2013 5th International Conference on Intelligent Human-Machine Systems and Cybernetics

(IHMSC 2013)

Hangzhou, China
26-27 August 2013

Volume 1
Pages 1-600

IEEE Catalog Number: CFP1339H-POD
ISBN: 978-1-4799-0236-1
2013 Fifth International Conference on Intelligent Human-Machine Systems and Cybernetics

IHMSC 2013

Table of Contents

Volume - 1

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>xv</td>
</tr>
<tr>
<td>Committees</td>
<td>xvi</td>
</tr>
<tr>
<td>Program Committee</td>
<td>xvii</td>
</tr>
<tr>
<td>Reviewers</td>
<td>xix</td>
</tr>
</tbody>
</table>

---

**Volume 1**

A New Adaptive Filtering Algorithm Based on the Current Statistical Model ........................................3  
* Dongxu Zhu, Kai Chen, and Wenjian Gen *

A Strategic Decision Framework for Sustainability in Supply Chain ...................................................7  
* Zheng Zhaoxia, Xia De, and Guanglong Jiang *

Backstepping Based Nonlinear Adaptive Control of Magnetic Levitation System with Unknown Disturbances ........11  
* Baobin Liu and Wei Zhou *

Design and Realization of Web-Based E-Mail Subscription and Distribution System ..................................15  
* Xiaoqun Liao and Mei Zhang *

Subpixel Edge Detection: An Improved Zernike Orthogonal Moments Method .............................................19  
* Fengtao Xiang, Zhengzhi Wang, and Xingsheng Yuan *

Design of Role-Based Access Control Scheme in USB Cryptographic Card ................................................23  
* Houtao Ji, Xiaqian Guan, and Yuanlong Wang *

Fuzzy Adaptive PID Controlling of Servo Motor System Based on DSP ..................................................26  
* Jintian Yin, Li Liu, and Saimei Shi *
Research on System Model of Temperature Measurement of Stored-Cotton Based on Ultrasound Wave ..........................................................29
  Zhang Hongzhou

The Realization and Performance Analysis of RR Process Scheduling Algorithm .................................................................................................33
  Shen Xueqin

Research on Time-Sharing ZIP Load Modeling Based on Linear BP Network ..............................................................................................37
  Kankan Wang, Haixin Huang, and Chuanzhi Zang

Research of an Adaptive Particle Swarm Optimization on Engine Optimization Problem ..................................................................................42
  Dongmei Wu and Hao Gao

Security Risk Evaluation of Information Systems Based on Game Theory ..........................................................................................................46
  Hengwei Zhang, Jihong Han, Jian Zhang, and Jindong Wang

A Decision Support System Based on GIS for Flood Prevention of Quanzhou City ..............................................................................................50
  Yupeng Huang, Wenchen Lin, and Haijiang Zheng

Multi-face Detection Based on Improved Gaussian Distribution ..............................................................................................................54
  Zaiying Liu, Jie Sha, and Ping Yang

A Least-Squares Based Two-Phase Face Recognition Method ......................................................................................................................58
  Zhengming Li and Binglei Xie

Resource Scheduling Research of Polymorphism Task Based on Manycore Architecture ..................................................................................62
  Mei Luo, Xingshe Zhou, Kefeng Wang, and Xiao Wu

Adaptive Reliable Synchronization of a Class of Nonlinear Chaotic Systems .................................................................................................66
  Xin-Gang Zhao and Dan Ye

Research of P2P Network Trust Model ....................................................................................................................................................70
  Junshe Wang, Xiaolong Li, and Yun Zhang

3D Path Planning Based on Elevation Model and Ant Colony Algorithm ..................................................................................................74
  Qinkun Xiao, Yi Wang, Song Gao, and Jiantao Wang

Forecast Models and Their Comparison on Tourism Passenger of Gansu Province ............................................................................................78
  Tian Fu Peng and Wang Chun Li

Sparse Non-negative Matrix Factorization Based on Spatial Pyramid Matching for Face Recognition ............................................................................82
  Xianzhong Long, Hongtao Lu, and Yong Peng

