

# **International Conference on Computer Information Systems and Industrial Applications**

**(CISIA 2015)**

**Advances in Computer Science Research Volume 18**

**Bangkok, Thailand  
28-29 June 2015**

**Part 1 of 2**

**Editors:**

**K. Chan  
J. Yeh**

**ISBN: 978-1-5108-0575-0**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2015) by Atlantis Press  
All rights reserved.

<http://www.atlantis-press.com/php/pub.php?publication=cisia-15>

Printed by Curran Associates, Inc. (2015)

For permission requests, please contact Atlantis Press  
at the address below.

Atlantis Press  
29 avenue Laumière  
75019 Paris  
France

[contact@atlantispress.com](mailto:contact@atlantispress.com)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## VOLUME 1

### NETWORKING ALGORITHMS AND PERFORMANCE EVALUATION

<b>An Adaptive Threshold Algorithm for Joint Sparse Recovery</b> .....	1
<i>N. Dong, J. Wang</i>	
<b>A Mobile Frequency Allocation Algorithm Based on the Graph Theory</b> .....	4
<i>L. Yang, Y. Yu</i>	
<b>A Hybrid TD-AD Algorithm Based Electromagnetic Spectrum Assignment Method</b> .....	8
<i>L. Guo, T. Liang, A. Sun, Y. Zhang</i>	
<b>High Accuracy Tracking with an Active Pan-Tilt-Zoom Camera</b> .....	11
<i>W. Fu, L. Gao</i>	
<b>Research on Time-Frequency Domain Acquisition Algorithm of Parallel Combinatory Spread Spectrum System Based on FFT</b> .....	14
<i>L. Guo, Z. Sun, S. Chen, B. Wang, X. Ning</i>	
<b>OFDM Synchronization Improved Algorithm Based on Cyclic Prefix</b> .....	18
<i>T. Zhang, G. Chen, X. Zhang</i>	
<b>An Improved OFDM Synchronization Algorithm Based on Training Sequence</b> .....	21
<i>Y. Jiao, G. Chen, X. Zhang</i>	
<b>A Novel Reconfiguration Method in Smart Distribution Grid Considering Interval Data and Distributed Generation</b> .....	25
<i>W. Dai, W. Sheng, K. Liu, Y. Sheng, Z. Ye</i>	
<b>Bandwidth-based Application-Aware Multipath Routing for NoCs</b> .....	29
<i>X. Ding, C. Yang, X. Ren, P. Ren</i>	
<b>Synthesis Algorithm for Reversible Logic</b> .....	36
<i>J. Hu</i>	
<b>A High-Frequency Intensity Difference Location Algorithm in Three Dimensions Based on Helmet-Mounted Microphone Array</b> .....	39
<i>Y. Zhang, B. Shen</i>	
<b>An Iterated Local Search for the Split Delivery Vehicle Routing Problem</b> .....	43
<i>Z. Wen, X. Dong, S. Han</i>	
<b>An Algorithm of Frequent Patterns Mining Based on Binary Information Granule</b> .....	47
<i>G. Fang, Y. Wu</i>	
<b>A Novel Method for VHF Signal Modulation Classification Based on Algorithm of First-Order Cyclic Moment</b> .....	51
<i>F. Yang, Z. Luo, Z. Li, B. Hao</i>	
<b>A LH-DM Strategy Based Particle Swarm Optimization Algorithm</b> .....	55
<i>W. Liu, J. Zhou</i>	
<b>A Novel High Performance Scheduling Algorithm for Crosspoint Buffered Crossbar Switches</b> .....	59
<i>X. Wang, Y. Wang, S. Li, P. Li</i>	
<b>Research of User-Based Collaborative Filtering Recommendation Algorithm Based on Hadoop</b> .....	63
<i>Y. Zhang, M. Ma, S. Wang</i>	
<b>Pairwise Test Generation Based on Parallel Genetic Algorithm with Spark</b> .....	67
<i>R. Qi, Z. Wang, S. Li</i>	
<b>A New Algorithm for the End-to-End Delay Bound Based on Statistical Network Calculus</b> .....	71
<i>Y. Zhao</i>	
<b>Reactive Power Dispatch Based on Self-Adaptive Differential Evolution Hybrid Particle Swarm Optimization</b> .....	75
<i>C. Wang, Y. Liu, H. Guo, Y. Chen</i>	
<b>Improvement on OFG Decoding Method for LT Codes</b> .....	79
<i>J. Guo, S. Wu, Z. Wang, X. Li</i>	
<b>No Reference Video Quality Metric for 4K-UHD Videos Based on H.264/AVC Bitstream Features</b> .....	83
<i>J. Xu, X. Jiang</i>	

### WIRELESS COMMUNICATIONS AND SENSOR NETWORKS

<b>The Optimization of Improved Energy Detector in Cognitive Radio Network</b> .....	87
<i>X. Dong, Y. Chen, G. Yang, X. Pang, J. Yang</i>	

