

Table of Contents

Preface and Conference Organization

Chapter 1: Product Design, Manufacturing and Analysis

The Optimization Design of Overhead Traveling Crane's Box Girder G.F. Tian, S.Z. Zhang and S.H. Sun	3
Requirement Forecasting of Equipment's Maintenance Spares-Parts Based on Exponential Smoothing Method X.C. Liu, Y.L. Zhang, A.J. Huang and L.Y. Xu	9
The Combined-Matching Design of the Tower Body of Tower Crane B. Li, Y.X. Ke, Z.L. Song and H.D. Liu	14
To Analyze The Influence Factors on Energy Saving of Hybrid Bus Y.L. Jiao, Y.P. Li and W.S. Yan	19
Optimization Design of Shading Shed Transmittance in Highway Tunnel Entrance G.C. Zhang, H. Bai, H.X. Liu and B.H. Zhang	24
Application Study of the Virtual Tactile Design in Product Design X.Y. Suo, R.B. Hu and R.P. Xu	28
Optimization Design of Stack Package Warpage Based on Moldflow Software M.X. Zang, T. Wang, C. Liu and Y.R. Zhao	34
A Parametric Study of the General Profile for Hydrodynamic Journal Bearings X.P. Pang, S.Y. Wei and K. Niu	38
The Exploration of Recycling Design of Furniture Products Based on Structure L. Liu	44
Application of Improved Genetic Algorithm to Traffic Equipment's Rush-Repair in the Wartime G.S. Wu and Q.Y. Zhang	49
Application of Fractal Graphics in Fashion Design Q.J. Ge, Y.T. Sun and Y. Liu	53
Design of the Process and Equipment of Melt PEK Filter X.J. Wu and Q. Qiao	57
Optimization Design Research on Manual Piston Pump N. Liu, J.L. Liu, B.H. Fang, H.W. Zhang and W.G. Shao	61
The Assembly Design of Non-Ball Mills K.S. Li and Y. Li	65
Static Analysis of Stator Housing of Screw Drilling Rig X.W. Sun, J. Wang, K. Wang and X. Feng	69
Design of Non-Ball Mill Based on the Green Conception K.S. Li and Y. Li	73
Thermal Design and Simulation for Lithium-Ion Power Battery Pack Assembly Z.J. He, X.J. Hu, S.Z. Di, B.B. Song and C.F. Yang	77
Preliminary Perform of PDM Technology in Automotive Design H. Zhou	81
Research on Storage Life of Electronic Equipment Based on Goodness of Fit Test Method J.S. Wang, J.H. Wu, Y.D. Wang and J.W. Lei	85
Optimizing Design of New Kind Acoustic Horns for Ultrasonic Machining Based on Finite-Element Method X.H. Zhang, J. Gao and K.X. Zhang	88
Research of a Variety of Fuel Injection Timing Control Experiment Station for Automotive Engine J.H. Zhang, M.F. Shou and L. Shi	92
Virtual Shaping Design of Electrically Driven Hunting Cart Q.L. Du, X.W. Jiang and Z.X. Cheng	96