Research of Multi-channel Programmable Photomultiplier Tube Power Supply System .....................................................................................86
  Fenghui Xu, Tiquan Sun, Juan Lu, Bin Liu, Jun Chen, and Jin Gong
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projective Synchronization and Parameter Identification of Improved Invariable-Lyapunov-Exponent-Spectrum Chaotic Systems</td>
<td>90</td>
</tr>
<tr>
<td>Kalin Su</td>
<td></td>
</tr>
<tr>
<td>A New Hybrid Clustering Algorithm Based on Stimulated Annealing</td>
<td>94</td>
</tr>
<tr>
<td>Chengji Zha, Yinan Dou, Minjie Guo, and Yue Dong</td>
<td></td>
</tr>
<tr>
<td>Dynamic Stochastic Ranking Selection Immune Optimization Algorithm for Dynamical 0/1 Knapsack Problem</td>
<td>100</td>
</tr>
<tr>
<td>Qian Shu-Qu and Wu Hui-Hong</td>
<td></td>
</tr>
<tr>
<td>The Comparative Study of Personal Online Banking Services Quality Based on Customers' Perception</td>
<td>104</td>
</tr>
<tr>
<td>Ting Lei and Yuelin Gao</td>
<td></td>
</tr>
<tr>
<td>The Global Trajectory Programming of Robot Based on Adaptive Ant Colony Algorithm</td>
<td>108</td>
</tr>
<tr>
<td>Yuanhang Peng, Zhihua Wang, Jia Jin, Pengyu Huang, and Wei Lu</td>
<td></td>
</tr>
<tr>
<td>Material Consumption Estimation of High-Rise Buildings Based on SVM</td>
<td>112</td>
</tr>
<tr>
<td>Jie Ni and Fei Tan</td>
<td></td>
</tr>
<tr>
<td>Design and Implementation of Vision-Based Intelligent Micro-vehicles Interaction System</td>
<td>117</td>
</tr>
<tr>
<td>Jianquan Bi, Yijun Zhang, Yongqiang Bai, Futong Qin, and Qicai Yang</td>
<td></td>
</tr>
<tr>
<td>Online Battery Monitoring System Based on GPRS for Electric Vehicles</td>
<td>122</td>
</tr>
<tr>
<td>Min Luo, Yong Xiao, Wei-Ming Sun, and Zhiping Wang</td>
<td></td>
</tr>
<tr>
<td>An Improved Mutual Information-Based Feature Selection Algorithm for Text Classification</td>
<td>126</td>
</tr>
<tr>
<td>Jiang Xiaoyu and Jin Shui</td>
<td></td>
</tr>
<tr>
<td>The Traffic Volume Count Algorithm Based on Computer Vision</td>
<td>130</td>
</tr>
<tr>
<td>Huasheng Zhu, Chenguang Xu, and Fan Li</td>
<td></td>
</tr>
<tr>
<td>Characterizing Service Providers Traffic of Mobile Internet Services in Cellular Data Network</td>
<td>134</td>
</tr>
<tr>
<td>Tingting Li, Jun Liu, Zhenming Lei, and Yun Xie</td>
<td></td>
</tr>
<tr>
<td>Optimization of GM (1,1) Model Based on Bilevel Programming</td>
<td>140</td>
</tr>
<tr>
<td>Bolin Chen and Hongfa Ke</td>
<td></td>
</tr>
<tr>
<td>Construction of SLR(1) Parser with Error Diagnosis and Recovery Mechanism</td>
<td>144</td>
</tr>
<tr>
<td>Haili Luo</td>
<td></td>
</tr>
<tr>
<td>A Method to Reduce the Search Space of TSP</td>
<td>147</td>
</tr>
<tr>
<td>Yong Wang</td>
<td></td>
</tr>
<tr>
<td>Adaptive Multi-scale Segmentation of High Resolution Remote Sensing Images Based on Particle Swarm Optimization</td>
<td>151</td>
</tr>
<tr>
<td>Linyi Li</td>
<td></td>
</tr>
</tbody>
</table>
A New Approach for the Three-Dimensional Single Container Loading Problem ..................................................................................................................155

Wu Xiuli, Du Yanhua, and Li Sujian

Vehicle Steering-by-Wire System’s Handling Stability Research Based on Sliding Mode Control Theory ...........................................................................................................159

Wei Zhao, Hongjian Gu, Guixiang Zhang, and Jingjing Xiao

A Maximal Clique Enumeration Based on Ordered Star Neighborhood for Co-location Patterns ..........................................................................................................................164

Yang Cheng, Zhang Tianjun, and Lu Junli

Research on Modeling Method of Agent Oriented Petri Net ..........................................................................................................................................................................................168

Chen Jian, Yang Yanli, Liu Zhiguo, Liao Shouyi, and Chen Lihua

Spectrum Prediction Based on Echo State Network and Its Improved Form ..........................................................................................................................................................172

Ling Yang, Xiaodong Liang, Tao Ma, and Kai Liu

A Real-Time Ellipse Detection Method Using GPU-Based RANSAC ..........................................................................................................................................................177

Liu Liu and Jianfeng Yang

Grey Particle Filter (GPF) for Self-Estimating Depth of Maneuvering Autonomous Underwater Vehicle (AUV) ..........................................................................................................................................................181

Ting Li, Dexin Zhao, Zhiping Huang, and Shaojing Su

High-Performance Distributed Indexing and Retrieval for Large Volume Traffic Log Datasets on the Cloud ..........................................................................................................................................................185

Wen Yang and Yinan Dou

An Association Rules Mining Algorithm on Context-Factors and Users’ Preference ..........................................................................................................................................................190

Wu Yang, Qing Liao, and Chunhong Zhang

Design of Random Test for TRNG with VLSI ..........................................................................................................................................................................................196

Houtao Ji, Mingju Liu, and Xingjiang Cao

A Research on Chaos Pricing Mechanism by Financial Market Model ..........................................................................................................................................................199

Zheng Xingchen

Research on Measurable Visual Model for Human Thinking Competencies ..........................................................................................................................................................203

Renming Qiao and Dong Han

Short-Term PV Generation System Direct Power Prediction Model on Wavelet Neural Network and Weather Type Clustering ..........................................................................................................................................................207

Ying Yang and Lei Dong

Research on Kill Efficiency of Double BVR Air-to-Air Missile Fusillade in a Complex Electromagnetic Environment ..........................................................................................................................................................212

Zhaohui Hu, Ruixuan Wei, Jixun Luo, and Jian Ding

Research on CAN Bus System Applied in Motor Vehicle Safety Performance Detecting Line System ..........................................................................................................................................................216