<b>Design of Non-Coherent CSS Communication Method for Highly Dynamic Scenes</b> .....	91
<i>Z. Sun, Y. Zheng, X. Ning, Z. Chen</i>	
<b>A Secure Simultaneous Wireless Information and Power Transmission System Based on CDMA Architecture</b> .....	95
<i>F. Zhao, Y. Wu, Y. Sun</i>	
<b>Analysis on Applying SDN in Wireless Networks from Operation View</b> .....	99
<i>W. Sun, H. Li, J. Wu</i>	
<b>A Peristaltic Pump Controller Design with Wireless Communication</b> .....	103
<i>X. Che, B. Li, Y. Ning, D. Gao</i>	
<b>Effect of Frequency Selective Shield of Semielliptical Shape on the Characteristics of Antenna Array</b> .....	107
<i>D. Semenikhina, A. Semenikhin, Y. Yukhanov</i>	
<b>Impulse Radio UWB Signal Detection Based on Compressed Sensing</b> .....	110
<i>T. Zou, Y. Li, T. Li, W. Xu, Y. Yan</i>	
<b>Wind-Induced Piezoelectric Energy Harvesting Device for Wireless Sensor Node on the Drum of Mine Hoist</b> .....	114
<i>G. Zhou, Z. Li, S. Xia, L. Huang</i>	
<b>The Discrete Time Non-Persistent CSMA Protocol with Functions of Monitoring and Multichannel Mechanism Based on Binary Tree Conflict Resolution in WSN</b> .....	118
<i>S. Zhou, H. Ding, Y. Zhao, P. Li</i>	
<b>Efficient Soft Decoding of Raptor Codes for Satellite Broadcasting System</b> .....	122
<i>M. Zhang, S. Kim</i>	
<b>An Improved Transmission Control Protocol Congestion Control for Satellite Networks</b> .....	125
<i>B. Han, L. Zong</i>	
<b>Spectrum Combining Technique at Low SNR for the Frequency Selective Channels</b> .....	129
<i>C. Shen, Y. Hu, X. Zhang, Y. Tang</i>	
<b>Study on Adaptive Channel Estimation in OFDM Systems Based on DSP/FPGA</b> .....	133
<i>L. Ye, Y. Zhang</i>	
<b>An Integrity-Assured Concealed Data Aggregation Scheme for Wireless Sensor Networks</b> .....	136
<i>L. Yang, C. Ding, M. Wu</i>	
<b>Design of Compact Wideband Circularly Polarized Conical Helix</b> .....	139
<i>J. Mei, D. Ding, G. Wang</i>	
<b>Multi-ring PSK Constellation Design for Spatial Modulation Transmission</b> .....	142
<i>P. Zhang, C. Wang, G. Xu</i>	
<b>Software Design Flexibility Based on Dual Environment Architecture: Aerial Case Study</b> .....	146
<i>A. Abd El Hamid, P. Zong</i>	
<b>A Nodal Arranging and Covering Algorithm Based on the Energy of Multi Sensors</b> .....	150
<i>X. Wei, B. Yang, W. Lu, H. Wang, R. Zhang, W. Zeng</i>	
<b>Multimode Waveguide Van-Atta Array</b> .....	154
<i>Y. Yukhanov, T. Privalova, I. Merglodov, E. Kriuk</i>	
<b>Design of an Omnidirectional High Gain Antenna Array</b> .....	158
<i>M. Liu</i>	
<b>Circle Polarization Phase Shift Keying Technology Research Based on Space Laser Communication System</b> .....	161
<i>H. Guo, G. Chen, T. Zhang</i>	
<b>Analysis of Rocky Desertification in Central Guizhou, China, Using Landsat Satellite Data</b> .....	165
<i>S. Luo, J. Hu, Y. Zhang</i>	

## **ELECTRICAL ENGINEERING AND POWER TECHNOLOGY**

<b>Research on Saturation Detection Circuit for Power MosFET</b> .....	169
<i>A. Wang, W. Wang, Q. Zhang, R. Wu</i>	
<b>Development of a High Temperature Superconducting Controllable Reactor Based on Finite Element Method</b> .....	173
<i>M. Song, Z. Yu, B. Sun, B. Chen, J. Yuan</i>	
<b>Simulation Studies on the Design of a Voltage-Controlled Oscillator</b> .....	177
<i>J. Ye, J. Chen, J. Ye</i>	
<b>Analyzing Doubly Fed Induction Generator Impact in an Electrical Grid</b> .....	181
<i>T. Ruben, H. Agustina, A. Omar, M. David</i>	
<b>A Study on the Advanced Twelve Step Sensor-Less Control of BLDCM Using FOC</b> .....	184
<i>S. Kim, S. Byun, Y. Cho</i>	

<b>Optimized 3-step Skew Spoke Type BLAC Motor Cogging Torque Reduction Technique for EPS Application</b> .....	188
<i>S. Saha, S. Kim, Y. Cho</i>	
<b>Innovative Processing for Power Factor and Efficiency Improvement of LSPM Considering Inductance of Rotor Structure</b> .....	192
<i>S. Saha, S. Byun, Y. Cho</i>	
<b>Transmission Characteristics of Quarter Wave Plate Circular Polarizer Based on Frequency Selective Surface for High Frequency Applications</b> .....	197
<i>F. Mangi, S. Xiao, Y. Wang, D. Jamro, I. Memon</i>	
<b>Research on the Measurement error of Electric Energy Metering System under Harmonics</b> .....	200
<i>J. Yang, J. Le, K. Liu, N. Wang</i>	
<b>Transient Characteristics Analysis of DFIG during Power Grid Fault and Crowbar Resistance Adaptive Tuning</b> .....	204
<i>Y. Gu, Y. Nie, Y. Jiao, Y. Xu</i>	
<b>Capacitive Current Feedback Control Approach for LCL-Based Four Leg Shunt Active Power Filter</b> .....	208
<i>X. Du, J. Le, K. Liu</i>	
<b>An Improved High-Gain Amplifier Circuit Model Used in UHF RFID Receiver</b> .....	211
<i>X. Hao, X. Yan</i>	
<b>The Load Current Control of Inductively Coupled Power Transfer System Based on Neural Network for AUV</b> .....	214
<i>Y. Yuan, K. Wang, Y. Liao</i>	
<b>A Four-Wheel Steer-by-Wire Control Method Based on the Guaranteed Cost Control Theory</b> .....	218
<i>T. Zhang, T. Zhou</i>	
<b>A Novel Control Method of Three-Level Converter Neutral-Point Potential Balance</b> .....	222
<i>X. Chai, C. Zhang, B. Ben, Z. Guo</i>	
<b>Investigation of the Use of Loudspeaker as a Liner Alternator for Thermoacoustic Application</b> .....	226
<i>B. Chen, R. Jiang, K. Ho, A. Abakr, P. Riley</i>	
<b>Optical Properties of Micro-Spheres in Micro-Tube</b> .....	230
<i>S. Hao, H. Li, J. Li</i>	
<b>Study STATCOM with Small Time-Step Simulation on FPGAs</b> .....	233
<i>M. Xu, W. Gu, Q. Fan, J. Qin, Q. Mu, X. Zhang, X. Wang</i>	
<b>A Reversible LFSR Pseudo-Random Sequences Generator</b> .....	237
<i>J. Hu</i>	
<b>Study on Laser Micro-Cladding Integrated Circuit Manufacturing Equipment Control System</b> .....	240
<i>T. Wang, D. Zhao, F. Li, Z. Wang</i>	
<b>Design and Implementation of Narrow- Band High Frequency Resonator</b> .....	244
<i>C. Li, X. Gao</i>	
<b>A 1.9 GHZ High Efficiency Class-F SOI CMOS Power Amplifier</b> .....	247
<i>L. Cheng, P. Li, T. Mo</i>	
<b>Optimization Model for Residential Tiered Electricity Pricing Based on Peak-Valley TOU Price</b> .....	250
<i>L. Yang, K. Chen, Z. Tan, B. Zhou</i>	
<b>The Application of Social Tagging Based Collaborative Filtering Personal Recommender Strategy in Electricity Market</b> .....	253
<i>J. Yang, H. Wang, C. Gao, Y. Dai, Z. Lv</i>	
<b>Design and Realization of DC Motor Speed Measurement and Control Based on an Electromagnetic Sensor</b> .....	256
<i>J. Xing, X. Gu</i>	

