

Table of Contents

Preface and Committee

Chapter 1: Information Science and Automation

An Expert Controller Based on Transient Response Patterns N. Zhang and R.H. Liu	3
Hierarchical and Hybrid Topology P2P Model Based on Chord Protocol and Interest Subnet M.P. Gao and Y. Xu	8
Development of a Evaluation System for Evaluating the Performance of Road Networks in CBD Using the Maximum Entropy Theory J.X. Shen and C.J. Zheng	13
The Construction of E-Portfolio Based Web Autonomous Learning Environment L. Li and K.L. Wang	18
The Usability of Multimedia Electronic Atlas User-Interface Design Q.Z. Sun, R. Li, Y.L. Ma and Z.B. Ren	22
Simulation Design of Monitoring System on Aircraft Sudden Failure Z.S. Wang and B. Chen	27
Analyzing the Supplier' Competition Behavior in Outsourcing Service S.L. Chen	31
Treatment of Pharmaceutical Wastewater by Potassium Permanganate G.T. Li and Y.M. Ying	36
A Research on Dynamic Scheduling Algorithm of Real-Time Operating Systems on Uniprocessor K. Shang and H. Ding	40
The Analysis and Avoidance of Concurrent Processes Deadlock K. Shang and K. Zhang	45
Three-Dimensional Sonar Imaging Software on the DSP K. Shang and K. Zhang	49
K-Connected Target Coverage Problem Based on Clifford Algebra in Wireless Sensor Networks W.M. Cao, X.F. Li and M.W. Wang	53
Anti-Jamming and LPI Radar with Spread Spectrum Technology L.Q. Fu, L.S. Yang, Y.N. Ma and T. Wang	57
Online Fuzzy Intelligent Control Based on Resultant Cutting Force in the End Milling M.Y. Li, H.Y. Fu and Z.Y. Han	61
Self-Embedding Watermark for Image Restoration Based on Repeat Correcting Code X.W. Xia, Z.G. Xiong and Z.M. Li	66
Relationship between Riverway's Fractal Dimension and River Flood of the Lower Yellow River J. Hu, L. Han, Q.F. Gao and P.J. Liu	71
Hardware Design with Mechatronics Method for Real-Time PCRs N. Zhang and J.H. Wang	76
The Research of Simulation of Transport Process W. Lu	80
The Research on Media Audience Market Segmentation Based on Cluster Analysis W. Lu	84
Chaos Analysis and Control of Permanent Magnet Synchronous Motors W. Xue and Y.L. Guo	88
A Comparison of Psychoacoustical Evaluation Methods for Vehicle Engine Noises Based on Wavelet Shrinkage Denoising Technique Y.S. Wang, Y. Yan, Z. Qiu and J. Zhang	93

Web Fuzzy Clustering Processing Model K.X. Xie and T.G. Chen	98
Empirical Study on the Impact of Split-Share Structure Reform on the Performance of Chinese Listed Companies S.B. Yan, J. Guo, C.Q. Song and W.Q. Zhu	103
The Feasibility of Researching Computer Network Data Backup and Disaster Recovery J.L. Wang and W.Z. Hou	107
The Research on the EC Individual Credibility Based on Linear Discriminant Analytic Hierarchy Process Z.Q. Yang and H. Lin	112
Application of Simulated Annealing Algorithm in Tracking Convective Cloud Images from Chinese FY-2C Satellite X.F. Pei, L. Li, X.L. Zhang and N. Li	116
A Virtual Layered Scenario for Real-Time Information System Design Q.D. Sun, W.X. Ma, J.W. Huang and W. Chen	121
Researches on a Class of Thermo-Viscous-Elastic Anisotropic Dissipative Material System Equation S.X. Deng and Z.W. Wang	126
Fractional Modeling Approach of Course Evaluation C.N. Zhao, M.H. Wu, Y. Zhao, Y.S. Li and L.M. Luo	130
The Industry Combination Selection Method in Diversified Investment of Power Generation Group C.M. Liu and Y. Wang	135
Research on the IDE of Visual Programming Language Y.B. Liu and X.F. Dong	140
Study on Incentive Mechanism of Large-Scale Dredging Project Based on Fairness Preference B. Zhou and Z.G. Zhang	144
Classification with Local Clustering in Imbalanced Data Sets H. Ji and H.X. Zhang	151
An IDS Alert Aggregation Method Based on Clustering Q.H. Zheng, Y.G. Xuan and W.H. Hu	156
A New Similarity Measures of Intuitionistic Fuzzy Sets and Application to Pattern Recognitions Y.B. Gong	160
Defaultable Binary Tree Algorithm for Convertible Bond with Finite Maturity L. Li and L.L. Wang	165
Image Acquisition for Pressed Protuberant Characters on Metal Label G.P. Li, H.G. Liu and C.S. Ai	170
The Diversification Performance Evaluation of Listed Electric Power Corporations Based on DEA Model C.M. Liu and J. Li	174
The Implementation of Lunar Rover's Trajectory Tracking Control of Based on Trigonometric Spline Wavelet L. Wei and Q. Guo	179
Personalized Web Data Mining System B. He	183
Study on Intermittent Target Tracking in Fire-Control Radar Network J.L. Xiong, Z.Z. Han and H. Xu	187
Fast Distributed Algorithm of Mining Global Frequent Itemsets B. He	191
The Effect of Aging Heat Treatment on the Sliding Wear Behavior of Cu-Al-Fe-(x) Alloys G.F. Mi, J.Z. Zhang, S.L. Lv and P. Wang	195
Constructing Domain Ontology of E-Business Based on Rough Concept Lattices H.S. Xu and J. Song	202
Diagnosis and Reconstruction on Institutional Culture of State-Owned Forestry Enterprises Y.F. Wang	206