Jingbin Song and Haidong Wu
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuzzy Predictive Control for a Tubular Heat Exchanger System Based Multiple Models Strategy</td>
<td>220</td>
</tr>
<tr>
<td>Wei-min Qi and Jie Xiao</td>
<td></td>
</tr>
<tr>
<td>An Adaptive Weighted Least-Load Balancing Algorithm Based on Server Cluster</td>
<td>224</td>
</tr>
<tr>
<td>Ying Wu, Shuhua Luo, and Qing Li</td>
<td></td>
</tr>
<tr>
<td>Accuracy Analysis of Constellation Orientation Parameters Determination via X-Ray Pulsar Measurement</td>
<td>228</td>
</tr>
<tr>
<td>Liu Li, Zheng Wei, and Tang Guojian</td>
<td></td>
</tr>
<tr>
<td>Detection and Identifying of Meat Fresh Degree Based on NIR Technique</td>
<td>232</td>
</tr>
<tr>
<td>Guo Peiyuan, Yuan Fang, Xiang Lingzi, Wang Xikun, Lin Yan, and Bao Man</td>
<td></td>
</tr>
<tr>
<td>Mobility Performance Analysis of an Out-Door Mobile Robot with Foldable Wheels</td>
<td>236</td>
</tr>
<tr>
<td>Peng Zhang, Zhaogang Li, Ying Hu, Xin Wang, and Jianwei Zhang</td>
<td></td>
</tr>
<tr>
<td>The Optimization Selection of Correlative Factors for Long-Term Power Load Forecasting</td>
<td>241</td>
</tr>
<tr>
<td>Jiping Zhu</td>
<td></td>
</tr>
<tr>
<td>Two-Phase Spectral Clustering Based on Discretization</td>
<td>245</td>
</tr>
<tr>
<td>Qiju Kang, Ying Qian, Lijuan Sun, Hai Yu, and Jianyu Wang</td>
<td></td>
</tr>
<tr>
<td>Visual Simulation of Ground Effect</td>
<td>250</td>
</tr>
<tr>
<td>Chong Zheng, Chao Zhang, and Jihong Zhu</td>
<td></td>
</tr>
<tr>
<td>A Design of Signal Processing Circuit Based on the Duo-Lateral PSD</td>
<td>255</td>
</tr>
<tr>
<td>Amiao Shi and Yanbing Li</td>
<td></td>
</tr>
<tr>
<td>Application of Wavelet Neural Network for Chaos Time Series Prediction</td>
<td>259</td>
</tr>
<tr>
<td>Bo Zhou and Aiguo Shi</td>
<td></td>
</tr>
<tr>
<td>A HOG Feature and SVM Based Method for Forward Vehicle Detection with Single Camera</td>
<td>263</td>
</tr>
<tr>
<td>Xing Li and Xiaosong Guo</td>
<td></td>
</tr>
<tr>
<td>Data Management and Analysis of Intelligent Examination Scoring System of Simulation Training System</td>
<td>267</td>
</tr>
<tr>
<td>Wei Nie, Ying Wu, Dabin Hu, Lijun Wang, and Yudong Li</td>
<td></td>
</tr>
<tr>
<td>Decision Allocation of Formation Command and Control System</td>
<td>271</td>
</tr>
<tr>
<td>Yuefeng Liu, Shaodong Chen, and Fan’e Kong</td>
<td></td>
</tr>
<tr>
<td>Research on a Collaboration Method of Computer Generated Forces</td>
<td>276</td>
</tr>
<tr>
<td>Chen Jian, Liu Zhiguo, Yang Yanli, Chen Lihua, and Liao Shouyi</td>
<td></td>
</tr>
<tr>
<td>Gaussian Shaped Fuzzy Similarity Inference for Semantic Cell: An Affective Computing in Valence-Arousal Space</td>
<td>280</td>
</tr>
<tr>
<td>Mubarak Banisakher, Pamela Mccauley Bush, and Fuqian Shi</td>
<td></td>
</tr>
</tbody>
</table>
Trajectory Planning for Multi-robot Formation by One Hybrid Particle Swarm Optimization Algorithm

Jingwen Wang, Xuemei Ren, and Jun Liu

Clustering Ensemble of Clustering Algorithm for Large Datasets

Bencheng Yu, Zhihao Yin, Ran Wang, and Yan Chen

The Decision Optimization Model for Unconventional Emergency Based on Information Entropy

Yunhua Wang, Lei Chen, and Shihong Chen

Harmonic Detection Method Using APFFT and Neural Network

Xiaodong Zhu, Changguo Shen, and Xuemei Ren

The Application of Multi-sensor Information Fusion by Improved Trust Degree on SLAM

Fang Zhang, Changguo Shen, and Xuemei Ren

Research of Traffic Flow Model Based on Cellular Automaton

Yuan Tian and Hongyu Li

Research on Marine and Freshwater Fish Identification Model Based on Hyper-spectral Imaging Technology

Guo Peiyuan, Fu Yan, Xiang Lingzi, Bao Man, and Chen Xinghai

Design and Implementation of the Hardware Platform for Antenna Arraying Combinations

Tao He and Jing-song Meng

The Allocation Mechanism of Safety Funds for Coal Mine under Cointegration Theory

Rui Zhang and Lanlan Yin

Synchronization for an Array of Delayed Neural Networks with Coupling Failure

Xiaomei Zhang, Xueli Chang, and Lei Yan

Research of the Fuzzy Control System for Brushless DC Motor Based on TMS320F2407

Xiao-Ping Huang

Adaptive Distance Regularized Level Set Method and Its Application to Image Segmentation

Yali Yu, Youshan Qu, Yameng Han, and Jiahai Tan

Part Priority Clustering Algorithm for Large-Scale Data Set

Zhihao Yin, Bencheng Yu, Zhifeng Wang, and Wang Ran

A Battlefields Survivability Evaluation Model of Operation Information System Based on Rough Set and Multi-level Grey Theory

Jibin Li, Lin Zhao, Yanbiao Chen, and Ye Wang
Study of Assembly Automation for Strain Gauge Based on Machine Vision .................................................401
   Dechun Zheng, Yongping Zhang, Zhongkun He, Hongkang Shen, and Jianfang Shi

Learning Bayesian Network Classifier Based on Dependency Analysis and Hypothesis Testing .........................................................406
   Sun Wenjing, Yang Youlong, and Li Yangying

A Multimodal Gender Recognition Based on Bayesian Hierarchical Model ..........................................................410
   Xu Xiao-Yuan, Yu Bencheng, Wang Zhifeng, and Yin Zhihao

DDoS Defense Mechanism Analysis Based on Signaling Game Model ..........................................................414
   Xiang Gao and Yue-Fei Zhu