## **INTELLIGENT AND INFORMATION SYSTEM AND APPLICATION**

<b>Privacy-Preserving Power Consumption Data Measuring Protocol for Smart Grid</b> .....	260
<i>C. Xie, R. Zhang</i>	
<b>Design of Tire Wear Check System of Car with Laser Sensors</b> .....	263
<i>S. Baek, J. Jang</i>	
<b>Cloud Computing Enabled External Applications to Car Users using Nomadic Smartphones</b> .....	266
<i>L. Nkenyerereye, J. Jang</i>	
<b>Design of Automatically Sprinkling Irrigation System to Water Saving in Greenhouse</b> .....	270
<i>T. Dong, X. Zhao, Z. Ma, H. Yu, Y. Liang</i>	
<b>Broadband over Power Line used in Intelligent Residential District</b> .....	273
<i>Y. Zhou, X. Wang, W. Deng, S. Chen, M. Wang</i>	

<b>Design of Real-time Data Acquisition System for Physical Education in Elementary and Secondary School.....</b>	<b>276</b>
<i>X. Zhang, X. Ju</i>	
<b>Study on Temperature Calibration System.....</b>	<b>280</b>
<i>X. Peng, K. Yang</i>	
<b>Low Cost Interactive board using Infrared Pen and Wiimote.....</b>	<b>284</b>
<i>C. Photong, A. Polyiam, K. Phomsathet, N. Suwapaet</i>	
<b>Realizing a Distributed Performance Testing System Based on TTCN-3.....</b>	<b>287</b>
<i>X. Liu, S. Liu, Y. Liu, J. Wu</i>	
<b>Research on Network Education Method based on the Big Data .....</b>	<b>291</b>
<i>M. Tang, S. Zeng, J. Hu, J. Hu</i>	
<b>The Design and Implementation of the Badminton Distance Teaching Platform based on B/S Architecture .....</b>	<b>294</b>
<i>X. Hei, Y. Zeng, Y. Liu, F. Wang</i>	
<b>Design and Implementation of Indoor Environmental Quality Monitoring System based on ZigBee .....</b>	<b>297</b>
<i>X. Liu, F. Wang, Z. Zeng</i>	
<b>Security System Research in the Government Network.....</b>	<b>301</b>
<i>Y. Ji, C. Yu, B. Wang</i>	
<b>Research on BOC Signal Characteristics and Code Acquisition Methods .....</b>	<b>304</b>
<i>J. Yang, P. Xu, Y. Ma, D. Cheng</i>	
<b>An Efficient Identity-based Multi-signcryption Scheme .....</b>	<b>308</b>
<i>Z. Qi, H. Yang, H. Huang</i>	
<b>Research on ADS1282-based Distributed Seismic Data Acquisition System.....</b>	<b>311</b>
<i>H. Wang, W. Wei, M. Deng, Q. Zhang, J. Huang</i>	
<b>The Clock System in Readout Electronics System for the External Target Experiment in CSR of HIRFL .....</b>	<b>315</b>
<i>L. Zhan, L. Zhao, L. Kang, J. Liu, M. Li, S. Liu, Q. An</i>	
<b>A New Stealthy Target Detection based on Stratospheric Balloon-borne Radar System.....</b>	<b>319</b>
<i>M. Barbary, F. Yang, P. Zong</i>	
<b>A Vehicle Type Recognition Method based on Sparse Auto Encoder .....</b>	<b>323</b>
<i>H. Rong, Y. Xia</i>	
<b>Zhejiang Province Communication Resource Management System 2nd Stage Technology Solutions .....</b>	<b>327</b>
<i>Y. Ji, J. Yu, Y. Lin</i>	
<b>Reliability Analysis of The Subway Door System Based on Monte Carlo .....</b>	<b>330</b>
<i>F. Shi, X. Gao, Z. Xing, Y. Chen, Y. Qin</i>	
<b>Design of Distributed Control System for Radiotherapy Equipment Based on Field Bus .....</b>	<b>334</b>
<i>S. Shi, X. Zhang, P. Ye, H. Zhang</i>	
<b>Study on Surface Defect Detection of Automobile Seat.....</b>	<b>338</b>
<i>X. Zhang, H. Wang</i>	
<b>Temperature and Humidity Memory Instrument And Its Data Processing System.....</b>	<b>342</b>
<i>D. Chi</i>	
<b>The Phase Compensation Methods of Distributed Radar Systems.....</b>	<b>345</b>
<i>M. Ding, T. Sun</i>	
<b>The Design of the Multi-user MIMO Nonlinear Precoding System .....</b>	<b>349</b>
<i>L. Zhang, G. Chen, J. Ren</i>	
<b>Human Action Recognition Based On Multi-level Feature Fusion.....</b>	<b>353</b>
<i>Y. Xu, G. Xiao, X. Tang</i>	
<b>Abrasiveness Calibration of Optical Measuring Wheel.....</b>	<b>356</b>
<i>J. Shieh, W. Huang, Y. Liu, G. Liao</i>	
<b>Modelling of Complex Adaptive System of Information Flow.....</b>	<b>359</b>
<i>W. Cao, X. He, X. Fan, G. Liu, D. Zhou, B. Luo</i>	
<b>Method for Detection and Stereoscopic Measuring Lane Markers.....</b>	<b>363</b>
<i>C. Mu, X. Ma, C. Zhang</i>	
<b>Research on the Architecture and Application Schema of Cloud Warehousing Mode .....</b>	<b>367</b>
<i>K. Nie, X. Fan</i>	
<b>Research on Balance Measurement System Based on Embedded OMAP and Filtering Technology .....</b>	<b>371</b>
<i>Y. Jiao, G. Chen, Y. Wang</i>	
<b>A Queuing Analysis for Job Assignment on Two-Type Heterogeneous Supercomputer System.....</b>	<b>375</b>
<i>C. Wang, Y. Chen, C. Hwang</i>	
<b>Proving Authentication Property of Modified Needham-Schroeder Protocol with Logic of Events .....</b>	<b>379</b>
<i>M. Xiao, C. Deng, C. Ma, K. Zhu, D. Cheng</i>	