Application of Advanced Materials in Sports Engineering Y.T. Cai and Z.Q. Song	100
A New Design Approach for PSS Conceptual Development L.J. Yang, K. Xing and S.H. Lee	104
The Analysis of the Fly Shear Head Motion Track J.L. Shi, C.Q. Zhu and M. Zhao	110
Innovative Design of Portable Public Transport System for University Students J.H. Xu	114
Appearance Design Research of Home Sealing Machine for Bagged Food L.A. Pan, X.C. Cheng and Q.L. Du	119
The Gate of General Top-Open Freight Train Security Investigation R. Gou and T. Huang	123
The Application of Gray Clustering and Information Axiom Integrated in the Scheme Evaluation of Mechanical Products J.W. Qiu, R.J. Zhang and X.X. Si	127
Application of Accuracy Engraving Technique in the Complex Curved Surface Mould Processing X. Liu and W. Fan	133
Collaborative Optimization on Structural Parameters of Scroll Compressor T. Liu, H.W. Sun, Z.X. Wu and M.H. Xu	137
Single Inlet Pressure Swirl Nozzle Stationary Wave Pattern and Quality Optimization J.L. Wu, D.Y. Zhang, X.G. Jiang and J.L. Lv	143
Application Boundary Element Method to Compute the Potential of the Eight-Needle Electrodes A.L. Wang and F.P. Liu	147
Thermal Layout Optimization of Stacked Chip Based on Ant Colony Algorithm J.G. Jiang, Q. Su, L.F. Shi and W.D. Xu	152
Developing Size Specifications of 3D Body Models for Males Aged between 7 and 18 Y.L. Choi	156
Assembly Line Balancing the Comparison of COMSOAL and MSNSH Technique in Motorcycle Manufacturing Company A. Lerttira and P.K.D.V. Yarlagadda	166
A Novel Roller Chain Sleeve Crevice Identification and Orientation Device Design and Test S. Ding, X.L. Liu, Y.B. Zhang, J.J. Liu, G.Y. Zhu and P. Wang	175
Study of Wheat Straw Weaving Process and Decorative Effect B. Liu, F.H. Wang, F. Liu and J.P. Sun	179
The Analysis on <i>Motion in Quiescence</i> of Packaging Container Molding X.Z. He, D.Z. Liao and X.J. Xiong	183
Robust Design of an Ultra-Thin Centrifugal Fan on Fuzzy-Based Taguchi Method K.H. Hsien and S.C. Huang	189
Research on Key Technologies in the Field of Wood Saving and Substitution in Packaging of Electromechanical Products S.W. Su, A. Chen and H.Q. Yang	193
Inverter Based on Improved Z-Source Structure for Off-Grid Type Wind Power Generation X.G. Wang, Z.Y. Zhao and G.Q. Cao	200
Structure Design and Modeling for a Picking Bananas Manipulator H.J. Wang, G.G. Huang, J.X. Chen and X.J. Zou	204
Reinforced Techniques Analysis of Goaf-Side Entry at Isolated Island Coal Face Based on FLAC Numerical Simulation W.H. Zha	210
Design of the Spring Fixture for Aging Treatment N.W. Wang and Z.C. Huang	215
A Framework for Life Cycle Cost Estimation of a Product Family at the Early Stage of Product Development J.S. The, P.K.D.V. Yarlagadda, M.A. Karim and C. Yan	222
Design of a Type of Semi-Automation Stretcher-Vehicle J.C. Dong, Y. Yang, Y.J. Li and C.T. Song	228