Gesture Recognition by Using Kinect Skeleton Tracking System ..............................................................418
   Baoliang Wang, Zeyu Chen, and Jing Chen

Study on Distributed Equipment Command Information System Based on Mobile Agent ..................................................423
   Bing Zhao, Guohua Gao, and Fei Luo

Environment Impact Evaluation of Coal Development Based on BP Neural Network ........................................................427
   Kai Guo

Multi-level Label Propagation Algorithm Based on Data Reconstruction ..........................................................430
   Minchao Zhang, Lei Zhang, Xia Sun, Shanshan Wang, and Liang Li

Modeling the Size of Candidate Matching Areas in Geomagnetic Aided Navigation .................................................434
   Peng Wang, Xiaoping Hu, Meiping Wu, and Juliang Cao

Research on Ability Evaluation Model of Compound Talents of Information Technology Based on Artificial Neural Network ..........................................................438
   Yong Zhang, Xiao Guang Li, Wei Guang Li, and Ping Ping Xiao

State of Charge Estimation for Electric Vehicle Batteries Based on LS-SVM ..........................................................442
   Hui Bao and Yang Yu

A Scene-Driven Modeling Reconfigurable Hardware-in-Loop Simulation Environment for the Verification of an Autonomous CPS ..........................................................446
   Kailong Zhang, Jiwei Li, Zhou Lu, Mei Luo, and Xiao Wu

E-Commerce Automated Negotiation Model Research Based on Multi-agent ..........................................................452
   Kang Ronglong and Jiang Tongqiang

Sine Swept Vibration Control Based on Offline Iteration Technique ..............................................................456
   Liyi Yin, Lianpeng Zhang, Dacheng Cong, and Junwei Han

A High Reliable Over-Current Protection Circuit with Low Power Consumption ..........................................................462
   Lulu Ding and Quanyuan Feng

A High-Precision, Low Offset Voltage, Delay Stability Comparator ..............................................................466
   Jing Yang and Quanyuan Feng
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control System of the Pipeline Leakage Test System</td>
<td>470</td>
</tr>
<tr>
<td>Dunghui Sun, Hongyu Wang, and Yan Hou</td>
<td></td>
</tr>
<tr>
<td>SIFT Feature Point Matching Based on Improved RANSAC Algorithm</td>
<td>474</td>
</tr>
<tr>
<td>Guangjun Shi, Xiangyang Xu, and Yaping Dai</td>
<td></td>
</tr>
<tr>
<td>The Design of Remote Experimental Platform Based on Robotic Fish System</td>
<td>478</td>
</tr>
<tr>
<td>Bin Wang, Yaping Dai, and Zengru Jiang</td>
<td></td>
</tr>
<tr>
<td>The Intelligent Integration System of Oil Equipment Information</td>
<td>482</td>
</tr>
<tr>
<td>Qingzhong Zhou and Huie Zeng</td>
<td></td>
</tr>
<tr>
<td>A New Algorithm for Physical Topology Discovery Based on STP and AFT</td>
<td>486</td>
</tr>
<tr>
<td>Gang He, Yang Liu, and Xiaochun Wu</td>
<td></td>
</tr>
<tr>
<td>Extracting and Measuring Quality of Experience Indicators of Social Business</td>
<td>491</td>
</tr>
<tr>
<td>Ying Wang, Feng Liu, and Zhenming Lei</td>
<td></td>
</tr>
<tr>
<td>Artillery Position Control through Auto Disturbance Rejection Controller Based on Fuzzy Control</td>
<td>496</td>
</tr>
<tr>
<td>Ning Peng, Yongqiang Bai, Hao Luo, and Junlong Bai</td>
<td></td>
</tr>
<tr>
<td>The Theory of Membership Degree of T-Conclusion in Propositional Fuzzy Logic Systems</td>
<td>500</td>
</tr>
<tr>
<td>Jiancheng Zhang and Lianta Su</td>
<td></td>
</tr>
<tr>
<td>An Improved Immune Genetic Algorithm for Multi-peak Function Optimization</td>
<td>504</td>
</tr>
<tr>
<td>Zongxin Jin and Hongjuan Fan</td>
<td></td>
</tr>
<tr>
<td>Selective Ensemble RSM for High Dimensional Steganographic Detection Based on FP-Tree</td>
<td>508</td>
</tr>
<tr>
<td>Tianshun Chen and Shangping Zhong</td>
<td></td>
</tr>
<tr>
<td>Exponential Topology Identification of General Complex Networks</td>
<td>513</td>
</tr>
<tr>
<td>with Time-Varying Delay via Periodically Intermittent Control</td>
<td></td>
</tr>
<tr>
<td>Shuangtao Wang, Minghui Jiang, Jun Mei, and Jiali Han</td>
<td></td>
</tr>
<tr>
<td>Human Motion Capture Data Retrieval Based on Quaternion and EMD</td>
<td>517</td>
</tr>
<tr>
<td>Qinkun Xiao, Junfang Li, and Qinhan Xiao</td>
<td></td>
</tr>
<tr>
<td>Emergent Decision Reports Using a Fusion Protocol: A Mathematic Solution to Help Decision Making</td>
<td>521</td>
</tr>
<tr>
<td>Jérôme Lacaille</td>
<td></td>
</tr>
<tr>
<td>Integrated Design of Interceptor Guidance and Control Based on L1 Adaptive Control</td>
<td>525</td>
</tr>
<tr>
<td>Haitao Song, Tao Zhang, Guoliang Zhang, and Changjie Lu</td>
<td></td>
</tr>
<tr>
<td>The Isomorphism of Some Kind of Transformation Graph</td>
<td>529</td>
</tr>
<tr>
<td>Xiusong Gu, Dandan Xu, and Bei Chen</td>
<td></td>
</tr>
<tr>
<td>Interception Analysis of Radar Countermeasure Reconnaissance System</td>
<td>532</td>
</tr>
<tr>
<td>Chenglong He, Xia Zhu, and Guilin Zhang</td>
<td></td>
</tr>
</tbody>
</table>
2013 5th International Conference on Intelligent Human-Machine Systems and Cybernetics