<b>Analysis and Research of Several Problems of Bad Short Message Filtering System</b> .....	384
<i>W. Du, G. Chen</i>	
<b>Research on Big Data Technology-Based Agricultural Information System</b> .....	388
<i>N. Xie, X. Zhang, W. Sun, X. Hao</i>	
<b>An Evaluation of Third-Party Mobile Payment Usage Intention in China</b> .....	391
<i>X. Lv, C. Su, Z. Huang, T. Gu</i>	
<b>An Improved Designated Verifier Signature Schemes Using Bilinear Paring</b> .....	395
<i>Q. Yue, H. Shen, J. Chen</i>	
<b>Research on Secure Communication Mechanism of Traffic Recorder</b> .....	399
<i>L. Li, Y. Zhu, R. Xie, F. Li</i>	

## **DATA, SIGNAL AND IMAGE PROCESSING**

<b>The Application of Rough Sets Theory in Video Information Processing and Analysis</b> .....	403
<i>X. Li, Y. Kang</i>	
<b>Vector Median Filters Based on Noise Detection for Color Images</b> .....	406
<i>J. Wang</i>	
<b>Research on Information Models and Modelling Methods of the New Generation of OSS for Data Management</b> .....	410
<i>Y. Lin, Y. Wang, H. Zhang, J. Yang</i>	
<b>A Polar Coding Scheme for Secure Data Transmission Based on 1D Chaotic-Map</b> .....	414
<i>T. Soliman, F. Yang, S. Ejaz</i>	
<b>Mining Blocks' Association Rules for Disk Data Perfecting</b> .....	418
<i>L. Zhu, G. Xiao, J. Liao</i>	
<b>A New Approach for Target Detection Performance Enhancement Under Clutter Effect</b> .....	422
<i>A. Almslmany, Q. Cao, C. Wang</i>	
<b>Short-Term Photovoltaic Output Forecasting with Weakly Related Meteorological Data</b> .....	426
<i>C. Lin, Y. Xiao, J. Chen, X. Wen, C. Du</i>	
<b>A Framework for Product Lifecycle Knowledge Service</b> .....	430
<i>Z. Wu, L. Li, H. Mao, Z. Huang, H. Mao</i>	
<b>Research on Evaluation Model of The Urban Economy Based on Rough Set and Neural Network</b> .....	433
<i>L. Yan, L. Zhang</i>	
<b>Realization of FPGA-Based Video Image Fusion Technology</b> .....	437
<i>C. Duan, W. Liu, Y. Chen, Q. Xie, B. Yi, Y. Fang, X. Song</i>	
<b>Comparison of Solution of A Class of Second Order Difference Equation</b> .....	441
<i>Y. Qin</i>	
<b>Empirical Study on Reversible Lane in Beijing</b> .....	444
<i>X. Wang, Y. Wang, M. Zhang</i>	
<b>Improved DPA Attack Method on AES Encryption</b> .....	448
<i>S. Lan</i>	
<b>Analysis of Signal Integrity on High Speed Signal Processing System of Vehicle-Mounted Video</b> .....	450
<i>X. Wang, J. Tang</i>	
<b>A Review of a Text Classification Technique: K-Nearest Neighbor</b> .....	453
<i>R. Zhou, Z. Wang</i>	
<b>Analysis of the NETSCIENCE Social Network</b> .....	456
<i>X. Li, V. Podpecan, N. Lavrac</i>	
<b>Shape-Controlled Synthesis of CeO<sub>2</sub> Nanotube Using P123 Triblock Copolymer and Its Application in Catalytic Ozonation</b> .....	460
<i>X. Qiu, Q. Bi, X. Li, Z. Xiong</i>	
<b>Category Scores for Selecting the Most Desirable Options in a Learning Setting</b> .....	463
<i>S. Encheva</i>	
<b>An Approach for Multifaceted Mobile Nodes Sending Information to Manage the Network</b> .....	466
<i>C. Miao, H. Zhou, H. Zhang, W. Su</i>	
<b>The Risk Assessment Model of Small and Medium-Sized Enterprises of Science and Technology Based On Boosting</b> .....	470
<i>X. Lei, Z. Wang, Y. Li</i>	
<b>Study of Breast Tissues Dielectric Properties in UWB Range for Microwave Breast Cancer Imaging</b> .....	473
<i>M. Bah, J. Hong, D. Jamro</i>	
<b>Research on Dynamic Pricing and Ordering Policy of Fresh Agriculture Product Considering Consumers' Perceived Quality</b> .....	476
<i>K. Nie, D. Xie, W. Li</i>	

<b>Finite-Time Synchronization of Chaos Gyros via Terminal Sliding Mode Control</b> .....	479
<i>R. Xu, C. Gao, M. Gao</i>	
<b>IDFT: An Intermediate Node Based Deterministic Fault Tolerant Routing in 2D Mesh</b> .....	483
<i>C. Yang, X. Ding, X. Ren, P. Ren</i>	
<b>Providing Support for Today's Decision Making Processes</b> .....	489
<i>S. Encheva</i>	
<b>Network Assembled Structures from a Series of Macromolecular Surfactants</b> .....	493
<i>X. Zhong, W. Yao, J. Chen, Y. Lai, X. Lin, L. Kong, X. Wu</i>	
<b>The Constructions of DNA Codes from Linear Self-Dual Codes over <math>Z_4</math></b> .....	496
<i>B. Feng, S. Bai, B. Chen, X. Zhou</i>	

## **AUTOMATION AND CONTROL ENGINEERING**

<b>A Composite Control Strategy for an Air-Breathing Hypersonic Vehicle with Wing-Rudder Deflection</b> .....	499
<i>Y. Fan, P. Yan, Y. Yu, X. Li</i>	
<b>The Study of Real-Time Industrial Ethernet Power link Medium Redundancy</b> .....	503
<i>J. Wang, M. Duan, Z. Liu</i>	