Marine Oil Spill Emergency Response Research F. Yu, X.F. Sun and X.Y. Zhang	234
Design and Kinematic Analysis of a New Grapple Mechanism F. Deng, J.B. Chen, M. Chen and F.J. Peng	239
Classification of Men's Shoulder Shapes Based on Pyramid Method M.H. Cui, Y.L. Choi and Y.J. Nam	244
Extraction of Design Factors of Product Family Based on Customer Needs M.N. Ni, Q.Z. Lv and P. Jin	250
Strength Finite Element Analysis and Test Research of Steel Package Rotation Table Beam and Tumbler J.Q. Liu and H.Y. Liu	258
Fuzzy Information Axiom in Conceptual Design Scheme Evaluation of Handling Equipments Q. He, R.J. Zhang, N. Guo, D.S. Cong and J.W. Qiu	263
Test Research on the New Electromechanical Axial-Flow Pump with Advantages of Small Vibration and Noise B. Fang, Q.D. Zhou, J.B. Xie and M.Z. Qiao	267
Innovation Design Method of Product Base on Materials Innovation Technologies Y. Guo and X. Shi	271
Study On the Design Methods of Fast Moving Consumer Goods M.N. Ni, L. Wang and Y. Li	276
Intelligent Design of Mechanical Products Based on Function-Knowledge-Structure F. Cao	283
Development of Parts Family Manage System Based on PDM in Large-Scale Air Separation Equipment R. Zhu, G. Meng and H.G. Li	288
An Efficient Torlerance Robust Design Method Based on Taguchi Theory H.M. Kan, H.B. Li, X.L. Xia and Y.T. Zhang	292
Research on Electric Power Equipment Preventive Maintenance Cycle on the Basis of Economic Life Cycle Costing Y. Li, Y.M. Hu, Y.F. Luo and C.C. Liu	296
T91 High Temperature Reheater Piping Leakage Analysis Y.J. Niu, L. Song, F.T. Hu and K.F. Wang	300
Accessories' Matching Design Study and Development X.Q. Yu, L.X. Fan, H.X. Zhang, Y.X. Chen, P.L. Yang and Z.F. Wang	304
Evaluation Model of Aircraft Maintenance Mode Based on Improved AHP J.S. Chen and C. Liu	308
Design and Realization of Hand-Held Smart Electrothermal Umbrella Applied New Materials P. Gao, Y. Ping and G.J. Han	314
Research on Individualized Requirement Modeling Oriented to the Dynamic Synchronization Q. Yang, D.Z. Wei, W. Tang and Y.F. Zhu	319
The Research and Application of Seeding Machine's Dislocation Type Seeding Device R. Wu, Y.K. Xu and S. Xue	324
Design of a Kind of Drilling Machine for Semicircle Shaft W.M. Yang, S.X. Zhao, P.F. Zheng and Z.X. Lou	328
Stability Analysis of Pumper and Finite Element Analysis of Ladder Structure for a Scaling Ladder Pumper W.M. Yang, L.J. Pan, J. Lv and X.L. Deng	332
A Novel Approach to Evaluate the Stability of Production Manufacturing System Based on Petri-Net and Analytic Hierarchy Process H.X. You	336
Research and Design of a Novel Mobile Police Station X.Y. Zhao, X. Yuan and Y. Lou	341
Design and Simulation of Visual Miniature Loop Heat Pipe Y. Chen, Y. Qu and S.S. Zhang	346

Improvements in Manufacturing Processes in a Graphical Analysis as Result of Kaizen Events	
B.T. Rieger and M. Sebastián	352
A Comparison Study of Small Displacement Torsor and Analysis Line Methods for Functional Tolerance Analysis	
C.L. Li, J.X. Yang, J.Y. Wang and W.X. Ma	358
Ontology-Based Knowledge Representation for Mechanical Products	
J. Li, Y.B. Yang and L.F. Wei	365
The Conceptual Design of Table Jaw Based on Functional Principle Design	
J.Y. Zou	371
The Tolerance Optimization Design of Displacement Pump	
C.Y. Li, C.D. Ji and K. Ding	376
Customer Evaluation and Selection Method of Real-Time Innovative Design Based on the Network	
J.S. Luo, B.G. Wang, X.L. Wang and H. Cheng	380
Study of Regenerative Braking Model and Simulation of a Car	
F. Wang and Y.H. Wu	384
DFSS of a Diagonal Impeller	
X.X. Luo, X.X. Cai, G.S. Wang and D. Mi	388
A Fast Point-Sampled Model Denoising Algorithm for Product Design	
Y.S. Li	392
The Finite Element Analysis on the Crossbeam of Full Automatic Hydraulic Tile Press	
D.Q. Lv	397
Optimization of Micro Wind Turbine for Dental Fiber Handpiece Based on the Taguchi Method	
K.H. Hsien and S.C. Huang	401
Stress Analysis of the Adhesive Used in a Hard Disk Drive Bearing Assembly Using Finite Element Model	
P. Vengsungnle and K. Tangchaichit	405
Innovative Design of Hydraulic Driving Drum for Belt Transfer Machine	
X. Zhang, Y.B. Hou, J.H. Yuan and C.Q. Sun	411
Study on the Novel Spinning Technology of Broken Silk Fancy Yarn	
Y. Huang, J.Y. Zhong, J. Chen, L.L. Yang, X. Chen and H.L. Yi	415
An Investigation on Development of Seat Cooling Fan for Vehicle	
J.H. Kim, J.M. Seo and I.S. Jung	420
Design and Research on Wind-Solar-Diesel Hybrid Generating System at High Altitude	
L.B. Mao, W.J. Wang, B. Yi, Q. Dai, H.J. Mi and T. Yuan	424
A New Cast Stone Roller Kiln and its Combustion Control Approach	
J. Chen, A.J. Luo, Y.X. Yuan, C. Xiao, W.L. Wang, Z.X. Li, H.C. Li, B.P. Mao and Z. Chen	428
High-Efficiency Solar Power Supply Design	
H. Yang, W.Q. Huang, Z.F. Wang, L.G. Chen and Y. Yin	433
Simulation Research about Web Press Paper Tape the Second Time Tension Control Based on MATLAB	
Y.Q. Sun	438
Research on Ride Comfort of Nonlinear Vehicle Suspension	
Z.Y. Zhao, Z.H. Fan, J.J. Zhang and Z.Q. Xia	443
Collaborative Design Optimization of Main Movement System of Hydraulic Piston Engine	
D.L. Xue, H.X. Zhang and Y. Liu	448
Study on Torque Converter with Adjustable Guide Vanes of Hydrodynamic Speed-Adjusting Wind Turbines	
W. Cai, W.X. Ma, C.B. Liu and W.W. Du	453
Analyzing on the Principles of Intelligent Furniture Design	
G.Q. Zhang and J.J. Zhang	458
Analysis of Fabric Reconstruction Problem in the Apparel Production Design and Manufacture	
C.Y. Wu, Y.J. Zhang, C.F. Qu and L.B. Xu	462
Pilot Investigation on the Driving Posture Comfort among Malaysian Drivers	
M.S.A. Hussin, R.A.R. Ghazilla and M. Widia	466