Combining Grey Relation Analysis and TOPSIS for Evaluating the Survivability of Networked Information System	210
C.L. Zhao, Y.H. Liu, Z.H. Yu and H. Li	
The Research of Embedded Techniques in Control Systems of Service Robots	214
L.J. Hu, H. Song, X.H. Zeng and W. Li	
Multi-Layer Model for Network Fault Detection Based on Artificial Immune	219
Y.L. Tian and X.F. Yuan	
Overlay Algorithm for Simple Subdivision of Arbitrary Polygon in Plane	223
X.J. Guo, L. Chang and Y.L. Gao	
Mechanical and Thermal Properties of Nano-SiO₂/PA66 Composites	228
X.C. Hu, X.M. Xu, Y.D. Zhang, B.J. Li and Z.J. Zhang	
Simulation Study on Bad Cutting State Criterion of Sugar Cane	235
X.C. Hu, L.X. Zheng, Y. Yuan and M. Lian	
A Novel CNC Interpolation Algorithm for Saddle Curve	239
H.T. Li and X.C. Tian	
Seismic Structural Damage Detection Based on Time Frequency Response Function	243
B.S. Wang, L. Sun and Z.W. Chang	
Research on the Regional Low-Carbon Industrial Development: A Case of Tianjin Binhai New Area	250
X.Y. Cui, H.M. Li and L. Wang	

Chapter 2: Industry and Computer Application

Reflecting on Native Culture Involvement in Current College English Textbooks	257
C.M. Wu	
A Subgraph-Based Selective Classifier Ensemble Algorithm	261
K. Li and H.T. Gao	
An SEU Hardened FIR Filter Based on Triple Modular Redundancy	265
W.H. Yang, J. Wang and L.F. Huang	
Establishment of Performance Evaluation Indicators System and its Weighting Coefficient Determination Method	271
Y.C. Ren, T. Xing and X.J. Chen	
System Fuzzy Control and Fault Diagnosis Technology Based on TRIZ Theory	275
L.Y. Li, M.L. Wang, Y. Liu and Y. Chang	
Application of Modern Teaching Method in Structure of Hydroelectric Power Station in Vocational College	279
Y.X. Tao and J.L. Tan	
A Novel Trajectory Control Algorithm for Intersection Seam Automated Welding	284
X.L. Yi and X.C. Tian	
Uncover the Core Conception of Dematerialization and its Measurement in China	289
L. Wang	
Experimental Analysis of Electro-Mechanical Characterization of Piezoelectric Stack Actuators	293
H.Q. Ye and R.M. Pan	
Integral Input-to-Output Stability for one Class of Discontinuous Dynamical Systems	298
X.W. Mu and Y. Gao	
XML Document Clustering Based on Spectral Analysis Method	304
X.Y. Li	
Prediction of Cutting Deformation Based on Annealing Neural Network	308
Y. Liu, H.M. Yu, W.X. Jian and H. Tian	
Identifying Damage of the Benchmark Structure by Using Artificial Neural Network Methods	312
B.S. Wang	
Research on Flywheel Sets on Electromagnetic Eddy Current Retarder Test-Bed	318
Y.D. Hu	
Computer Simulating Effluent Quality of Vertical Tube Biological Reactor Using Support Vector Machine	322
J. Zhang, J.T. Zhou, Y.M. Li and H. Yang	

How to Promote Employment by Developing Recycle Economy J.L. Yu and Y.J. Li	327
Multi-Source Marine Environment Data Sharing Prototype System Framework and Visualization Applying Study Based on Web Service F. Yang, Y.X. Tao, Y.Y. Du and R.L. Xiao	331
Mechanical and Tribological Properties of Fiber Reinforced Ekonol Composites F.Y. Sun, Q.M. Wang and J.J. Qu	337
Study on Solid Model Methods and Techniques of AutoCAD S.M. Zhang, W.Q. Chu and X.F. Dong	341
MATLAB Calculation of Hydraulic Transients in Hydropower Simulation Application H. Lei and Y. Li	346
A Game Incentive Scheme Integrating Punishment in Vehicular Ad Hoc Networks J.S. Gui, Z.G. Chen and X.H. Deng	351
Discussion for Humanized Design in Multimedia Teaching X.K. Liu	358
Study on a New Nonlinear H_{∞} Guidance Law for Autonomous Underwater Vehicle H. Ding, K.P. Liu and W.L. You	362
Tactics on the Development of Modern Agricultural Logistics in Central China S. Xu	366
Introducing Psychological Factors Paper-Making Enterprises Optimal Scheduling Model M.H. Li and X.K. Meng	370
A Hybrid Method Based on PSO and FCM for Transformer Fault Diagnosis Using Dissolved Gas X.C. Guo, Q. Song and F.W. Zhang	375
A New Model Reduction Method for Time-Delay Systems L.F. Sun, X.H. Meng and F.F. Zhang	379
Development of the On-Line Monitoring System for Fuel Cell Voltage J. Li, H. Pan, S.J. Zhang and L.F. Sun	383
Measurement-Based Research on User Behavior of P2P VoD System Y. Zheng and C.J. Chen	387
Generating Real-Time Responsive Balance Recovery Animation R.F. Ma	391
The Study of Score Analysis for Secondary School Based on Data Mining Technology S.F. Hao, Z.Q. Zhang and Y.H. Wei	396
Offset Line Method-Based Study on Visualization of Steep Terrains on Loess Plateau in Shanxi Province W.D. Zhao, J.Z. Qian and C.Y. Zhou	400
A Valid Path Strengthening Counselor Team Building the Improvement of Actual Effect of Ideological and Political Education J. Yang	404
Attempt to Discuss New Period View of Vocational Selection on University J. Yang	408
A Highway Safety Level Evaluation Model Based on Matter Element Analysis Z.B. Qin, Z.H. Liu and Y.Y. Peng	412
Conceptual Design of a Coke Dry Quenching Gasification Technology L.Y. Sun, Y.D. Liu, H. Zhou and Q.S. Li	416
Log Defect Detection Based on Wavelet De-Noising and Mathematical Morphological Optimization Algorithm N.X. Yang and D.W. Qi	420
Sensitivity Analysis of an Energy-Efficient Heat Coupled Distillation Column L.Y. Sun, J. Li, X.N. Liu and Q.S. Li	424
Unequal Interval GM(1,1) Model of Weighted Coefficient Adjustment and its Application B. Zeng and L.F. Li	428
GIM(1) Model and its Application B. Zeng and W.J. Zeng	432
Dynamic Data Transmission Technique for Expendable Current Profiler Q.S. Zhang, M. Deng, Q. Wang, Y.Q. Feng and R. Yang	436

