on Intelligent Computing ........................................ 471

Qiuming Wang and Xuancai Li

Study on Framework and Key Technology of Quality Management System Based on Multiple Management Modes ................................................................. 477

Xuancai Li and Qiuming Wang

A Binary Anti-collision Algorithm Based on the Grouping for Tags ........................................................................ 482

Yong-Feng Dong, Yang-Cong Zhou, Hong-Mei Xia, and Xiao-Xin Cui

Research on Marine Incinerator Operational Training System Based on 3dsmax and Unity3D ................................................................. 488

Wenlong Yao, Yuan Liu, Fuhai Li, Zhifei Yin, Qiang Wang, Dong Zeng, Huiyang Li, and Huiyong Wang

A New Logistics Distribution Scheme Based on NFC ......................................................................................... 492

Jie Cui, Dong She, Jinyi Ma, Qingxin Wu, and Jiaqiang Liu

Architecture Analysis and Implementation of 3D Theatre Display System Based on Node.js ................................................................. 496

Wei Jiang, Bin Zhou, and Meng Zhang

Asynchronous I/O Performance Analysis of 3D-Theater Registration System Based on Node.js ................................................................. 500

Bin Zhou, Wei Jiang, and Meng Zhang

How to Analyze Sensitive Information in User Password ......................................................................................... 504

Jing Sun and Ning Ma

Alpha ACC (Adaptive Cylinder-Oil Control) of Marine Technology Optimization .................. 508

Qiang Wang

The Development of the General Computer Control System Based on Multi-functional Triaxial Apparatus ................................................................. 511

Chuan Huang, Haitao Wu, and Chunmin Yuan

Image Detection of the Wrathful Classes Thangka Based on Color and Shape Feature .................. 514

Yuan Chen, Cheng Peng, and Wei Lan Wang

Adaptive Projective Synchronization of Complex Networks with Disturbance ................................................................. 519

Shuguang Wang and Haitao Cao
The Research on the Influencing Factors of Mobile Phone Consumption Based on Factor Analysis ........................................................................................................................................................................................................................................... 523
   Yao Wang and Da-Shen Xue

Design and Implementation of Predictive Model Markup Language Interpretation Engine ........................................................................................................................................................................................................................................ 527
   Yinye Zhang and Yaqin Jiao

A New Optimal Deployment Algorithm for Actor Node in WSAN ........................................................................................................................................................................................................................................... 532
   Zhongxiang Xiao, Jun Yan, Xiaoying Yan, Guojian Cheng, and Xinjian Qiang

A Timing Synchronization Scheme for MB-OFDM Based UWB Systems ........................................................................................................................................................................................................................................ 536
   Sitong Lv, Zhikong Qian, Ying Dong, and Qian Li

An Empirical Analysis of Flow Experience’s Influence on Consumers’ E-loyalty ........................................................................................................................................................................................................................................ 540
   Yimin Zheng and Shuang Wang

Non-Gaussian Noise Cooperative Spectrum Sensing Scheme Based on Rao Test ........................................................................................................................................................................................................................................ 545
   Jun Tang, Yinghong Li, and Qing Wu

A Frequency Scalable Publish-Subscribe Forwarding Node ........................................................................................................................................................................................................................................... 549
   Xing Zheng, Juan Cao, Xing Qin, Lingling Sun, Jie Jin, and Xiaojun Wang

Design of WSN Signal Interface Conformance Test System Based on Web ........................................................................................................................................................................................................................................ 553
   Zhiyong Luo and Junfeng Hu

The E-health Network Design ........................................................................................................................................................................................................................................... 557
   Yingzi Luan and Guangliang Ren

A Secondary Positioning Algorithm of the Shoe Print ........................................................................................................................................................................................................................................... 560
   Yan Li and Hong-Xing Wang

Research of Time Delay Estimation in Cooperative Detection ........................................................................................................................................................................................................................................... 564
   Xiaodong Lu, Zhenxin Feng, Jun Zhou, and Yuhua You

Fat File System Design and Research ........................................................................................................................................................................................................................................... 568
   Haoyu Zhao, Xiongfei Li, Liang Chang, and Xuebai Zang

An Inventory Control Problem with Discounts ........................................................................................................................................................................................................................................... 572
   Wenjie Ban and Xiaoshen Li

Effectiveness Evaluation on Cyberspace Security Defense System ........................................................................................................................................................................................................................................ 576
   Yun Lan, Sheng-Peng Liu, Li Lin, and Yuan-Yuan Ma

The Design and Implementation of Analog Electronic Experimental Teaching Software ........................................................................................................................................................................................................................................ 580
   Dongsheng Zhou and Jingjing Fang

Research of Yunnan Satellite Forest Fire Monitoring Hotspot Classification Early Warning Model ........................................................................................................................................................................................................................................ 584
   Zhongjian Deng

An Improved A* Algorithm Applicable for Campus Navigation System ........................................................................................................................................................................................................................................ 588
   Defu Li, Ming Liu, Jingping Zhang, and Erli Cheng

xiii
The Research on the OSPF Security Optimizing of Campus Network ................................................................. 592
   Yaxun Lan and Zhengshi Chen

Trust Evaluation Model Based on Privacy Protection ......................................................................................... 595
   Ruo-Qian Si and Lin Zhang

Life Cycle Assessment of Building Energy in Big-Data Era: Theory and Framework ....................................... 601
   Yan Yuan and Zhonghua Jin

Improving the Performance of P300-Speller with Familiar Face Paradigm Using Support Vector Machine Ensemble ................................................................. 606
   Qi Li, Jian Li, Shuai Liu, and Yang Wu

Neural Mechanism of P300-Speller Brain-Computer Interface Using Familiar Face Paradigm ...................... 611
   Qi Li, Shuai Liu, and Jian Li

Personal Information Extraction of the Teaching Staff Based on CRFs .......................................................... 615
   Fang Dong and Junao Wang

Influence of Static Pressure on High Precision Silicon Differential Pressure Transmitter .................................. 618
   Xiaoshan Gong, Guoqing Hu, Jahangir Alam Sm, Yonghong Zhou, Jianling Wang, and Chong Zou

The Implementation Process and the Key Technology of Three-Dimensional Acupuncture Virtual Teaching System ................................................................................................................................. 623
   Lizhi Cao and Lianshuan Shi

Summarizing Event Opinions for News Reports ............................................................................................... 626
   Chang Liu, Wei Ge, Chenglong He, and Xin Xu

Design of Adaptive Optical System of Infrared Temperature ........................................................................... 631
   Meihe Yang

Author Index ....................................................................................................................................................... 634