Table of Contents

Preface, Committees and Reviewers

Chapter 1: Dynamics of Mechanisms and Machines

Research on Dynamic Model of Rotors with Bearing Misalignment D.X. Ren, J. Hong and C. Wang	3
Research on the Structure Design of Double Eccentric Coaxial Spherical Robot X.L. Shang	9
Research on Vibration Reduction Mechanism for Robot Joints by Imitating the Owl	,
Surface Characteristics S.M. Sun, D.S. Ye and X. Wu	13
Vibration Control on Shells through Theoretical and Numerical Analysis D.X. Ren, J. Hong and L.L. Chen	18
Chapter 2: Application of CAD in Mechanical Engineering	
Mathematical Model Design on Online Virtual Processing Platform of Machinery Manufacturing	
Y. Zhao, X.M. Liu and W.J. Li	25
Study on the Length Changes of Bearings in Continuous Motion of Complex Mechanical System Based on ADMAS Simulation N. Li and Y.J. Li	29
Study on the NC Machining Theory and Simulation of Hypoid Gear X.R. Zhu	34
Three-Dimensional Modeling and Simulation Analysis of the Outer Planets Cycloid L. Li, C.J. Shan and Y.D. Bian	38
Design of Gear Parameters Visual System Based on LISP H.T. Guo and W.G. Zhang	42
Study of Rhino and Fastship in Calculation of Ship Hydrostatic Q.Y. Gao, J.X. Chen, Z. Lei and Z.H. Peng	47
Part Design and Analysis of Cycloid Installation Systems C.J. Shan, Y.D. Bian and L. Li	51
Design of Natural Ventilation and Analysis of Ventilation Safety in Commercial Building J. Zhou and X.H. Liu	55
Drawing Threaded Programs with AutoCAD Secondary Development Y. Chen, Y.J. Xiong and R. Zhang	59
Chapter 3: Measure and Diagnosis, Algorithms and Methods for Processing Data and Signals	
Design and Implementation of DDFS Based on CORDIC in FPGA X.M. Yang	65
Design and Implementation of Detection System Based on IC L.J. Wang and P.J. Zhang	70
Design and Implementation of Portable Intelligent LCF Measuring Instrument L.S. Wang, Y. Ma and X.Z. Wang	75
Design of Digital Filter Based on Numerical Simulation C.T. Wei, Q.L. Ning and D. Chen	79
Multi-Channel SSVEP Pattern Recognition Based on MUSIC K. Chen, Q. Liu and Q.S. Ai	84
Diagnostic Analysis of Ignition System Fault of Polaris Engine Y.P. Chen	89

Design of Reliable Serial Port Transmission Mechanism Based on Zigbee L.H. Li and J.R. Zhu	93
Improved Statistical Algorithm in Digital Terrain Y. Sun, Q.S. Wang and G.X. Wu	97
Electromagnetic Spider Web Application in Earthquake Prediction M. Jiang	101
Tracking Target Identification Model Based on Multiple Algorithms M. Ding	106
Comparison of Gas Chromatography and Liquid Chromatogram Detecting Pesticide Residue	
X.X. Meng and S.L. Yang	113
Fingerprint Identification Scheme Based on Distribution Density B.B. Wang, J.D. Zheng and Z.Q. Zheng	117
GPU Parallel Computing Algorithm in Target Tracking of Space T. Ding	122
Image Processing Algorithm Based on Solitary Wave Z.M. Zhu, R.Q. Liu, Y.W. Cao and F.F. Liu	126
Image Restoration of Depth of Field Extension Imaging System Based on Genetic Algorithm Y. He, Y.G. Wu, J.L. Tian and W. Xu	131
Research of Speech Recognition Based on Neural Network J.Z. Zhang, X.D. Qiao and P.Z. Zhang	136
Research on Improvement Algorithm of Image Edge Detection S.L. Zhang	141
Research on Recognition Technology of 2-Dimensional Barcode R.H. Chen and Q.S. Zhu	146
Study on the Iris Recognition Technology Based on 2D-Gabor Filter W.B. Mu, S.L. Zhang, X.D. Wang and J.Y. Li	151
Design and Implementation of Diamond Press'S Pressure Hammer Protection Based on Voiceprint Recognition	157
L.J. Wang and Y.Y. Zhao	156
Study on 3D Seismic Data Field Hybrid Rendering Technique of Natural Gas Hydrate P. Li, Z.J. Zhou and M. Huang	161
Precise Measurement of Temperature Based on Self-Correcting Technique D.H. Xi and J. Du	165
Design of Quantum Communication Broadband Amplifier Based on Photoelectric Diode Y.Z. Nie	169
Application and Research of Land Changes Based on GIS and RS Z.H. Qin	173
Design of High Precision Temperature Sensor Based on Platinum Resistance Y.Z. Nie	177
Study on Consistency Analysis in Text Categorization W.L. Zuo, Z.Y. Wang, N. Ma and H. Liang	181
Research on Natural Language Recognition Algorithm Based on Sample Entropy J. Lai	185
Research on Multi-Fuze Co-Channel Interference Suppression Based on Pseudorandom Code Phase Modulation C.T. Wei, Q.L. Ning and D. Chen	190
Research on the Application of Chaotic Iteration Function of Heterogeneous Populations Mining Algorithm in Computer Based on Co-Evolution	
H. Zheng and X.B. Gao Study on Composite Electromagnetic Scattering from 1D Weierstrass Fractal Land Surface	194
with Buried Target Using FDTD X.M. Zhu and X.C. Ren	199