Dynamic Simulation Tests on Influencing Factors of Deep Tilling Plow Working Performance	
X.C. Hu, L.X. Zheng, L. Jia and X. Song	441
Tribometer Design of Slide Bearings under Micro-Load	
X.C. Hu, J.Z. Zhang, J.H. Zhang and L.X. Zheng	446
Study and Exploration on Computer Graphics Skills Competition of College Students	
L.Y. Zeng, S.M. Zhang and X.F. Dong	453
Study of Reinforcing Mechanism of Rigid-Frame Arch Bridge Based on Static and Dynamic Analysis	
Z.Y. Yang, X.B. Zhang and J.B. Qu	458

Chapter 3: Network Technology and Materials Engineering

Wireless Sensor Networks for Search and Rescue Operations	
N.A. Ab. Aziz and K. Ab. Aziz	465
The Impact of Slack on the Innovation of Material Firms	
H.P. Zhong	470
Strengthening Method of T-Beam Bridge and Effectiveness Evaluation	
Z.Y. Yang, X.Y. Zhang and H.B. Yu	474
A Text Mining Analysis of the Biomimetics Research Trend (2000-2010)	
S.H. Wu and J.J. Guo	479
A Note on Single-Machine Scheduling with Deteriorating Jobs	
Y.Q. Yin and F.L. Yuan	483
Research on Stretching Order of Tendons in PC Curved Box Girder Bridge	
Z.Y. Yang, Y. Zhao and Z.S. Liu	487
Study on the Method for Fault Sample Selection Based on Fuzzy Clustering	
H.X. Wang, S.S. Liu and X.H. Ye	492
The Excellent Traits of a Class of Orthogonal Quarternary Wavelet Wraps with Short Support	
G.X. Wang and D.L. Hua	496
A Study of Binary Minimum-Energy Shortly Supported Wavelet Frames Associated with a Scaling Function	
Q.J. Chen and G. Hu	500
Constructive Approaches to Biorthogonal Finitely Supported Ternary Wavelets and Wavelet Wraps	
J.T. Zhao and H.L. Guo	504
Lyapunov-Based Sufficient Conditions for Nonlinear Impulsive Systems	
Y.L. Gao and X.W. Mu	508
Stability of Primal-Dual Algorithm with Communication Delay for Congestion Control	
C.H. Liu and C. Yuan	513
Establishment and Analysis of Particle on Grid Method for Incompressible Fluid	
Z.Y. Zhong and W.J. Lou	518
Optimization Size of Tailwater Recovery System in Wetland Paddy Field	
Y.C. Chang and C.E. Kan	528
Driving Forces of Landscape Change at the Upriver of Minjiang, China	
Y.H. Zhao and X.F. Wang	532
Search Engine Navigation System Design Based on FCA	
J.Y. Yu and R.P. Ding	538
An Interval-Index-Oriented Intelligent Optimization Method and its Industrial Application	
M.S. Cai and L.S. Kong	546
The Risk Element Transmission Model of Power Restoration Based on Dynamic Improved Ant Colony Algorithm	
M. Huang and C.B. Li	551
Azimuth Axis Servo System Integrated Control Based on Sliding-Mode Control	
S.F. Wang, J.C. Zhang and H.H. Guo	556
Realization of High-Speed Data Transmission in Seismic Data Acquisition	
R. Yang, M. Deng, Q.S. Zhang and Q. Wang	560

Synthesis, Spectral Properties of Methyl-2-Pyridyl Ketone Benzoyl Hydrazone and its Complexes with Rare Earth Nitrates X.S. Tai and L.T. Wang	565
Strong Tracking Filter Based on Extended Kalman Filter for Data Processing of Underwater Vehicle Y. Li, Z. Lu and Y.J. Pang	569
Synthesis, Fluorescence Properties of 2-Acetyl-2'-Chloroacetanilide with Rare Earth Nitrates Complexes X.S. Tai and L.T. Wang	574
Research on Complex Mechanism of Oligarchy Pricing Based on Price Repeated Game Model Z.H. Sun and J.H. Ma	578
The Investment Risk Early-Warning System Research on Hotel and Tourism Enterprises J.H. Ma and Q. Zhang	582
Analysis of Power System's Critical Damping J. Bu and N.Q. Jiang	586
Blower Resource Scheduling Based on Elite Genetic Algorithm G.N. Yang, W. Qi and J. Zhou	591
Automatic Demultiplexing Method for NRZ-OOK and RZ-OOK Polarization-Division Multiplexed System Q. Jing, Y.Q. Huang, Y.G. Zhang, X.G. Yuan and P. Li	596
Study of SCR Denitration Efficiency under Different Boiler Load Conditions M.Y. Hu, Y.J. Jin, X.H. Wang and Y. Sun	600
A Knowledge Reduction Method Based on Concept Lattice X.Y. Wang	604
Research on IGMP and its Implementation for Switch Management S. Lu	608
Application of Fuzzy Mathematics in Diagnosis of WP-JET Engine Ability Failure C.H. Chai and S.T. He	612
Applications of 3S in Yellow River's Flood Control J. Hu, L. Han, H.J. Liu and Q.F. Gao	617
Summary on Mechanism of Oil Flow Electrification in Power Transformers Q. Fu, X.J. Xie, P.G. Zou, Z. Li and Y.H. Qian	622
Research of CANopen Slave Node Based on Embedded System Z.P. Chen, F. Wang and C. Jia	629
Analysis of Collected Heat by Solar Collectors Fixed on the Outside Wall of Balcony L.X. Zhang, S.Y. Gao, Q.Y. He and H.F. Zhang	633
A New Model for Web Service Composition L. Hao	638
Application of Multi-Dimensional Analysis Technology in Telecom Industry L.Y. Chen and X.Y. Yin	643
The Building of Offshore Facilities Power System's Equivalent Circuit Model H. Zhang, X.H. Ma and X.Y. Yin	648
Solving the Degree-Constrained Euclidean Steiner Minimal Tree Problem S.J. Dong	652
Study on the Forecasting Method of Grain Potential Productivity of Heilongjiang Province H. Zhang	656
Experimental Study on the Shear Strength Characteristics of Municipal Solid Waste Z.Y. Zhang and D.Z. Wu	660
A Design and Implementation of Comprehensive MPEG-2 Transport Stream Analysis System for Large-Scale TV Station R.M. Li and G.F. Sun	665
Interferometer Environmental Error Compensation Based on Refractive Index's Spatio-Temporal Coupling Model Z.Y. Gao, M. Zhang, J.C. Hu, Y. Zhu and G.H. Duan	670
A New Method for Finding Solutions of Linear Partial Differential Equation Y. Tang and M.C. Qin	675