(IHMSC 2013)

Hangzhou, China
26-27 August 2013

Volume 2
Pages 1-590
Preface.......................................................................................................................................................xv
Committees............................................................................................................................................xvi
Program Committee..........................................................................................................................xvii
Reviewers...............................................................................................................................................xix

Volume 2
Research on the Key Technique of Three-Dimensional Measurement Based on Laser Ranging ........................................................................................................................................3
  Xiuhua Li, Wenfu Wu, Junrong Guo, and Liming Song
The Method and Development Trend of Laser Ranging ........................................................................7
  Xiuhua Li, Wenfu Wu, Junrong Guo, and Liming Song
Hyperspectral Data Unmixing Algorithm Comparative Analysis Based on Linear Spectral Mixture Model ..........................................................................................................................11
  Cheng Baozhi
Simulation Test of Filtering with Uncertain Observations for Target Tracking in WSN .................15
  Zhiyu Gao and Hongyan Yu
Design of Stable T-S Fuzzy Controller for a Nonlinear Inverted Pendulum System ..........................19
  Omid Naghash Almasi, Mohsen Shadman, Omid Abri Avval, and Assef Zare
Human Motion Reconstruction Based on Multi-view Video ............................................................23
  Qinkun Xiao, Dan Luo, and Qinhan Xiao
Application Research on High Voltage Switch Cabinet Based on Fiber Bragg Gratings Temperature Measurement System ................................................................. 27
   Xiupeng Zhang, Handong Li, and Hao Yu
Reliability Model of Distribution Network with Distributed Generation ...................................................... 31
   Ninghui Guo and Lijun Qin
Altruistic Behavior in Complex Network Based on Reputation and Future Expectation ................................................................. 35
   Dongwei Guo, Yun Zou, Yunna Wu, and Miao Liu
Research of Software Simulation Experiment Platform Based on ARM Embedded System ................................................................. 39
   Xiaohui Cheng, Zhonghai Ruan, and Junjie Gu
New Results of Robust H-Infinite Control for Several Delays Stochastic Systems with Uncertain Nonlinear Perturbations ................................................................. 43
   Changjie Zhou, Lianqing Su, and Junkang Hao
The Application of Variance Contribution Method in Mid-long Term Power ................................................................. 48
   Jiping Zhu
Research on Robot Manipulator Servo Control Based on Force and Vision Sensing ................................................................. 52
   Yanxia Zhang and Chaojun Wang
Adaptive Sliding Mode Control for Hydraulic Flexible Manipulator Based on Two-Parameter Singular Perturbation Method ................................................................. 57
   Meng Wang, Yuanchun Li, Xiaolin Ren, and Yuanchun Li
A Finite Automata Based Method for Autonomous Star Identification ................................................................. 61
   Hang Yin, Ye Yan, and Xin Song
Detecting Cracks of Preserved Egg Based on Polarized Light ................................................................. 66
   Wang Fang, Tan Zuojun, Cheng Fei, and Wen Youxian
Study on the Geomagnetic Features for Matching Suitability Analysis ................................................................. 70
   Peng Wang, Xiaoping Hu, Meiping Wu, Jiliang Cao, and Haiping Yuan
Construction of QC-LDPC Codes on Combinatorial Sequences ................................................................. 74
   Fu Chenghua and Li Xiuli
Image Processing of Interval Velocity Based on Improved Dix Formula ................................................................. 79
   Guangxuan Chen, Yanhui Du, Lei Zhang, Panke Qin, and Jin Du
A New Route Searching Method for EVs Considering Electric Motor Efficiency and Charging Stations ................................................................. 83
   Wu Zhihong, Wang Qi, Zhu Yuan, and Du Meidan
Application of Fuzzy Beliefs in Threat Assessment of Aerial Targets ................................................................. 87
   Jian Gao, Weitai Liang, and Jinpei Yang
Rapid Evaluation Algorithm of Station-Keeping Control Results for Three-Axis Stabilized GEO Satellites............................................................................................................................93
Zheng Jun, Luo Dan, and Li Yuheng

Research of Data Mining in Cloud Environment ............................................................................................................................97
Hongbo Yu, Yihua Lan, Xingang Zhang, Zhidu Liu, Chao Yin, and Changlin Long

Research and Application on Intelligent Parking Solution Based on Internet of Things ..............................................................................................................................101
Yanlin Yin and Dalin Jiang

Research on Air Suspension System Based on PID Control ..........................................................................................................................106
Yang Nianjiong

A New Adaptive Parallel Genetic Algorithm ............................................................................................................................110
Li Junqing, Du Wencai, and Cai Mei

The Analysis of Library Information Service Based on Web 3.0 ..........................................................................................................................114
Jianguo Zhang

Information Extraction of Forum Based on Regular Expression ..........................................................................................................................118
Gang He, Yingwei Zhang, and Xiaochun Wu

3D Facial Expression Recognition on Curvature Local Binary Patterns ..........................................................................................................................123
Yiding Wang and Meng Meng

The Operations Monitoring Platform of HLA-Based Simulation Training System ..........................................................................................................................127
Wenbing Yang, Yuanchang Zhu, Yanqiang Di, Shaochong Feng, and Lin Yang

Analysis of Communication Operators Transformation on Smart Pipe ..........................................................................................................................131
Zihao Yang and Zhiyu Ma

Mammographic Mass Segmentation Using Variational Method ..........................................................................................................................135
Jinxin Wan, Yihua Lan, Rongsheng Zhao, and Yangdong Wu

Research and Application on Job Shop Planning Based on Improved Glowworm Swarm Optimization Algorithm ..........................................................................................................................139
Lvying Jing, Hong Song, and Xisheng Lv