Chapter 4: Communication and Networks

Based on ZigBee Technology Intelligent Sensor Network Design and Implementation C.H. He, X.C. Kong and H.Q. Xian	207
Bit Loading Algorithm of VSF-OFCDM Wireless Communication M.T. Xu	211
Design and Implementation of Wireless Sensor Network Data Transfer Protocol H. Zhang	220
Design of Wireless Multi-Channel Responder System X.L. Cao and J.Q. Xiong	224
Energy-Balanced Distance-Based Routing Algorithm in Wireless Sensor Networks Q. Xian and W.T. Zhang	229
Integration Development of Network Communication and Computer Technology Y.Y. Guo	234
Research on Database Design Based on Wireless Sensor Network W.J. Geng	239
Research on Wireless Sensor Network Based on Data Acquisition Technology R.H. Lu	243
Research on Wireless Sensor Networks Data Fusion Algorithm Based on COA-BP X.X. Liang, L. Cao, C.G. Wei and Y.G. Yue	247
Study of Computer Key Technologies and Mobile Technology Z.L. Jiang	251
Reader Management and Coordination Component Based on RFID H.W. Wang and S.H. Yang	256
Research on Logistics Sorting System Based on RFID X.Y. Xu, Y.B. Ma and Y.F. Qin	261
Research on Position Detection Substation in Personnel Location System Z.G. Zhang, X.Z. Wang and Z.G. Liu	265
Research on QoS Routing Security Algorithm Based on QAODV Protocol J. Zhang	270
Research on Sensor Medium Access Control Protocol for Wireless Sensor Networks L.N. Yuan and H.J. Chen	276
Optimization on NoC Mapping Based on Improved Ant Colony Algorithm D. Li	280
Research of Distributed Model of Network Management System K.Y. Fan and H.J. Guo	286
Research of Network Management Platform Based on BS Structure X. Xin	291
Research on Network-on-Chip Dynamic and Adaptive Algorithm and Choice Strategy D. Li	296
Chapter 5: Network Security and Digital Surveillance	
Design of Computer Information Network Security System L.N. Dong	305
Design of Monitoring System of Automatic Track Human Body in Residential Quarters J. Lei, L.L. Wan and J.P. Jia	310
Design and Realization of Security Network Database W.J. Geng	313
Research on Network Platform of Information Management and Security X. Xin	317
Research on Stream Cipher Model Based on Chaos Theory W.J. Sun	321
Design of ARP Intrusion Detection System X.C. Guo	326
Research on Intrusion Detection Method of Web Service Composition X.S. Wen	331