Existence and Uniqueness for Stochastic Predator-Prey System of Two Species with Age-Structured	
F.F. Li and Q.M. Zhang	680
Finite Element Analysis of Steel Liner in the Gradual Change Segment of Downstream Dam Surface Penstock	
X.L. Bai, Q. Pan and H.L. Su	685
An Automatic Mesh Generator for Hexahedral Element Mesh Using an Improved Grid-Based Method	
L. Sun and G.Q. Zhao	689

Chapter 4: Intelligent Information and Application

Hydrodynamic and Mass Transfer Performance of Enhanced Jet Tray	
J. Li, L.Y. Sun, Z.H. Ma, S. Xue and Y.D. Hu	697
A Platform Based on Network Environment for the Trade Information	
L. Zhu and J.S. Li	701
Development and Application of CAPP System Used for Large Forgings	
X. Zhao, H. Zhao and R. Zhang	705
Study on the Needle Loom Condition Monitoring System Based on Working Condition Parameters	
H. Deng and Z. Li	709
Study of Statistical Process Control for Multi Specification and Small Batch Production Based on Group Technology	
F.J. He, M.H. Wang and Y. Wang	713
The Design of Vibration-Resistance for Air Compressor House in Colliery	
L.M. Cao, Q.L. Zeng and X.Y. Xiao	718
Strategy Analysis of Closed Loop Supply Chain for Scrapped Medical Equipment Based on Hybrid Recycling Model	
L. Shi and X. Ma	722
Square Root Cubature Particle Filter	
J. Mu, Y.L. Cai and J.M. Zhang	727
Hierarchical Traffic Network Design under Emergency Logistics	
X.H. Li and Q.M. Tan	732
Low-Carbon Selection Decision for Logistics Enterprises Based on Evolutionary Game under the Supervision of Government	
Y. Zhou, H. He and Y.F. Wang	736
Application of BP Neural Net Work and PCA in Prediction of Plant Diseases Control	
M.W. Shi	742
Application for Fiber Bragg Grating Sensor in Internal Force Testing of Lining Structure	
J.G. Yang and W. Ma	746
The Research and Implementation of Electrostatic Detonating Gas Simulation Experiment System Controller Based on Nios II	
X.J. Dong, S.J. Ma, Q.X. Sun and L. Zhang	750
Prediction Model of Least Squares Support Vector Machine of Increased Memory Type Based on GA and Quadratic Renyi-Entropy	
G.H. Zhao and W.W. Yan	754
Research on QoS Multipath Routing on ACO Algorithm	
N. Lin, Z.X. Shao and X.Y. Chen	762
Research and Development of 20% Nicosulfuron·Atrazine Oil Miscible Flowable Concentrate	
Y.F. Gao, F.Y. Zhai, H. Ye and L. Zhang	766
Soft-Reward Based Reinforcement Learning by Spiking Neural Networks	
W.Y. Shi	770
Networked Management of Non-Book Materials	
L.J. Wang	774
Quasi-Newton Method for DSPSL Bandpass Filter Design	
S. Wang	778

The SIR Analysis Theory Based on ABCD Matrix and Application for the Filter Design S. Wang	782
Discussion on the Lightning Protection for Video Surveillance System G.C. Du	786
The Influence of the Randomness on Average Path Length X.C. Wang and Y.B. Jiang	791
Distribution Strategy in Storage and Retrieval System Based on Improved Genetic Algorithm X. Dong	795
D–S Evidence Theory and its Application in Robot Information Fusion Y.S. Sun, C.L. Zheng and P. Ma	799
The Research with Advanced Oxidation Technology to Degrade Organic Matter in Micro-Polluted Water X. Zhao, H.M. Luo, H.X. Feng and J.Q. Zhang	804
Fault Diagnosis of Marine Diesel Engines Based on SOM Neural Network Q. Song and A.M. Wang	809
Making-Decision of Selecting Outstanding Teachers in University Based on Fuzzy Comprehensive Evaluation Method J. Liu and Y. Li	814
An Embedded- Technology-Based Web Server Design of Digital Home X. Yang, H.H. Wang, W. Pan and Y.Y. Zhang	820
Government Emergency Procurement System Based on Integrated Theory J. Liu and Q.L. Dong	824
Benefit Evaluation of Government Emergency Procurement Based on AHP Method J. Liu, Q.L. Dong and K.H. Xiao	828
Computer Graphic Control on the Battery Monitoring System K.F. Yarn, K.K. Wu and W.B. Lin	832
Research on Customer Equity Measurement of Commercial Website J.B. Shao and K.K. Chen	836
The Safety and Liveness Properties of Composite E-Services Based on Activity Chain B. Chen and X.M. Huang	842
A New Airborne Passive DF Method only Based on Frequency Difference T. Yu	846
The Application of Communication for Inspection System in 500kV Transformer Substation W.X. Wang and Q.H. Chu	851
Controllability of Multi-Rate Networked Control Systems with Short Time Delay Q.X. Zhu	855
Finite-Time Control of Fuzzy Continuous-Time Systems with Exogenous Disturbance C.X. Liu and Y.Q. Zhang	860
Adsorption Performance of Compound Adsorbent Using the Thermal Vacuum Method H.Z. Zhao, X.C. Sun, H.B. Liang and K. Yan	865
Decoupling Analysis of a Four Degree-of-Freedoms Parallel Robot J.L. Gong, F.A. Huang, Y.F. Zhang and X.T. Wei	870
Data Mining in the Research of Corporate Acquisition Performance Q. Yue	874
Research on Evolution of Chinese Telecom Industry Ecosystem Based on Logistic Model F. Chen, T.J. Yang and R.Y. Wang	878
Traffic Flow Detection on Highways in the Intelligent Transportation System G.F. Yin	882
Web Recommendation Based on Unified Collaborative Filtering J. Zhong, Y.F. Cheng and S.T. Deng	887
Research and Application of 2D Barcode in Hospital Informatization Q. Lu, J.Z. Lin, Y.P. Liang and Z.H. Liu	892
Impulsive and Diffusive Effects on Stability of BAM Neural Networks with Delays Q.H. Zhou and L. Wan	896
Ammeter Interface Device and Monitoring System Based on Wireless Sensor Networks M.S. Tan, H.T. Tian and Q. Chen	900