The Three-Dimension Path Planning of UAV Based on Improved Artificial Potential Field in Dynamic Environment ..........................................................................................................................144
Xia Chen and Jing Zhang

The Method of Multi Unmanned Aerial Vehicle Cooperative Tracking in Formation Based on the Theory of Consensus ..........................................................................................................................148
Xia Chen and Chong Zhang

Application of Genetic Algorithm in Automatic Train Protection ..........................................................................................................................152
Liu Xiao, Zhang Ya-Dong, and Guo Jin

Motor Fault Diagnosis Based on MMAS-Optimized Integration Neural Network ..........................................................................................................................155
Yao Peng, Yixin Su, Fei Long, Min Hong, and Yin Ai
Research on Precise Positioning of Home Service Robots ......................................................159
Shiyi Geng and Quanxi Li

T-Norm Based Cuts of Interval-Valued Fuzzy Sets .................................................................163
Ju Hongmei

Guangyan Xu and Tingting Yu

Dynamic Modeling and Stiffness Coefficient Analysis of a 3-DOF Flexible Joint Space Manipulator .................................................................................................................................171
Guangyan Xu and Changming Sun

Forward Kinematics Analysis of the Stewart Parallel Platform Based on the Elman Recurrent Network ..........................................................................................................................175
Xinxin Guo, Guixi Ke, Fengwu Zheng, and Lijie Zhang

Share Allotment Financing Efficiency of Listed Companies Based on Data Envelopment Analysis .................................................................................................................................178
Zehong Li and Suyu Li

The Application of S7-200 PLC Reactive Compensation Device in Small Substation .................................................................................................................................182
Qinghe Chu, Weixian Li, and Xiubo Niu

The Design and Implementation of Tank Agent in Combat Simulation ......................................186
Zhao Shi, Liaoning Zhang, Rongli Xiao, Qu Yang, and Zhang Zheng

Integral Channel Features for Particle Filter Based Object Tracking ......................................190
Hao Zhang and Long Zhao

The Simulation and Analysis of a Hydraulic Servo System Based on the Method of ALQR .................................................................................................................................194
Xinxin Guo, Fengwu Zheng, Chunlong Yang, and Lijie Zhang

Selective Encryption for Cartoon Images ..................................................................................198
Tiejun Zhang, Ahmed A. Abd El-Latif, Qi Han, and Xiamu Niu

Synchronization of T-S Fuzzy Singular Complex Dynamical Networks with Time-Varying Delays ..........................................................................................................................202
Jiali Han, Minghui Jiang, Jun Mei, and Shuangtao Wang

Directed Interaction Tests for Time-Series Analysis Based on VAR Model ..................................206
Zhuqing Jiao, Ling Zou, Yang Chen, and Zhenghua Ma

A Power Decoupling Circuit Research Based on Interleaved Parallel Flyback Micro-inverter .................................................................................................................................210
Song Gao, Wei Wu, Ning He, and Chaobo Chen

A Q,R Search Method for an Unmanned Helicopter Based on LQR .............................................214
Benfu Wang, Xiangyang Xu, Yaping Dai, and Guangjun Shi
The Movement Model of the Knee Joint during Human Walking ............................................................. 218
   Lingyan Zhao, Shougang Huang, Yutao Xu, Jin Li, and Lingtao Yu

Research on Three-Phase Inverter SVPWM Modulation Based on FPGA .............................................. 222
   Chunyuan Wang, Tao Tian, and Yuanqian Ye

A Design Model for Multi-objective Optimization of Photovoltaic Battery Configuration Problem .............................................................. 226
   Jie Heng

T-S Fuzzy Modeling Method Based on C-Means Clustering ................................................................................... 230
   Zhang Li, Han Liang, and Bao Zengjun

Formation Tracking for Multiple Quadrotor Based on Sliding Mode and Fixed Communication Topology .............................................................................................................................. 233
   Rabah Abbas and Qinghe Wu

Using Least-Square Policy Iteration to Online Optimize the Parameters of ALV’s Speed Controller .............................................................. 239
   Qi Zhu, Jian Wang, Bin Dai, and Xin Xu

The Study of Association Rule Mining Technology in Hospital Information System Analysis .............................................................. 245
   Shunmin Wang

The State Trend Monitoring Model of Emergency Response Process in Unconventional Emergency .............................................................. 249
   Lei Chen, Yunhua Wang, Yu Liu, and Shihong Chen

Research and Realization of an Anti-noise Auto-focusing Algorithm ................................................................................... 255
   Qinghua Zhao, Bo Liu, and Zhaohui Xu

Torpedo Guidance System Multidisciplinary Design Based on IDF ................................................................................... 259
   Zhang Yong-ping, Zhang Jing-yuan, and Yin Wen-jin

Extended K-Means Algorithm .............................................................................................................................. 263
   Faliu Yi and Inkyu Moon

Research on the Production Scheduling for Automobile Parts Based on Hybrid Algorithm .............................................................. 267
   Bing Li, Wei Zhang, Xingsheng Gu, and Lulu Cong

A Preliminary Analysis of the Aging Dorsal Hand Vein Images ................................................................................... 271
   Yiding Wang and Huaigeng Zheng

Research on Digital Etiquette Based on Human-Computer Interaction ................................................................................... 275
   Chunlei Chai, Fei Cen, and Lingyun Sun

Optimization for Mining Right Evaluation Methods .............................................................................................. 279
   Kun Chao

Research on Information Resources Management Model of Youth Entrepreneurship Services Platform .............................................................. 283
   Xiaopeng Ji, Zhao Liu, Dongning Jia, Zhiqiang Wei, and Chao Song
Segmentation of Blood Cell Micrograph Based on Geodesic Active Contour .........................................................287
   Tan Yong