Chapter 6: Applied Information Technologies

X. Zhao and G.M. Li	339
Analysis of Effective Operation and Maintenance of Computer Database G.Y. Lu, C.X. Zhao and Y. Zhao	345
Community Medical Management System Based on SOA S.J. Zhang	349
Evolution Model of Technology Innovation Cooperation Network of Software Enterprise W.L. Yu	355
Research on Multimedia Integrated Management System W.W. Yao	360
The Research on the Boosting Decision Tree Algorithm for Intelligent Medical System D.L. Zou	365
Research on Code Separation Technology in B/S Framework L. Li, G.F. Zhang and T. Peng	369
Analysis of Risks for Virtualization Technology M.H. Song	374
Coverage Model of Wireless Network Based on Computer Virtual Simulation Y.L. Xiao and H. Guo	378
Design of 3D Digital Earth Resource Mapping System Y. Du and W.J. Liang	382
Station Models Research Based on IFS Models L. Li and G.F. Zhang	386
Implementation of Lightweight BHO Hijack Technology for Online Behavior Monitoring J. Wang, H. Yin and Y. Ling	390
Development of Color Doppler Ultrasound Image-Text Management System H.Y. Jiang	395
Earthquake Emergency Command System Based on Virtual Technology B. Yang, Z.H. Ma, X. Gao and Z.Y. Hao	400
Study of Cloud Computing and Virtualization Technology L.L. Kong	407
Design of Employment Management Platform Based on ASP.NET H.J. Shi	412
Cyclic Structure in Regenerating Codes W.J. Liang and Y. Du	416
Study of New Materials of Mobile Communication Devices Y.Y. Yuan	420
The Design of Web User Interface Based on Dynamic Re-Components S. Liu, J.L. Gang and H. Ma	424
Testing and Performance Analysis of FCA Algorithm Accelerating IBM Platform MPI L.F. Zhang and L. Chen	429
Research on Intelligent Information Search Based on Web Y.S. Zhang, L. Liu and T.Y. Zhang	434
Design of Information Management System Based on WEB X. Xin	438
Behavior Analysis in E-Commerce G.T. Qian	443
Architecture and Technique on Internet of Things X.C. Guo	448
Design on Sharing Network Platform of Information Feedback Based on Web-MIS Loose Coupling System	-
C.Y. Lu	451
Lifetime Estimation for Web Game Based on Weibull Distribution H.S. Yu and Y.H. Yuan	456

Research on Mobile Information Access Based on Internet of Things J.T. Geng and X.B. Xiong	460
Research on Web Intelligent Information Extraction Method Z.M. Wang	464
Chapter 7: Multimedia Technologies	
Analysis on Adjusting Effect and Spectral Characteristics of Digital Image Sampling H.Y. Liu	471
BP Neural Network Based Animation Production Prediction R. Tao, D.C. Yuan and G.Y. Hu	475
Image Encryption Method by Using Chaotic Mapping Based on Multi-Layer Parameter Disturbance S.J. Zhang and Y. He	479
Model Construction and Algorithm Analysis of Virtual Study Environment Based on LabVIEW H.M. Zhong	485
Nonlinear Analysis of Mixed Signal Test Based on Graphic Program Design L.J. Guo	489
Three Dimensional Numerical Simulation and Signal Processing Method of Moving Objects in the Change of Gravity J. Zhang	493
Sensor Node Design and Building of Multimedia Network in Smart Home C. Deng	497
Research of Adaptive Control Algorithm Based on the Cached Playing of Streaming Media Y.L. Luo	502
Model Design of Mathematical Physics in Multi-Media Source Term L. Luo and G. Chen	507
Chapter 8: Electronic Devices and Embedded Systems	
Design and Manufacture of Light String Electric Piano F.Y. Wang and L.J. Wang	515
Design and Realization of TFT LCD Driver Circuit Based EPM240 H.J. Peng	519
Design on AC/DC Converter Based on DSP56000 Processor Q. Wang	523
GPIB Communication Design of Programmable Instrument J.J. Zheng	527
Research on CGI in Embedded System C.J. Han	534
Research on the Drunk Driving Intelligent Test System Based on μC/OS-II B.G. Liu, Y. Han and B. Zhao	538
Research on μC/OS Operating System in GPS S.B. Jiang and J.R. Su	543
Research of Development of Embedded Systems Z.L. Jiang	547
Research on Automobile Electronic Technology Z.G. Fu and X.D. Ding	551
Design of 3D Display Dream Based on Main Control Chip F.Y. Wang and L.J. Wang	555
LED Lighting Driver IC Design and Encapsulation Material Research F.X. Li	559
Design of Multi-Protocol Converter under Coal Mine Based S3C2440 Y.H. Liu	563