Mining Model of Fuzzy Association Rules and its Application in Calciner J. Wang, Q.H. Dang and Z.J. Wu	904
The Protection of Thyristor in Motor Control System G.C. Du	908
Visualization Design and Implementation in Virtual Spinal Fixation Surgery System H.Z. Song, B. Liu and B. Zhao	914
Haptic Feedback Interaction Design and Implementation in Virtual Spinal Fixation Surgery System H.Z. Song, C. Cheng, B. Zhao and B. Liu	919

Chapter 5: Information System, Automation and Control

Composite Event Processing for Data Streams and Domain Knowledge J.Q. Liu and X.L. Guan	927
Bounding the Inefficiency of Multiclass Stochastic Traffic Equilibrium under Congestion Pricing X.J. Yu	932
An Application of FSA Methodology to the Safety of Bulk Chemical Tankers B. Yu, Y.X. Jin, B. Zheng and X.D. Zhang	937
Fuzzy Logic Control of Photovoltaic Lead-Acid Charging System K.F. Yarn, K.K. Wu and L.Y. Chung	941
An Exploratory Study on Road Traffic Safety Based on Fault-Tolerant Concept L.W. Hu, Y.L. Pei and X. Li	945
Influence Factors of Traffic Signs Comprehension Effectiveness and Analysis of the Model in Ice Snow Environment L.W. Hu, Y.L. Pei and C.Y. Fu	949
Types Synthesis of Redundant Actuation Parallel Robot J.L. Gong, Y.F. Zhang and X.T. Wei	953
Boundary Feedback Stabilization of a Two-Dimensional Wave Equation C.L. Guo, C.K. Xie and F. Shen	957
Distance Vector Based Sequential Spectrum Sensing Scheme for Cognitive Radio Networks L.N. Wang	961
Algorithms for Routing Protocol in Wireless Sensor Networks Y. Liao, W.X. Hao and W.Q. Li	965
Design and Realization of NAND Flash Based on Embedded Linux System Z.J. Yin, Y.F. He, C.R. Xiong and R.Y. Zhong	972
The Application of Data Mining in Constructivist Learning L. Li and F.L. Xu	976
The Complex System Modeling and Analysis on the Government Public Information Resource Allocation Mechanism W.Q. Jia, Y.F. Huang, Y.Z. Wang and P. Zhou	980
Output Prediction Method Based on Model and its Application in Power Systems K. Luo and H.L. Lv	986
Communication Technology Research Based on EtherNet/IP Z.P. Chen, Y. Wei and C. Jia	990
Natural Nearest Neighbor for Isomap Algorithm without Free-Parameter X.L. Zou, Q.S. Zhu and R.L. Yang	994
The Stripping Principle to the System Synthesis for a Kind of Complex Networked Systems W. Wang	999
Petroleum Pipeline Leakage Forecasting Based on Artificial Neural Networks X.B. Zhang and J.S. Chen	1003
A Locality-Aware Peer Searching Scheme to Support VCR Functions in a Mesh-Based P2P VoD System H. Zou, J.X. Hou, R.H. Lin and F.C. Yang	1008
Application of Information Technology in Construction Project Management J.L. Tan, X.F. Dong and X.J. Li	1012

Digital DC Speed Control System in Mine Hoist Application R. He and Y.P. Ge	1017
Researches on a Class of Reaction-Diffusion Thermo-Plastic Material Equations S.X. Deng and M.J. Wang	1022
Offline Application of the MIS System in SaaS Architecture S.W. Zhang and X.X. Chen	1026
An Interpolation-Based Fuzzy Controller for Load Control of Ball Mill Pulverizing System H. Cao, L.X. Jia, G.Q. Si and Y.B. Zhang	1030
Exponential Stability of Numerical Solutions to a Stochastic Delay Neural Networks Q.M. Zhang	1035
Quantized Kalman Filter for Sensor Networks with Random Packet Dropouts N. Liu, J. Ma and S.L. Sun	1040
Absolute Stability Condition for T-S Fuzzy Lurie Control Systems with Time Delay X.X. Xia and Y. Wang	1045
Study on a Vision Sensing System for the Parameter Estimation of a Serial Construction Robot Y.P. Xia, H. Yamada and H. Kawasaki	1049
Joint Routing and Spectrum Assignment Algorithm in Cognitive Radio Networks Z.J. Liu, F.X. Qin and Q.B. Chen	1055
Study on CAPP System Based on Rough Set Theory X.B. Li and D.R. Jiang	1060
Constructing a Managerial Performance Model for the B&B Industry J.B. Chin	1064
Study and Application of Web Crawler Algorithm Based on Heritrix D.F. Liu and X.S. Fan	1069
Eutrophication Assessment of a Large Scale Coastal Area Using GIS Technologies D. Mu and J.H. Tao	1073
Based on Information Fusion Integrated Wavelet Neural Network Fault Diagnosis D.Y. Cui and Z.X. Xie	1077
Debt Financing, Corporate Governance and Overinvestment L. Zhu and B. Tang	1081
The Application of M-Ary Quantum Evolutionary Algorithm in Bit and Power Allocation for OFDM System over the Power Line T. Zhang, R. Zhang, Y.J. Liu and C. Yang	1085
A New Searching Direction for Linear Complementarity Problems L.P. Zhang and Y.H. Xu	1089
SOM and RBF Networks for Eddy Current Nondestructive Testing B. Liu, A.H. Li, C.L. Wang, J.B. Wang and Y.T. Ni	1093
Analysis and Application of a Kind of Hierarchical Fuzzy Systems J. Wang and X.D. Zhu	1097
Design of Networked Control Systems Based on Single-Neuron PID Y.X. Jin, G.F. Che and Y.S. Guan	1101
Based on Transcad of the Shortest Path Assignment Method Q.Y. Li, R. Tang and Z.L. Tan	1105
Study on Energy Saving and Emission Reduction of EP Low-Voltage Power Supply System in Power Plant M.Y. Hu, C. Du and B. Yang	1109
Inductive Estimation Arithmetic for Random Vibration Data Y.J. Zhang, X.H. Zhang and B.T. Wang	1113
Structural Analysis and Optimization of Aluminum Triple-Bubble Cabin Y.J. Zhang and P. Tao	1117
Digital Audio Watermarking Scheme Based on Independent Component Analysis in DWT Domain R. Chen, Y.L. Lan and R.A. Mohammad	1121
Researching a Coupled Simulation Strategy of SVM-Based Storm Surge Prediction Model and GIS S.J. He, W.J. Zhou, Y. Zhang and Z.H. Chen	1126