The Analysis of Seismic Signal Spectrum Based on ZFFT .........................................................................................290
   Yongxia Yang, Xian Li, and Guangping Tian

Content-Based Recommendation System Based on Vague Sets .................................................................................294
   Fujiang Sun, Yu Shi, and Weiping Wang

Automated Diagnosis of Alzheimer’s Disease with Degenerate SVM-Based Adaboost .............................................298
   Lei Huang, Zhifang Pan, Hongtao Lu, and Adni

ENG-Based Signal Processing and Neural Decoding Algorithms for Rehabilitative Prostheses Control ......................302
   Yangyang Guo and Wei Li

Electromagnetic Compatibility Supernetwork Modeling and Node Importance Evaluation ........................................306
   Jian Lin, Fei Dai, Baichao Li, and Wenjie Li

The Effects of Inducing Strategies on Cooperation in Prisoner’s Dilemma Games .........................................................311
   Fujiang Sun, Qiqing Song, and Ling Jing

The Application of an Improved Chaos-Particle Swarm Optimization Algorithm to the Real Submersible Path-Planning 316
   Fei Yu, Meikui Zou, and Chongyang Lv

Analytical Solution of a Super Low Satellite Orbit Disturbed by Atmospheric Drag Considering J2 Perturbation ..........320
   Teng Yi, Ye Yan, Shenglin Wen, and Yang Zhou

Embedded Motion Controller Design Based on RTEX Network .................................................................................326
   Ruifeng Li, Shiyao Lin, and Jian Chen

Automatic Facial Expression Recognition Using SVM Based on AAMs ......................................................................330
   Li Wang, Ruifeng Li, and Ke Wang

Pedestrian Detection Based on Motion Compensation and HOG/SVM Classifier .....................................................334
   Fen Xu and Feng Xu

Sliding Mode Observer Design for Flexible Joint Manipulators ................................................................................338
   Jian Chen and Ruifeng Li

The Splitting and Matching Algorithm of Dynamic Path Oriented the Function Calling Relationship .......................343
   Yongmin Mu, Huili Li, Bing Jiang, Xuefei Liu, and Miao Wu

Analysis of Input Variable’s Influence on Control Condition in Automatic Test ....................................................347
   Ang Liu, Yongmin Mu, Xuefei Liu, and Zhihua Zhang
Test Case Coverage Analysis of UOF/OOXML Translator Based on Path ................................................... 351
   Yanan Zhang, Yongmin Mu, Yin Liu, and Peisheng Yan

An Algorithm for License Plate Location Based on Color and Texture ......................................................... 356
   Chang Tan and Jun Cao

Optimal Design of Mobile Sensor Networks Based on Resource Constraint and Mobility ................................... 360
   Changlin Ma, Yuan Ruan, and Huajing Fang

Software Design of Brushless DC Motor Control System Based on DSP ......................................................... 364
   Fazhen Song, Yu Wang, and Haiqing Cao

Research on the Mechanism of Internet Public Opinion Risk Evolution and Management for Chinese State-Owned Enterprise .......................................................... 368
   Guangrong Li

Camera Calibration Method Based on Laser Ranging .......................................................................................... 374
   Liming Song, Wenfu Wu, Junrong Guo, and Xiuhua Li

Research on Sub-pixel Location of the Laser Spot Center .................................................................................. 378
   Liming Song, Wenfu Wu, Junrong Guo, and Xiuhua Li

Modeling and Design of Networked Control Systems Based on Reduced Dimension Observers .......................... 382
   Lei-ming Liu, Chao-nan Tong, and Chao-nan Tong

Study on UHF RFID Authentication Protocol .................................................................................................. 386
   Yuanyi Dang, Angang Zheng, Zhenliu Zhou, and Yunlong Yi

Survey on Camera Calibration Technique ......................................................................................................... 389
   Liming Song, Wenfu Wu, Junrong Guo, and Xiuhua Li

Construction of Complex Networks Based on Evolutionary Set Theory ......................................................... 393
   Dongwei Guo, Bo Zhang, Miao Liu, and Rui Guo

The Research Survey of System Identification Method ........................................................................................ 397
   Li Fu and Pengfei Li

Auto Disturbance Rejection Control for a Variable Speed Refrigeration System .................................................. 402
   Yudong Li, Dabin Hu, Ying Wu, Yang Gao, and Dingji Weng

Approach for Parking Spaces Detection Based on ARM Embedded System .................................................... 406
   Yucheng Li, Guohui Li, and Xingcai Zhao

A Novel Image Denoising Algorithm Based on Anisotropic Diffusion Equation ............................................. 410
   Haozheng Ren Hongbo, Hongbo Yu, and Yihua Lan

A Dynamic Coupling Network of Object-Oriented Software ............................................................................ 414
   Huan Li