## **VOLUME 2**

<b>Research on Obstacle Avoidance of Fire-Fighting Robot Based On Fuzzy Control</b> .....	506
<i>Y. Lei, X. Zhu, C. Tai</i>	
<b>Research of an Improved RFID Authentication Protocol</b> .....	510
<i>W. Yu, Z. Tu, Y. Zhang</i>	

## **COMPUTER SCIENCE AND SOFTWARE ENGINEERING**

<b>A Lightweight Encoding Mechanism for Encrypted User Notification on Mobile Device in Power Grid System</b> .....	513
<i>T. Zhang, Y. Jin, Z. Sun</i>	
<b>New Evaluation Model on Web Site Credibility</b> .....	516
<i>Y. Ma, F. Chen, Z. Sun</i>	
<b>Research on Intelligent Energy Efficiency Management System Based on CBR/MAS</b> .....	520
<i>K. Xu, D. Zhou, Y. Chen, W. Lu</i>	
<b>Design and Implementation of the Fuze Circuit Board Tester</b> .....	524
<i>Y. Zhang, B. Qiao, L. Chen</i>	
<b>Pervasive Marketing Intelligence</b> .....	528
<i>T. Guarda, M. Santos, F. Pinto</i>	
<b>The Binding Operation for Mobile IPv6</b> .....	531
<i>R. Li, D. Wang</i>	

## **ARTIFICIAL INTELLIGENCE AND CONTROL AUTOMATION**

<b>Research of Guangdong and Macao Tourism Cooperation Condition based on DEFCA</b> .....	534
<i>J. Xiao, S. Luo, Y. Yue</i>	
<b>Study on the Simulation of Hot Event's Propagation Based on Ant Colony Algorithm in Social Networks</b> .....	539
<i>D. Qu, H. Xie, H. Lian, J. Bai, S. Guo</i>	
<b>Simulation of PLCC Routing Algorithm using OPNET Modeler</b> .....	543
<i>J. Chen, R. Yan, Y. Zhang, Y. Zhao</i>	
<b>Enhanced Indoor Navigation Using Fusion of IMU and RGB-D Camera</b> .....	547
<i>W. Chai, C. Chen, E. Edwan</i>	
<b>Explore on Illuminance Control of Daylight Perceptive Lighting by Fuzzy Logic</b> .....	550
<i>Y. Gao, X. Guo, Y. Lin, F. Cao, G. Cao, J. Yu, N. Zou, H. Zhang</i>	
<b>A Study and Construction of Multi-level Fuzzy Comprehensive Evaluation System of Course</b> .....	553
<i>L. Tan, T. Jiang, J. Hu, J. Lian, L. Shang</i>	
<b>A Comparison of Effective Discretization Schemes for The Double Heston Model in Financial Industry</b> .....	556
<i>Y. Sun, L. Ding, C. Liu, G. Zhang</i>	



<b>Application of An Improved Grey Neural Network in Grain Yield Prediction .....</b>	<b>560</b>
<i>H. Lv, T. Lei, X. Huang, Y. Zhang</i>	
<b>Research on Structure understanding of Complex-Table in Form Applications .....</b>	<b>565</b>
<i>X. Wang, H. Ma, D. Liang, Z. Du</i>	
<b>LS Algorithm for Semi-online Scheduling Jobs with Nondecreasing Release Times and Nondecreasing Processing Times.....</b>	<b>569</b>
<i>F. Tang, J. Nie</i>	
<b>Comparative Study on Maximum Power Point Tracking Methods of Photovoltaic Cells.....</b>	<b>573</b>
<i>A. Zhang, H. Liu, Y. Song, M. Dai</i>	
<b>Multiplex Communication in 2D Mesh Neural Network.....</b>	<b>577</b>
<i>T. Kamimura, Y. Yagi, S. Tamura, Y. Chen</i>	
<b>A Non-parametric Probabilistic Model for Hepatic Tumor Detection.....</b>	<b>581</b>
<i>Y. Konno, X. Han, Y. Chen, X. Wei</i>	
<b>Automatic Segmentation of Spleen based on Anatomical Model and Template Matching .....</b>	<b>585</b>
<i>C. Dong, X. Han, T. Tateyama, Y. Chen, A. Foruzan</i>	
<b>IOSS Control for A Class of Switched Hopfield Neural Networks with Disturbance Input .....</b>	<b>589</b>
<i>C. Ahn</i>	
<b>Equalizer Design Based on ATSC-M/H Protocol.....</b>	<b>592</b>
<i>T. Xu, Z. Hu, Z. Wang, H. Song</i>	
<b>Study on Restricting Factors about Production Scale based on Grey Correlation Degree in Wulongquan Mine .....</b>	<b>596</b>
<i>D. Yin, L. Ke</i>	
<b>Industrial Simulation of Metallurgical Logistics.....</b>	<b>600</b>
<i>K. Aksyonov, E. Bykov, O. Aksyonova, N. Goncharova, A. Nevolina</i>	
<b>Decision Support for Gasoline Tanker Logistics with BPsim.DSS .....</b>	<b>604</b>
<i>K. Aksyonov, E. Bykov, O. Aksyonova, N. Goncharova, A. Nevolina</i>	
<b>Calculation Techniques of Two-Dimensional Residual Stress Field for Mechanical Engineering Application .....</b>	<b>607</b>
<i>S. Liu, Q. Pan, C. Xu, D. Xiao</i>	
<b>Modelling of Theoretical Surface Roughness for Two-Dimensional Vibration-Assisted Machining .....</b>	<b>611</b>
<i>Y. Gao, R. Sun</i>	
<b>Research on PMSM Demagnetized by Three Phase Symmetrical Short Circuit .....</b>	<b>615</b>
<i>S. Huang, X. Yan, C. Zeng, Y. Yang</i>	
<b>Design of the Second-Order Voltage-Controlled Multifunctional Filter.....</b>	<b>619</b>
<i>M. Fan, W. Zhang, S. Ma, W. Liu</i>	
<b>The Concept of Creating the Universal Life-Saver with Rotary-Screw Mover.....</b>	<b>622</b>
<i>A. Koshurina, M. Krasheninnikov, V. Shapkin, R. Dorofeev, V. Obrezkova</i>	
<b>Mechanical Properties and Gradient Effects of Carbon Nanotube as Polymer Nanocomposites.....</b>	<b>626</b>
<i>N. Abu-Hamdeh, K. Alnefaie</i>	
<b>Analysis on Several Typical Fault of Medical Linear Accelerator .....</b>	<b>629</b>
<i>L. Guo, S. Zhang, Y. Sui</i>	
<b>Integrating Desktop Factory into Manufacturing Cloud: A Conceptual Model .....</b>	<b>633</b>
<i>L. Yao, Y. Wang, Y. Kong, X. Cheng, L. Ren</i>	
<b>Characteristics of the Permian Reservoirs From Taiyuan Formation in Shenmu Gas Field.....</b>	<b>636</b>
<i>C. Wang, Q. Che</i>	
<b>Image Segmentation Algorithm Based on the AIC .....</b>	<b>639</b>
<i>G. Chen, H. Xie, N. Liu, D. Liang</i>	
<b>Image and Video Restoration with TV/L2-Norm Constraint .....</b>	<b>642</b>
<i>Y. Nojima, Y. Chen, X. Han</i>	
<b>Computer-Aided Diagnosis of Liver Cirrhosis Based on Multiple Statistical Shape Models.....</b>	<b>645</b>
<i>M. Uetani, T. Tateyama, S. Kohara, X. Han, Y. Chen, S. Kanasaki, A. Furukawa, X. Wei</i>	
<b>Evaluation of Facial Paralysis Degrees Using Multi-Resolution Analysis.....</b>	<b>648</b>
<i>T. Ngo, Y. Chen, M. Seo, N. Matsushiro</i>	
<b>A PCA Based Approach for Quantitative Analysis of Shiny Skin.....</b>	<b>652</b>
<i>T. Naoki, Y. Chen, M. Seo, T. Igarashi</i>	
<b>Adaptive Blurring Estimation for Learning-Based Super Resolution .....</b>	<b>655</b>
<i>Y. Chen, K. Taniguchi, X. Han</i>	
<b>Research the Algorithm of Image Classification Based on Gaussian Mixture Model.....</b>	<b>659</b>
<i>Z. Meng, G. Yao</i>	
<b>Saliency Detection Integrated with Depth Information.....</b>	<b>663</b>
<i>R. Tang, C. Yu, S. Qian, W. Yu</i>	