Product Style Map — An Effective Tool for Product Strategy Planning T. Han and S.Q. Sun	472
---	-----

Chapter 2: Management and Production Scheduling

Research on Exhibition Logistics Information System Designing S.X. Zhang	479
The Intelligent Forecasting Method of Mine Equipment Maintenance Plan W.X. Huang	483
Flexible Job-Shop Scheduling Problem under Uncertainty Based on QPSO Algorithm F.S. Pan, C.M. Ye and J. Yang	487
Information on Risks and Prevention of the Supply Chain in E-Commerce Environment P.Y. Xu	493
The Architecture for Solving the Cross-Domain Keywords During New Product Development Y.C. Tsao, K.C. Hsu and Y.T. Tsai	497
Spare Parts Production Planning Model Based on Fuzzy Programming X.Y. Zhang, C. Liu and N.Z. Yang	501
Value Chain Theory and its Application in Steel Enterprises W. Dou, J. Shi and J.X. Wei	507
Business Process Management for Information System Implementation in Discrete Manufacturing Workshops Based on Multi-Agent Simulation S.Y. Zhang, Y.Q. Tan and T.H. Zhang	511
Research on Confidence Degree of Enterprise Alliance under the Environment of Network-Based Manufacturing X. Zhang	516
Scheduling to a Common Due Date on Unrelated Parallel-Machine with Deteriorating Jobs C.J. Hsu	521
The Research of Heuristic Algorithm for Flow Shop Scheduling Problem D. Tang and H.P. Shu	528
Research on the Application of Operation Characteristic Curve in the Sampling Inspection for Foods in Prepackages with Fixed Content L.X. Zhu, P. Lu, J.H. Wang, Z. Yin and J.X. He	532
Study on Coal Lean Mining Theory and Practice Z.X. Liu	538
A Multi-Issue Negotiation Based Task Allocation in Virtual Enterprise N.S. Hong and G.Y. Zhang	542