MRF Absorber Damping Control for Building Structural Vibration Response by Means of Genetic Optimum Algorithm L.J. Li	1133
An Auto-Adaptive GA-PID Control Method Based on CMAC Net W.Q. Yue, L.Q. Jin and C.X. Song	1139
Implementation of Agile Supply Chain Information Integration System in Manufacturing Industry Based on Service-Oriented Architecture and Web Service W. Zhang and Y. Xu	1145
A Sub-Pixel Localization Algorithm on the Basis of Gauss Curve Fitting in Gradient Direction N. Zhao and C.X. Fu	1149
Convergence of Numerical Solutions to Stochastic Delay Neural Networks with Poisson Jump and Markovian Switching H.G. Yue and Q.M. Zhang	1153

Chapter 6: Material Engineering, Information and Automation

Development of Parallel Regenerative Braking Controller J.M. Zhang, W.N. Du and X.H. Wang	1161
Joint Detection Algorithm in Downlink for TD-SCDMA Trunking System X.X. Shen, H. Zhi and S.X. Shao	1165
Modeling and Simulation of PHEV Regenerative Braking Test Platform J.M. Zhang, S.S. Cui and Y.C. Ren	1170
Prediction for Air-Bending Springback Radius of Sheet Metal Using Back Propagation Neural Network and Micro Genetic Algorithm Z.M. Fu and G.M. Liu	1174
Dynamic OD Collecting Method by Mobile Phone Equipped Vehicles W.G. Zhu	1178
Configuration of Multi-Tenant Applications S.W. Zhang and X.P. Wang	1182
The Research on 3G Networks Streaming Media in M-Learning J. Mu and G. Wang	1186
Research on Distributed Material Requirements Planning Based on Distributed Decision Support Systems Y.K. Sheng and W.L. Lan	1191
Design and Development of Large-Scale Sport Events Information System - Based on Project Management C.L. Han and Y.C. Ma	1195
Trends and Contribution for Smart Home Research: An Assessment of Academic Articles from 1997-2010 K.M. Chien, T.Y. Luor, T.C. Wu and H.P. Lu	1201
Numerical Study of Welding Sequence on the Residual Stress Field in a Thick-Walled Tee Joint W. Jiang	1211
School Internationalized Operating Model and the Case Study Y.J. Zhu, J.H. Ren and H. Ding	1215
Installing and Debugging Skills of Satellite Television Receiving System F.M. Wang, Z.X. Zhang and R.Q. Li	1219
Impact of Information Technology on Accounting L.N. Wang	1224
A Multiple-Objective Algorithm Design and Strategy Study Based on Target Space Partitioning Z.X. Shang and H. Liu	1228
A Study of User Behaviors Based on MMS T. Gan, Y. Zheng and C.J. Chen	1233
Research and Application on Monitoring Technology of Structural Health Based on Wireless Sensor Networks Z.J. Gao, H.Y. Wang, T. Chi and B. Ma	1237

Developing the Balanced Scorecard Strategies for Vocational College Library L.F. Hsieh, M.C. Wu and J.B. Chin	1243
Reconstruction Technology on the Surface of Engine Port Based on Reverse Engineering X.Z. Ren, M.D. Duan and J.X. Su	1249
Assessment Analysis of Financial Stability in Central China Considering the Asset Bubble Situation — Based on the Empirical Analysis of Financial Sector in Hubei Province L.Q. Hu, L.Q. Tang and R. Chen	1253
The Research on Nonlinear Diagnosis Methods of Vibrating Screen Crack X.Y. Xiong, M. Zhang, X.P. Li and S.J. Yu	1258
Soft Sensor Modeling Based on Radial Basis Function Neural Network and Fuzzy C-Means X.H. Wang and J.M. Xiao	1263
Development of a Decision Support System for Flood Warning in Jinan City C.Q. Li, C. Jia and B.S. Xu	1267
Design and Realization of Smart Home Control System Based on S3C2440 L.Y. Wang and Q. Liu	1271
Research on Personalized Recommendation Technology for Tourism Industry - A Perspective of a System Framework Design M. Zhang, J. Miao, J. Luo and J.H. Lan	1276
The Construction of the Enterprise Culture after Financial Crisis Y.F. Wang and M.H. Zhao	1281
The Research on VRP Based on Max-Min Ant Colony Algorithm C.M. Chen, W.C. Xie and S.S. Fan	1285
An Effective Mutual Authentication Scheme for Hierarchical Mobile IP C.H. Liu and X.Q. Ren	1289
Product Information Forecast Based on B-P Neural Network W.C. Xie, L.L. Li, Z.Y. He and C.M. Chen	1293
A Topology Based on a Local World Evolving Model for PSO J.C. Ni, L. Li and F. Qiao	1297
A Study on the Security Issues and Solution of Electronic Commerce Y.H. Dong, W. Li and X.W. Guo	1301
Analysis on Network Security and Solution of Computer Y.H. Dong, W. Li and X.W. Guo	1305
Control Traffic Flows and Differing Quality of Service with Reservation of Bandwidth in Optical Network N. Zhang	1309
Design and Control of Node Architecture in OBS Optical Network N. Zhang and M.C. Ge	1313
An Overview of Human-Computer Interaction Based on the Camera for Disabled People G.W. Gao and X.Y. Duan	1317
New Structure of Communication System for WDM Optical Network N. Zhang and X.M. Xu	1321
Application Research of PID Control Optimized by GBLB-PSO in HVAC System Q. Liu and Y.D. Du	1325
Synthesis and Photoelectrochemical Properties of Self-Organized Anodic TiO₂ Nanotube Arrays S.K. Liu, W. Cui, H.B. Yang, Z.X. Li and W.J. Zou	1329
Fabrication and Photoelectrochemical Properties of Self-Organized Mixed Oxide Nanotubes by Anodization of Ti-2Al-1.5Mn Alloy S.K. Liu, Y.T. Li, H.B. Yang, W.J. Zou and Z.X. Li	1333
Denosing in Steel Structural Impulsive Vibration Signal Based on Independent Component Analysis J.H. Cao and Z.B. Wei	1337
Automatic MRI Brain Tumor Segmentation System Based on Localizing Active Contour Models Y. Wang, Z.X. Lin, J.G. Cao and M.Q. Li	1342
Design of Intelligent Supervision System for Production Safety in Mine Areas C. Zhuang, C.Q. Fu and S.M. Zhuang	1347