<b>Image Denoising Algorithm Based on Non-Subsampled Contourlet Transform and Bilateral Filtering</b> .....	666
<i>C. Li, H. Yang, Y. Cai, B. Song</i>	
<b>A Memristor-Crossbar/CMOS Integrated Network for Pattern Classification and Recognition</b> .....	670
<i>L. Zhang, Z. Chang</i>	
<b>State Estimation for Linear Discrete-Time Systems with Unknown Input Using Nonparametric Technique</b> .....	675
<i>V. Smagin, G. Koshkin, V. Udod</i>	
<b>The Distinction and Controversy of Digital Currency in China</b> .....	678
<i>G. Zhu, X. Wei</i>	

## **APPLIED MATHEMATICS, MODELLING AND SIMULATION**

<b>A New Approach for Recognition and Position of Traffic Lights</b> .....	682
<i>C. Shen, L. Zhou, Z. Teng, J. Wang</i>	
<b>Analysis of Crown Inclination and Influencing Factors of <i>Cunninghamia Lanceolata</i> in Huangfengqiao, Hunan Province</b> .....	686
<i>Y. Zhang, H. Zhang, Y. Chen</i>	
<b>Research for Adaptive Control of the Pipes Conveying Fluid</b> .....	689
<i>B. Chen, Y. Huang, Z. Yin</i>	
<b>A New Method for Estimating Inverse Data from Destructive Regular Storage Life Test</b> .....	693
<i>H. Wang, X. Ma</i>	
<b>The Monitoring System Design of the Traction Transformer Power Loss</b> .....	697
<i>H. Lai, X. Zhu</i>	
<b>Fire and Smoke Identification Algorithms based on Attention Mechanism</b> .....	701
<i>T. Luo, N. Xiao</i>	
<b>Control of Maglev Trains Moving on Bridges During Foundation Settlements</b> .....	704
<i>S. Ju, C. Leong, Y. Ho</i>	
<b>Fuzzy Integral-based Neural Network Ensemble for Facial Expression Recognition</b> .....	709
<i>Z. Wang, N. Xiao</i>	
<b>Advanced Wavelet-Based Multilevel Discrete-Continual Finite Element Method for Three-Dimensional Local Structural Analysis</b> .....	713
<i>P. Akimov, M. Mozgaleva, M. Aslami, O. Negrozov</i>	
<b>Dynamic Model of Paclitaxel Biosynthesis Suggests That the Key Enzyme Is Taxadiene 5<math>\alpha</math>-Hydroxylase in <i>Taxuschinensis</i> Cell Suspension Culture</b> .....	717
<i>S. Zhu, Z. Miao</i>	
<b>A Transfer Matrix Method for Horizontal Seismic Analysis of Tube-in-Tube Structure</b> .....	720
<i>S. Zhang, C. Zhao</i>	
<b>Research on Predicting Slack Flow of Oil Pipelines in Undulated Areas with Large Fall</b> .....	724
<i>J. Zhang, H. Lan, J. Li</i>	
<b>Research on the Replacement of Coal by Electricity in East China</b> .....	728
<i>D. Jia, B. Shan</i>	
<b>The Mix Integer Programming Model for Torpedo Car Scheduling in Iron and Steel Industry</b> .....	731
<i>Y. Liu, G. Wang</i>	
<b>Characterization of Cracks in Beams in Noisy Conditions Using Natural Frequencies</b> .....	735
<i>Z. Zhang, M. Cao</i>	
<b>The Pricing for Warrant Bonds under Fractional Brownian Motion</b> .....	738
<i>F. Chen, Y. Tan, Y. Li</i>	
<b>A Stochastic Epidemic Model with Constant Immigration and Multi-Dimensional Noises</b> .....	742
<i>L. Hu, W. Shen</i>	
<b>Pricing Policies in a Dual-channel Supply Chain with Manufacture Services</b> .....	746
<i>J. Tian, T. Fan, J. Hu</i>	
<b>Mathematical Models for Controlling Wetted Soil Masses Forming under the Practice of Water Added Corn Seeding</b> .....	750
<i>Y. Yang, W. Zhang, G. Yang</i>	
<b>Numerical Prediction on the Mechanical Behaviour of Laser Peened Bulk Metallic Glass</b> .....	754
<i>J. Fu, H. Shi, C. Zheng, Z. Ji</i>	
<b>Discussions about the Best Methods of Collision between Merchant Ships and Fishing Boats during Fishing Seasons Near Chinese Coast</b> .....	758
<i>X. Wang, Z. Zhou, Y. Liu, X. Wang, H. Song</i>	
<b>Direct-Estimation of Sea State Bias in Hy-2 Based on a Merged Dataset</b> .....	762
<i>X. Wang, H. Miao, G. Wang, Y. Wang, J. Zhang</i>	