Chapter 3: Supply Chain

Introduction of IOT Technology in a Logistic System for High-End Wine Sales H.D. Zhao, G.N. Liu, Q.Q. Guo, S.G. Ma, Y. Tie and C. Li	549
Study on Supply Chain Performance Evaluation Method of Equipment Spare Parts H.Q. Gu, H. Song and C. Zhang	553
Optimization of Port Supply Chain Super Network under Electronic Commerce H.Y. Xie, X. Liu and D.P. Zhao	557
Study on Chinese Container Associates and its Construction Strategy S.L. Chen, Q.F. Wu and J.J. Sheng	562
Energy-Saving Technologies of WSN R.M. Zheng	566
Study of Container Transport Planning Model and Algorithm X. Zhang, J.S. Lin and Z. Zhao	570
Modeling and Optimization of Traceability System for Agriculture Products Supply Chain F. Li, Y.P. Zhu and H.R. Wu	574
Design of Manufacturing Logistics Service Platform in a Certain Area H.L. Zhao	580

Chapter 4: CAD/CAM/CAE

To Solve Mechanical Working Space by Applying Graphic Integration in ADAMS R.H. Zhang, Y.F. Zhu and S. Yang	587
A Rapid Design System for the Transmission System of Mounter Worktable Based on Second Development of SolidWorks X.M. Li, W.H. Lu, X. Ning, G.C. Jin and T.C. Yu	592
Model and Finite Element Analysis of a Bus Body F. Wang and Q.M. Fan	596
Optimization Design of a Bus Body Frame F. Wang and Y.H. Wu	600
Modeling Method and Application in Digital Mockup System towards Mechanical Product H.Y. Zhang and J. Li	604
The Application of AutoCAD Software in Forestry L.J. Zhao, F.R. Li and W.W. Jia	609
A New Way of Virtual Prototype Design and Analysis for Tractor Steering System X.Y. Tang, D. Xiao, L. Liu, E.R. Mao, Z.H. Song and Y.K. Peng	616
Offshore Platform Deck Crane Fatigue Analysis Based on Abaqus S.Y. Wang, Q. Mei, L. Liu and Y.Q. Zheng	622
Simulation of Crank-Rocker Mechanism on Finite Element by ANSYS X.Y. Zhang	626
Characteristic Study on Temperature Field of Hydrostatic Bearing of Hydroforming Machine S.G. Wang, X.F. Du, D.S. Li and Q.M. Hu	630
Study on the Design Method of Testing Fixture for Bent Tube Based on UG X.J. Zhao, G.B. Pang, C.F. Yuan, M.J. Zhou and S. Li	636
Parameterized Modeling of Circumferential MEFP Warhead Based on Characteristics Z.G. Liang, J.W. Jiang and T.G. Zhang	640
Research on the Virtual Assembly-Disassembly and Repair of the Automobile Drive Axle H. Sun and W.G. Deng	646
3D Modeling and Motion Simulation of Single Surface Corrugated Machine Based on SolidWorks M.X. Yan	651
ANSYS Application in Modal Analysis of Bus Body Frame L. Xu	656
Calculation of Tilting Torque for Converter Based on Solidworks H. Guan and X.P. Ren	660
A Single-Phase Electric Harmonic Monitoring System Design Based on the LabVIEW Z.J. Zhang	664
Optimization and Application of STL Model Slicing Algorithm in Rapid Prototyping C.X. Wang and Z.H. Li	669
Motorcycle Modeling with SimMechanics H.D. Wu and H.B. Xu	673
System Dynamic Characteristic Simulation of Spacecraft Propulsion System Based on AMESim Z. Yan, X.H. Peng, Y.Q. Cheng and J.J. Wu	679
Study on Parametric Assembly Modeling of Standard Parts with Assembly Level of Mold Based on UG Secondary Development M.J. Zhou, J.C. Zhang, X.J. Zhao and Q.Y. Ma	684
ANSYS-Based Finite Element of Rear Frame in Underground Transport Vehicle L. Sun	691

Chapter 5: Reliability, Fault Diagnostics and Quality Monitoring

The Common Mode Failure Analysis Based on Markov Model Y. Zhao and J. Jiao	697
--	-----