MRI Denoising Based on a Non-Parametric Bayesian Image Sparse Representation Method X.B. Chen, X.H. Ding and H. Liu	1354
GSPN-Based Analysis of Storage Infrastructures for Rendering System Z.G. Hong, Y.B. Wang and M.Y. Shi	1359
The Design and Implementation of Practical Training System Based on the Design Pattern Y.J. Liang, L.J. Zhang and L. Li	1363
SPWM Inverter Closed-Loop PID Control System Y. Chen	1367
Damping Controller Based on Output Prediction Observer and LMI Method K. Luo and H.Y. Yu	1371
Optimization of Phase Change Materials Used in Asphalt Pavement to Prevent Rutting M.Z. Chen, J. Hong, S.P. Wu, W. Lu and G.J. Xu	1375
A New Mechanical Vibration Source Number Estimation Method Based on EMD-SVD-DE H.X. Ye and X.P. Hu	1379
Application of an Improved Immune Evolutionary Algorithm to Grid Task Scheduling S.J. Xue and F.F. Liu	1383
Design and Model Analysis of City Bus Body Frame Based on ANSYS X.Z. Ren, S.J. Du and X.S. Pei	1389

Chapter 7: Programming, Image and Industry Application

The Short-Term Load Forecasting Model Based on Improved Gene Expression Programming Arithmetic Y.M. Li and J.M. Wang	1395
Machine Frame Optimization of Pneumatic-Hydraulic Supercharging Press of Microparts J.T. Du	1399
Analysis on the Acquisition between Ping an Insurance Company of China, Ltd and Shenzhen Development Bank Limited Company Q. Zeng and L.L. Wang	1403
Design of the Multi-Sensor Target Tracking System Based on Data Fusion Y.C. Yao, Y. Yao, R.Y. Zhang and Q. Han	1407
An Effective Regularization Method for Image Super Resolution E.W. Zheng and X.J. Wang	1411
A Configurable Platform of Application System and its End-User-Oriented Configuration-Developing Pattern S.W. Zhang and Z.H. Li	1415
Chloride Ions Penetration Resistance of Steam-Cured Concrete for Railway Precast Elements Z.M. He, J.Z. Liu and T.H. Wang	1419
The Modified Temperature Field of Ceramic Roller Kiln Based on DEPSO Algorithm H. Huang, X.S. Chen, H. Lei, Z.Q. Li and W.G. Li	1423
Discussion on the Contents of 5S Activities in Universities M.M. Hu and S. Xu	1427
A Damage Model for Collapse-Mechanism of Long-Span and High-Pier Continuous Rigid Frame Bridges K.Z. Xie, G.Q. Chen and L.L. Wei	1431
Analysis and Study on the Components of Starch and Wood Fiber Biodegradable Foam C. Li, S.L. Xiao and S.Z. You	1436
The Error Analysis and Data Processing of Leaf Water Potential Z.G. Zhou, Y.X. Lou and J. Chu	1440
Performance Evaluation and Optimization on GPU X.B. Gan, L. Shen, Q.Y. Tan, C. Liu and Z.Y. Wang	1445
Study on an Information Process System for Appraising Key Construction Projects' Risk H. Zhao and L.M. Chen	1450
A Method Shielding the Chinese Game Webpage Based on Ontology J. Liu, L. Bai and X.Y. Huang	1454