<b>Study on Flow Field Performances of Oil Film Bearing in High-Speed Roll Grinder Based On FLUENT</b> .....	767
<i>H. Wu, S. Chen, X. Meng, K. Linghu</i>	
<b>Susceptibility Analysis of Earthquake-Induced Landslide Using Random Forest Method</b> .....	771
<i>T. Miao, M. Wang</i>	
<b>Systematic Digitized Treatment of Engineering Line-Diagrams</b> .....	776
<i>T. Sui, H. Qi, Q. Qi, L. Wang, J. Sun</i>	
<b>Study On Group Velocity Of Oceanic Internal Solitary Wave</b> .....	780
<i>X. Zhang, J. Wang, L. Sun, J. Meng</i>	
<b>Co-Evolutionary Multi-Objective Multidisciplinary Design Optimization For Hypersonic Vehicles</b> .....	784
<i>D. Zhang, S. Tang</i>	
<b>Entropy of Soft Sets</b> .....	788
<i>K. Qin, J. Yang</i>	
<b>Experimental Research On Flight Patterns Of Bees</b> .....	793
<i>H. Zhao, P. Zhang, Y. Ma, J. Ning</i>	
<b>Dynamic Analysis of The Mooring System For A Floating Offshore Wind Turbine Spar Platform</b> .....	796
<i>D. Zhang, K. Zhu, B. Jing, R. Yang, Z. Tang</i>	
<b>Variations of Bergman Kernels for Some Explicitly Given Families of Planar Domains</b> .....	800
<i>Y. Wang</i>	
<b>Firing Simulation Studies of Household Porcelain in Shuttle Kilns</b> .....	804
<i>Z. Zhang, J. Feng, W. Liu</i>	
<b>Dynamic Analysis of Cable-towed System During Ship in 180<sup>0</sup> U-turn Maneuver</b> .....	808
<i>Y. Zhang, K. Zhu, Y. Miao</i>	
<b>Research of the Hydrodynamic Characteristics of Ocean Spar Sea Station</b> .....	812
<i>W. Xu, K. Zhu, Y. Miao</i>	
<b>Three Dimensional Shear Stress Along Bonded Interface between Fiber Reinforced Plasticplate and Concrete</b> .....	815
<i>X. Chang, H. Xi, L. Zhang, Y. Yang, J. Zheng</i>	
<b>Parametric Study of Shear Stress Along Fiber Reinforced Plastic and Concrete Bonded Interface</b> .....	819
<i>L. Zhang, Y. Yang, J. Zheng, H. Xi, X. Kong</i>	
<b>Research and Design of Capsule-like Robot Wireless Powering System Based on Class-E Inverter</b> .....	824
<i>A. Wang, Z. Huang, Z. Yu, Q. Shao</i>	
<b>Development of Simulator for LNG Carrier Liquid Cargo Handling</b> .....	829
<i>J. Cao, X. Zhang, Q. He</i>	
<b>Automatic Cycle Identification in Speaker's Speech Breathing Signals</b> .....	833
<i>Y. Ding, D. Parham, G. Tchankwe, Y. Ding</i>	
<b>Bayesian Parameter Estimation in LDA</b> .....	837
<i>Z. Liu, Y. Wang, W. Wang, Z. Ji, W. Lu</i>	
<b>Data Acquisition and Pretreatment of Gastric Magnetic Signal Based On the Giant Magneto Impedance Effect</b> .....	841
<i>A. Wang, Z. Yu, C. Zhang, Z. Huang</i>	
<b>Research on the Current Eigenfrequencies for Motor with Bearing Fault and Mixed Eccentricity</b> .....	846
<i>J. Ma, C. Qiu, G. Cheng, Z. Xue</i>	
<b>Research on the Amplitude Features of Stator Current for Motor with Bearing Faults</b> .....	850
<i>X. Wu, C. Qiu, G. Cheng, Z. Xue</i>	
<b>Relation between a Book Review Content and Its Rating</b> .....	853
<i>P. Tanawongsuwan</i>	
<b>The Competition of Recyclers under the Take Back Legislation</b> .....	857
<i>Y. Zheng, W. Zhou, Z. Zheng, Q. Wan</i>	
<b>Application of Different Vanadium Alloys in Steel</b> .....	861
<i>P. Tian, Z. Zhong, R. Bai, X. Zhang, H. Gao</i>	
<b>An Acquisition Support System for Public Healthcare — Case Study of the U.S. Children Vaccine Program</b> .....	865
<i>H. Wang, W. Wang, D. Huo, J. Oritz, Y. Xu</i>	

## **MODELLING AND SIMULATION: TECHNIQUES AND APPLICATIONS**

<b>Planning and Control of Projects with Different Types of Precedence Relationships and a Service Level Using Stochastic Simulation</b> .....	869
<i>D. Muñoz, D.F. Muñoz</i>	