A Behavior-Based Controller for a Mobile Robot Tracking a Moving Target in Multi-obstacles Environment ................................................................. 418
   Karim Benbouabdallah and Qi-Dan Zhu
Research on Coal Mine Safety Risk Assessment Based on ART-2 Neural Network .....................................................................................................................................................424  
  Guangrong Li  
Evaluation of Airline Pilots’ Safety Behaviors Based on Fuzzy Neural Network .....................................................................................................................................................429  
  Guozheng Zhang, Dongfeng Chen, and Yu Feng  
Research of Public Opinion Spread Based on Non-rational Game .....................................................................................................................................................433  
  Dongwei Guo, Yunna Wu, Yun Zou, Jing Chen, and Miao Liu  
Topology Performance Analysis of Zigbee Network in the Smart Home Environment ..............................................................................................................................................437  
  Chenyan Zhang and Wenguang Luo  
Research on the Digitization of Urban Mass Transit Emergency Disposal ..............................................................................................................................................441  
  Hongfei Yu, Yong Qin, Ziyang Wang, and Miao Du  
Multi-table Pivoting Algorithms for Solving Linear Bilevel Programming Problems .....................................................................................................................................................445  
  Zhaolin Jin and Zhongzhen Zhang  
Weight Based KNN Recommender System .....................................................................................................................................................449  
  Bin Wang, Qing Liao, and Chunhong Zhang  
An Enhanced Infrared and Visible Image Fusion Method Based on Wavelet Transform ..............................................................................................................................................453  
  Fan Xu and Siuqin Su  
Dynamics and Control Research of Rotary Table Based on Virtual Prototype ..............................................................................................................................................457  
  Zifan Fang, Dexin Wu, Huapan Xiao, Hui Li, Kongde He, and Weihua Yang  
Study on the Reconfiguration Paths of Knowledge Resources in Failure Projects .....................................................................................................................................................463  
  Xuanxuan Xu  
Research on Control Strategy of Photovoltaic Grid-Connected Inverter ..............................................................................................................................................467  
  Ziqiang Xi, Ming Deng, and Kaicheng Li  
Design of Master-Slave Active Power Filter Control System Based on Concerto+FPGA ..............................................................................................................................................470  
  Ziqiang Xi, Zhenren Xiao, and Kaicheng Li  
Evolutionary Design of an Analog Filter .....................................................................................................................................................474  
  Xuehua Zhang and Yao Li  
Search Engine Marketing Technology Data Validation Evidence from BAIDU ..............................................................................................................................................478  
  Lv Peng, Sun Xue Zhu, and Shang Zhong Yang  
Application of Pretreatments in Prediction Models of Raman Spectra ..............................................................................................................................................482  
  Chongyang Li, Wang Lin, Yangfan Shao, and Yuanming Feng  
A Scallop Recognition Method Based on Fuzzy Theory .....................................................................................................................................................486  
  Honglei Wei, Mei Yang, and Xiaodan Liu
Research of the Variable Step Size Algorithm of Antenna Tracking Satellite for SATCOM On-the-Move ................................................................. 490

Chao Chen and Yu Wang

An Automatic Electronic Nursing Records Analysis System Based on the Text Classification and Machine Learning ............................................................. 494

Zhang Wei, Zheng Xian Ju, Xie Chun, Jiang Hua, and Peng Jin

Research on the Image Acquisition and Camera Control of Machine Vision Camera Based on LabVIEW ........................................................................... 499

Yupeng Xu and Feihong Yu

Data Fusion of the Real Time Positioning System Based on RSSI and TOF .................................................................................................................... 503

Zhe Dong, Yao Wu, and Dehui Sun

Feature Ordering for Neural Incremental Attribute Learning Based on Fisher’s Linear Discriminant ................................................................. 507

Ting Wang and Sheng-Uei Guan

An Auto-adaptive Threshold Pre-detection SUSAN Corner Detection Algorithm .......................................................... 511

Liangyu He and Xingyu Zhou

Mathematical Modeling for Time Synchronization in WirelessHART Networks: Survey and Research Challenges .......................................................... 515

Sheng Zhang, Ao Yan, and Tianming Ma

Research on Optimized RBF Neural Network Based on GA for Sewage Treatment ................................................................................................. 520

Bing Li, Lulu Cong, and Wei Zhang

A Maneuvering Target Tracking Method Based on RBPF .......................................................... 524

Xingxing Zou, Yacong Zheng, Xiaomeng Zhang, and Zengqiang Ma

Improved Self-Adaptive Edge Detection Method Based on Canny ...................................................................................................................... 527

Geng Hao, Luo Min, and Hu Feng

Relaxation Analysis of Two Hinged Ends Micro-plate Based on Euler-Bernoulli Equation ...................................................................................... 531

Zhu Xiaowei and Sun Liming

Analysis and Countermeasures to Flight Delay Based on Statistical Data ........................................................................................................ 535

Xi Geng

Synthetic Time Series Resembling Human (HeLa) Cell-Cycle Gene Expression Data and Application to Gene Regulatory Network Discovery .... 538

Gary Hak Fui Tam, Yeung Sam Hung, and Chunqi Chang

Asymmetric Regular Sampling PWM Pulse Generator Based FPGA ..................................................................................................................... 542

Ziqiang Xi, Chenguang Yu, and Kaicheng Li

Adaptive Neural Network Control for Uncertain Nonlinear Systems with Asymptotic Stability Guarantees ............................................................. 546

Lin Niu
An Improved Approach for Non-invasive Blood Pressure Measurement
System ......................................................................................................................................................550
   Deng Chen, Liang Jianru, Ding Daming, and Wang Chaobin

An Adaptive On-Line Inspection Method Based on Singular Value Decomposition ..........................................................554
   Zhanglei and Lin Shuzhong

An Energy-Balanced Graph Routing Algorithm for WirelessHART Networks ..............................................................557
   Sheng Zhang, Ao Yan, and Tianming Ma

The Fuzzy Control and Simulation of Wind Turbine Variable-Pitch ...........................................................................561
   Binqiao Zhang

Interpolation of Head-Related Transfer Functions Using Neural Network ...........................................................565
   Xiaoli Zhong

Advanced Control Technologies in Cyber-physical System ......................................................................................569
   Keliang Zhou, Cen Ye, Jiafu Wan, Binbin Liu, and Ling Liang

Biologically-Inspired Aging Face Recognition Using C1 and Shape Features ..............................................................574
   Shaoyu Wang, Xiaoling Xia, Yongfeng Huang, and Jiajin Le

Research on Financial Performance of Chinese Expressway-Listed Corporation-Based on the Factor Analysis Method ........................................................................................................................578
   Hongming Chen and Fen Liu

Empirical Study on Financial Risk Identification of Chinese Listed Companies Based on ART-2 and SOFM Neural Network Model ......................................................................................582
   Guangrong Li

Author Index. ...........................................................................................................................................................586