The Eco-Efficiency Evaluation on Petrochemical Industry Based on Three-Stage DEA Model	
F.G. Yao and P. Zhang	1459
Study of Automatic Control System for Irrigation	
H.L. Zhu and X. Li	1463
The Eco-Efficiency Evaluation on Petrochemical Industry Based on Three-Stage DEA Model	
H.M. Wen and S.S. Li	1468
Electrochemical Promotion Catalytic Oxidation of NO over Mn/TiO₂ and Mn-Fe Catalyst	
J.H. Song, X.L. Tang, H.H. Yi, P. Ning, K. Li, Q.F. Yu and D. He	1472
Mass Customization Product Cost and its Optimization Model Based on Modern Control Theory	
R.W. Li, J.L. Cheng, X.L. Wu and C.L. Mo	1477
Application of a New Energy Supply Scheme in Remote Areas and Research for Energy-Saving Technology	
X.X. Li and S.G. Niu	1482
Face Detection Based on Skin and Improved ICA	
Y. Wang and Z.W. Jiang	1486
Analysis and Solutions to the Problems of Audio-Visual Archives Management	
Y. Chang	1491
Bayesian Diagnostic Network Model for Sliding Plug Door	
H.C. Shi, L. Tian and L. Wang	1496
Piezoelectrically Transduced Hybrid Resonators	
Z.Z. Wu	1500
Approximate Inference Algorithm Based on Adaptive Ant Colony and Artificial Fish Swarm Algorithm for Credal Networks	
Y. Qu and P. Zhou	1504
Corporate Charitable Acts and Communication: An Analysis of Communication Levels	
H. Liu and X.C. Ge	1509
A Method of Extracting Opinion from Chinese Product Review	
R. Liu, Y. An and L. Song	1513
Macromedia Flash-Based Animations for Teaching of the Digital Signal Processing Principles	
K. Ubul, G. Ubul and A. Aysa	1518
Research on Risk Management of Engineering Project Auction	
D.B. Fang and W. Liu	1523
Vertical Union of Synonymous Concept Lattice	
G.Q. Zang and Y.P. Yang	1528
Measure Analysis of Shandong Economic Development	
G.Y. Zhang, X.N. Yuan and Y. Cheng	1533
Urban Competitiveness Measure Analysis of Jinan and Qingdao Cities	
G.Y. Zhang, X.H. Li and P. Zhang	1537
Synthesis of Highly Ordered Nanotubular Oxide Layers on Ti-6Al-4V Alloys by Anodization Technique	
S.K. Liu, H.S. Zuo, H.B. Yang, W.J. Zou and Z.X. Li	1541
Privacy Preserving Coordinated Inventory Replenishment Policies in a Multi-Stage Supply Chain	
C.H. Xie and Y.L. Zhang	1545
The Economics of Information Security Investment	
H. Wang	1550
Integrated GPS and QRCode in Personalized Mobile Learning System Based on Recommendation Mechanism	
C.B. Yao	1554
A Optimized MRP Batch Decision Model and its Application	
Y. Zhang and Y.X. Liu	1558
Intersection Signal Optimizing on Condition of Ice-and-Snow	
C.Y. Mao, Y.L. Pei, G.Z. Cheng and X.Y. Mo	1565

Molecular Characterization and B-Cell Epitopes Prediction of the Antigen pEtK2 of Eimeria Tenella	
X.W. Chen, M. Yin, X.Q. Wang and C.L. Fang	1569
Hybrid Dynamic Principal Component Analysis Approach for Fault Detection in Steel Rolling Process	
H.T. Shi, J.C. Liu, L. Li and Y. Zhang	1574
Application of Intelligent Algorithm to Transformer Optimal Design	
S. Zhang, Q.H. Hu and X.W. Wang	1578
A Research on Complex FastICA Algorithm Based UNB Signal Detection	
S.K. Zhang	1584
Design of Catalytic Divided Wall Column	
L.Y. Sun, C.X. Qi, J. Li and Q.S. Li	1589
A Study on Personalized Financial Service and the Development of Community Banks in China	
G.J. Yan	1593
Analysis on Migration Factors of Rural Worker in China	
W. Wang, X.S. Liu and T. Wang	1597
Polypropylene Fiber Reinforced Concrete for Airport Rigid Pavements: Compressive and Flexural Strength	
T. Merhej, X.K. Li and D.C. Feng	1601
UHF RFID Reader Implementation for EPC C1G2 Protocol	
L.Y. Xu, L.L. Sun, Z.H. Xiao and F.Y. Hu	1608
Solution to Design Difficulties in E-Business VR Platform	
R.H. Kuang, J.C. Kuang and Z.M. Chen	1612
The Studies of a Temperature Monitor System for Electric Equipments Based on Infrared Technical and Virtual Instruments	
H.Y. Cui, Z. Tang, Y. Fang, J. Liu, T. Qian and C.X. Yang	1617
The Calculation Method of Similarity Degree for City Logistics Facilities	
G.Q. Li and S.J. Liu	1621
Spatial Load Forecasting by Data Fusion Technology	
H. Zheng, L. Xie and L.Z. Zhang	1625
Study on Relation between Agriculture Production Factors and Agricultural Economy Growth	
X.M. Wang	1629
Implement a Control Mechanical Legs System by EMG Signals	
C.S. Wang, Y.J. Chiang, C.C. Chang, J.H. Lin, W.J. Lin and S.J. Jheng	1633
Study on the Automated Lubricate System Design for the Excavator GJW111	
J. Wang, Y.F. Shen, J. He and Z. Zhang	1639
Research on Nonlinear Coupling Analysis Based on Polynomial Model	
G.F. Liu and W.G. Zhang	1643
On Efficient Allocation of Military Spending	
F. Mao, Y. Wang and M. Wang	1647
Mathematical Modeling and Cultivation of Student Mathematics	
J.X. Dong and H. Zhang	1652
An Extended Throughput Model of SCTP with Scalab Congestion Control	
C.H. Liu and C. Yuan	1656
Cloud Storage: the New Choice of Digital Libraries Store	
Z.X. Wang	1660
Research on Confidentiality about Provenance Based on Logical Key Hierarchy	
F.Y. Wang and X.M. Li	1664
The Application of Fuzzy Clustering Method in the Division of Reservoir Flow Unit	
E.L. Yang	1670
The Hardware in the Loop Simulation System of Speed Ratio Control on EMCVT	
L. Zhang, T. Wei and G.N. Li	1675
Theoretical Analysis of Resource Swap for Reuse Based Hardware Task Scheduling in Reconfigurable System	
T.T. Fu and P. Liu	1679

OHCP: A Local Search Planner Based on Ordered Hill Climbing Algorithm and Local-Minimal Restart Strategy R.S. Liang, H. Ma and M. Huang	1683
Partial Friction Fault Diagnosis of Electrical Submersible Pump Based on Support Vector Machines C. Yao, M.Z. Li and G.F. Liu	1689
Study on Economic Evaluation Index System of Oil-Gas Exploration Project A.Z. Yin	1693
The Implementation of MSK Based on DSP and Complex Bandpass Processing K.F. Wang and J.M. Cheng	1697
Algorithm of Disambiguation and Matching of Chinese Word Segmentation in Connected Strategies Research J.X. An, J. Huang and W. Yu	1702
Research and Implementation on the Cloud of Chinese Letter J.X. An	1707
Performance Simulation and Analysis of New High-Frequency Valve Y.Z. Zheng, R. Jian and Y. He	1712
A Brief Study on Teaching Materials Reform Based on Modern Information Technology X.Z. Tian	1716