Design of Methane Fermentation Environmental Factor Detection System Based on ZigBee Z.Y. Zou, M. Zhou, L.J. Xu, Z.L. Kang and M.D. Liu	567
Study of Automation Control Sports Training System X.Q. Dong	572
Temperature and Humidity Controller Based on P89LPC920FDH D.H. Xi and J. Du	577
The Design and Realization of Network Remote Control Based on ARM9 and VC6 Q. Ma	581
Chapter 9: Mechatronics, Control and Automation	
Comparative Study of the Auto Electronic Control System F.Z. Qu and B.C. Lu	587
Design of Automatic Control System for Intelligent Micro Drip Irrigation Based on PLC Technology H. Li and Y. Wang	592
Fault Detection Expert System of Elevator Control Cabinet Based on LabView B.G. Yang	596
Fault-Tolerant Control against Actuator Failures for a Class of Uncertain Singular Systems G.R. Wang and J. Lei	601
Research on Local Control System of Hydropower Station Spillway H.X. Wu, J.P. Jia and M. Zhou	606
Research on the Design of Laptop Temperature Control System J.P. Liu	611
Study of Optical Polishing Machine Based on Intelligent Control Technology X.J. Wang and X.Z. Wang	615
Study on Intelligent Self-Adaptive Control System Z.M. Liu	620
Applied Research of Cloud Computing in the Tool Radius Compensation Discrimination of Numerical Control Programming X.J. Zhao	625
Design and Simulation Analysis on Self-Tuning Fuzzy Controller Based on Scaling Factor and Quantitative Factor J. Liang	630
Mechanical Intelligent Virtual Capturing and Processing System Based on PLC-CNC Technology	
Z.F. Hu Simulation Model Design on AC Speed Regulation System Based on the Principle of Flux Regulation	635
J.J. Wen Research on Swimming Pool Water Treatment Based on Embedded System	639
X.Y. Du Research on Automatic Cleaning Robot Based on Machine Vision	644
Z.G. Pan	648
Design of Sintering Machine Lubrication System Based on PLC L.L. Wan, G.R. Wang and J. Luo	653
Chapter 10: Engineering Solutions for Energy Supply	
Design of Urban-Rural Power Grid Dispatching Fault Diagnosis Expert System X.F. Xu	659
Prediction of Coal and Gas Outburst by BP Neural Network G. Zhang, Z.J. Liu, Y.W. Yang and C.C. Chen	664
Research on Intelligent Power Management System Based on CAN Bus X. Hong	669
Thermal Neutron Utilization Factor Calculation by Monte Carlo B. Yang, H.X. Wu, Q.L. Wei and Y.B. Liu	674

Computer Simulation Technology of Electric Power Safety Based on Fuzzy Neural Network Y.Y. Zheng	679
Pressurized Water Reactor Control Rods Worth Calibration Calculation by MCNP B. Yang, H.X. Wu, Q.L. Wei and Y.B. Liu	684
Monte Carlo Simulation of Low-Energy Neutron Attenuation Performance in Boron Steel Q.L. Wei, Y.Y. Liu, H.X. Wu, B. Yang and Y.B. Liu	688
Chapter 11: Building Materials and Technologies in Construction	
Direct Damage-Based Seismic Design Method of RC Frame Structures L.F. Luo and J. Xu	695
Study on the Traditional Architectural Elements in Alishan Tsou Tribe X.H. Li, J.W. Dong and S.R. Lan	700
Study on Green Construction of Building Engineering Y.J. Xiao	706
Study on Energy Saving of Local Building Material Q. Yang and M. Yang	711
Study on Energy Conservation of External Wall Structure of Rural Houses in Cold Area Y.S. Su	716
Application of the Intelligent Building Materials in the Green Energy-Saving Buildings Y.M. Zhang and Z.L. Yang	721
Impact of Different Style of Tower-Beam-Connection on Cable-Stayed Bridge's Earthquake Response Y. Chen	726
Effect of Pile-Soil-Structure Interaction on the Cable-Stayed Bridge in Response to the Earthquake Y. Chen	731
Prediction of Blasting Vibration Velocity by BP Neural Network G. Zhang, Y.W. Yang, Z.J. Liu and J. Wang	736
Study of Earthquake Data for Cumulative Absolute Velocity and Acceleration Peak Value J.N. Xia, Z.G. Chen, J. Huang, J. Yang, J. Yang and P. Wu	741
Study on Energy-Saving Technology and Design Optimization of Facade in Cold and Severe Cold Area	
W. Li and X. Zheng Study of Urban Storm Intensity	747
C. Zhang, B.F. Li, Z.D. Wang, J.Y. Zou and Y.H. Jiang	752
Deep Hole Bench Blasting with Low Explosive Consumption in Leveling Site W.Q. Jing, H.L. Li and Y. Zhou	757
A Trust-Based Method in Construction Industry J. Xu, Y.X. Liu and L.F. Luo	762
Confined-Accelerated Creep Tests to Determine the Creep Reduction Factor Z. Zhang, D.Y. Zhu, T.F. Chen and T. Wang	769
Study on Construction Project Planning and Acceptance Completion Measurement Y.S. Su	774
Chapter 12: Mineral Processing	
Flotation Research of a Fluorite Ore W.J. Peng, L.Y. Zhang, L.L. Bai and Y.S. Qiu	781
Preparing and Sphericizing Ultrafine Graphite Particles with Stirred Mill L.Y. Zhang, Y.S. Qiu, W. Hong and C.C. Deng	785
Research on Modification and Mineral Processing Tests of Ester-105 L. Qin, H.Q. Peng, H. Shao and X. Liao	790
Study on a Lead-Zinc-Fluorite-Barite Symbiotic Ore F.T. Yu, H.M. Gao, S.J. Tao, W.T. Shi, Z.J. Ren, D.C. Yuan and C.X. Fu	794