<b>A Method of Inspection Simulation Analysis Based on VERICUT in Three-Dimensional Inspection Planning</b> .....	873
<i>G.J Duan, J. Zhao</i>	
<b>Modeling, Evaluation and Simulation of a Supercapacitor Module for Energy Storage Application</b> .....	876
<i>A.. Cultura, Z. Salameh</i>	
<b>Analysis and Simulation on an ISFET with Back-Gated Structure and High-Mobility Channel Material</b> .....	883
<i>X. Wu, A. Jia</i>	
<b>Effective Discretization Scheme for the Heston Model: Implicit Solution Based Approach</b> .....	886
<i>Y. Sun, L. Ding, C. Liu, G. Zhang</i>	
<b>Dielectric Properties of Thin Tantalum Oxide Layers at Solid Tantalum Capacitors</b> .....	889
<i>I. Abuetwirat, K. Liedermann</i>	
<b>Numerical Study on Spoiler Torque Effect to a Half Buried Pipeline</b> .....	892
<i>H. Zheng, B. Shi, Q. Yu</i>	
<b>Iterative Method for Solving Nonlinear Inverse Problems of Structural Element Shaping</b> .....	894
<i>K. Bormotin, S. Belykh</i>	
<b>The Different Chemical Reaction Model Analysis in Combustion Chamber</b> .....	897
<i>Y. Zhang, Z. Li</i>	
<b>Software Modelling and Automatic Code Generation Based on Reactive State Diagram</b> .....	899
<i>M. Qu, L. Meng, X. Wu, N. Cui</i>	
<b>Numerical Simulation of Mass Ratio's Effect on Vortex-Induced Vibration of Suspended Submarine Pipeline</b> .....	902
<i>E. Zhao, B. Shi, J. Zhang, K. Cao</i>	
<b>Numerical Simulation of Hazardous Chemical Dispersion in the Industrial Area</b> .....	905
<i>M. Ko, C. Oh, Y. Han, B. Choi, K. Do, M. Kim, T. Kim</i>	
<b>3D Finite Element Analysis of Drilling of Ti-6Al-4V Alloy</b> .....	907
<i>Y. Su, D. Chen, L. Gong</i>	
<b>Optimization of Oil Channel Structure of Monolithic Radiator</b> .....	912
<i>X. Cao, Y. Jin, Z. Jiang, Y. Liu</i>	
<b>Optimization Design of the Spacing and Goose Neck Height of Radiator</b> .....	915
<i>Z. Jiang, Y. Jin, X. Cao, Y. Liu</i>	
<b>Optimal Designing of Heavy Duty Vehicle Preheater System</b> .....	918
<i>Y. Shao, Y. Li, M. Li, H. Shi, J. Wang, J. Zhang</i>	
<b>Optimization Design of Plate-Type Radiator</b> .....	921
<i>H. Shi, Y. Liu, Y. Shao, Y. Jin</i>	
<b>Numerical Simulation of Vapor-Liquid Phase Flow and Vapor-Liquid Phase Change</b> .....	924
<i>Y. Huang, S. Shi</i>	
<b>Simulation Algorithm of Shortest Match Path Based on Time Series</b> .....	928
<i>M. Wu</i>	
<b>The Research of Voltage Flicker Detection Based on IRPT and Mitigation Based on BESS</b> .....	931
<i>T. Yan, Z. Qu, P. Jia, Y. Liu, J. Hu, D. Hui, X. Lai</i>	
<b>Spatial Error Modeling and Simulation on Sheet Metal Assembly in Single Station</b> .....	935
<i>D. Yu, W. Lv, L. Zhou, X. Xu</i>	
<b>Longitudinal Effects of Entry-Level Truck Driver Training Methods</b> .....	940
<i>R. Hanowski, J. Morgan</i>	
<b>Computer Simulation of Spacecraft Onboard Equipment</b> .....	943
<i>L. Nozhenkova, O. Isaeva, E. Gruzenko</i>	
<b>The Research on Flatness Control Simulation for Cold Tandem Rolling Mills</b> .....	946
<i>X. Zhou, X. Yue</i>	
<b>Simulation of Two Stages Cascode LNA Using Ladder Matching Networks for WiMAX Applications</b> .....	949
<i>A. Ibrahim</i>	
<b>Optimization Design of Pile Supported Embankment on Soft Soil Ground</b> .....	953
<i>J. Zhao, J. Zhang</i>	
<b>An Optimized Particle Swarm Optimization (PSO) Algorithm Smoothing the Output of Wind Power</b> .....	957
<i>X. Zhang, N. Zhu, M. Yuan, J. Xu, H. Dai</i>	
<b>Simulation Analysis of the Orientation Ability for Galileo in Asia-pacific Region</b> .....	961
<i>L. Cui, Y. Lu, M. Liao</i>	
<b>Comparison between Three Different Types of Variable Step-Size P&amp;O MPPT Technique</b> .....	964
<i>B. Peng, J. Chen, Y. Liu, Y. Chiu</i>	
<b>Adaptive Fuzzy Sliding Mode Control for PMSM System</b> .....	967
<i>J. Fei, Y. Wang, Y. Xue</i>	

<b>A Single-Stage Dimmable Multi-String HB-LED Driver with High Power Factor and Temperature Compensation</b> .....	971
<i>Y. Chiu, Y. Liu, Y. Chen, S. Wang</i>	
<b>Expression of Relation of Medical Institutions and the Simulation of the Relation Recovery for Disaster</b> .....	976
<i>S. Mizuno, M. Seki, Y. Fujisawa, A. Kakehi</i>	
<b>Building Energy Efficiency Improvement via Smart Building Solutions: Introduction to Methodologies</b> .....	980
<i>D. Woradechjumroen, H. Li</i>	
<b>Multivariable Statistical Correlation Measure Applied to Association Rules Mining</b> .....	983
<i>J. Hu, H. Jian, J. Sun</i>	
<b>The Influence of Bird's Shape and Attitude on Bird-strike Analysis of Structure</b> .....	986
<i>J. Kou, F. Xu</i>	
<b>Deployment Analysis of a Deployable Truss Structure</b> .....	990
<i>X. Wang, B. Cai, H. Fang, X. Ma</i>	
<b>Modelling Kinetic Indentation in Topocomposite Surface of Elastic Rigid-plastic Solid Bodies</b> .....	993
<i>N. Voronin</i>	
<b>Analysis of Multi Aerial Targets Threaten Degree on Terminal Defense System</b> .....	997
<i>L. Chen, X. Liu, Y. Zhang</i>	
<b>Molecular Dynamic Studies of the Vacancies Interaction with the Grain Boundaries</b> .....	1001
<i>A. Dragunov, A. Weckman, B. Demyanov</i>	
<b>Hydrodynamic Peculiarities of Fluid Flows in a Human Sigmoid Sinus by Data of Phase Contrast MR-angiography</b> .....	1005
<i>A. Tulupov, V. Gorev</i>	
<b>Author Index</b>	