Design of Mining Boundary for Yinjng Limestone J. Yang, G. Zhang and J.X. Chen	799
Chapter 13: Environmental Engineering and Technologies of Waste Treatment	
Treatment of Industrial Wastewater Containing High Levels of Ammonia and Salt Using Vacuum Membrane Distillation Y.M. Zhang, W. Huang and S.X. Bao	805
Transformation Mechanism of Nitrobenzene in Groundwater and Soil and its Simulation and Forecast Y. Zhao	811
Removal of U(VI) from Leaching Process Wastewater by Zero-Valent Iron H. Zeng, W.M. Zhang, Y.R. Li and Y.Y. Liu	815
Fast Prediction Method of Radon Concentration in Environment Air H.X. Wu, Q.L. Wei, B. Yang and Q.C. Liu	819
Adsorption of Dye from Aqueous Solution by Palm Leaves H.H. Sun	823
Low Carbon Technology Assessment and Planning B.J. Huang	827
Evapotranspiration and Ratio of Soil Evaporation to Evapotranspiration of Winter Wheat and Maize Z. Wei, Y. Liu, D. Xu and J.B. Cai	832
Ecological Aquaculture Wastewater Purification Engineering Design of Microcirculation Running Water Breeding System	032
H.H. Wang, Y.L. Fu, Y.G. Li, Y.P. Zhang, S.Y. Kang and W.J. Chen Simulation of Environmental Pollution Improvement	838
H.C. Liu, R.X. Cheng and H. Yan	843
Dielectric Barrier Discharge Used in Sewage Treatment Research under the Atmospheric Pressure J.P. Jia, L. Cai and J. Lei	850
Chapter 14: Transportation and Logistics	
Dynamic Vehicle Scheduling with Time Windows Model and Optimization R. Wang and N. Guo	855
Highway Alignment Parameters Design and Capacity Analysis on Two-Lane Highway J. Liu	860
Study on WSN Localization Algorithm and Simulation Model for Intelligent Transportation System L.Z. Gao	867
Real Time Monitoring System Design of Animal Husbandry Logistics Based on ARM and ZigBee	
L.J. Wang and P.J. Zhang Design and Poslization of Management and Control System of Wayshayse Posed on VC6	874
Design and Realization of Management and Control System of Warehouse Based on VC6 H.Y. Deng	878
Research on Intelligent Optimization Algorithm in Logistics Center Location W.Q. Zhao	882
Grey Correlation Analysis on Collaboration Client Evaluation in Supply Network L.L. Liu	889
Chapter 15: Technologies for Sport Science	
Regression Modeling and Optimization Assessment System for Weightlifting S.Y. Yang	897

Performance Prediction Using Fuzzy Mapping and Artificial Neural Network F. Yu, Y. Wu, X.M. Shao and J.C. Guo	901
Effects of Vertical Vibration on Peak Torque of Knee Joint Y. Tang	904
Fuzzy Comprehension Evaluation of Sunny Sports Activity Using Entropy Weight F. Yu, Y. Wu, X.M. Shao and J.C. Guo	908
Linear Regression Analysis Between Core Stability and Jump Shot B. Huang	911
Research of Sport Computer Integrated Management System Y.P. Jiang and Y.X. Wang	915
Research on Computer Information Processing Technology Based on Signal Autocorrelation Domain Z.Y. Mao	920
Analysis of New Materials in Competitive Sports Q.F. Su	920
Chapter 16: Product Design and Engineering Management	
Behavior Based on Product Concept Learning X.Q. Song, X.X. Sun and Y.Y. He	931
Improving Product Appearance Based on Industry Design N. Li	939
Research on Digital Industrial Design System Q. Yang	944
Simulation Analysis on the Delay of Clock Synchronization Algorithm Based on Adaptive Fuzzy Control Technology	049
S.Y. Li Planning and Application of Analyzing and Decision Support System J.T. Geng	948 953
Internet Industry Cluster Design Based on PDE Mathematical Model H. Huang and H. Xiao	959
Research on Testing System of Multi-Target Machine Based on Virtual Network Technology	064
X. Luo	964
Chapter 17: Researches in Area of Engineering Education	
Industry Research under Automated Control P. Wang	971
GA Based Intelligent Curriculum Arrangement System C. Luo	975