Research on Intelligence Inspections of Gear Profile Deviation H. Zhang, Z. Xu and W. Fu	703
Research on Reliability Qualification Test of Mechanical and Electric Equipment Onboard Z.R. Xie, J.W. Lv and Z.H. Liu	708
Research on Fault Diagnosis for Bearing of CNC Machine Tools B.C. Zhang, X.J. Yin, Z.J. Zhou and Y.L. Zhang	713
Multiple Reference Impact Testing for Bridge Assessment with Drop Hammer Y.J. Liao, Y. Zhou and P. Qin	718
An Independent Component Analysis Based Defect Detection for the OLED Display Z.L. Wang, J. Gao, C.X. Jian, Y.C. Liang and Y. Cen	724
Fault Diagnosis of Valve Train of Internal Combustion Engine Based on the Artificial Neural Network and Support Vector Machine F.R. Bi and Z. Song	729
A Note on the Early Failure Period for CNC Machining Tools Z.C. Jia and Z.J. Yang	734
High Order Spectrum Characteristics of the Elevator Fault Y.K. Zheng and Y.J. Huang	739
Field Test of Wellbore Anti-Collision Monitoring System G. Liu, Q.Z. Yang and B.S. He	744
The PHM Research of Vessels Equipment Based on Condition C.J. Wang, Y.Z. Liu and H.J. Fan	750
Large Pendulum Shaft Failure Analysis and Countermeasure Research W.M. Lin, Y. Zhang, H.Y. Xiang and Z. Li	756
Electromagnetic Nondestructive Testing in Cracked Defects of Oil-Gas Casing Based on Ant Colony Neural Network W. Zhang, Y.B. Shi and Y.J. Li	760
The Research and Analysis on Valve Reliability of Reciprocating Compressor J.Q. Jin, G.L. Sui and H.T. Zhang	764
The Reliability Estimation of Double-Parameter Exponential Distribution on Zero-Failure Data J.M. Zhong and H.Y. Zheng	769
Application of Measurement System Analysis in Controlling the Gun Maintenance Quality M. Zhang, S. Wang, G.D. Wang and W. Jiang	775
Research on Parameter Distribution of Interval Deleted Data with Turnbull Estimation J.H. Wu, J.S. Wang, H.B. Liu and J.W. Lei	780
Stress Analysis of Ultra-Supercritical and Electrical Three-Way Valve Body Intensity in a High Pressure Heater Using FEM S.X. Li, J.H. Hu and L.C. Li	784
Credibility Measure and Assessment Method of Equipment Severity to Voltage Sag X.N. Liu, Y. Wang and X.Y. Xiao	788
Discussion about Circuit Board Fault Diagnosis Based on D Algorithm X.Q. Xing and Z.T. Yao	793
Research on Fault Diagnosis Based on TEAMS Y.H. Liang, Q.Y. Wu and D. Jin	797
Mechanism Movement Reliability Analysis of Galting Gun X.M. Han, Y.C. Bo, Q. Li and Y.J. Guo	802
Sensitive Equipment Failure Assessment Caused by Voltage Sags Using Interval Probability H. Li, X.Y. Xiao and Y. Wang	806
Tooth Surface Contact Fatigue Reliability Analysis of Cycloidal Gear Based on Monte-Carlo T.M. Guan, J.B. Li and L. Lei	811
Fault Location for Transmission Line with Shunt Reactors X.D. Liu, R. Guo and R.M. Zeng	815
Impacts of Protection Cooperation on Voltage Sag Frequency and Sensitive Equipment Trips L.P. Chen, X.Y. Xiao, Y. Wang and J. Jiao	819

Fracture Reason Analysis for Helical Gear Shaft of Converter Tilting Mechanism Senior Reducer	
L.K. Guan and N.N. Wang	824
Fault Diagnosis System of the Fire Control System Based on Fuzzy Neural Network	
P.J. Zhang, Y.C. Bo, H.Y. Wang and Q. Li	828
The Fatigue Life Research on the Crossbeam of Automatic Hydraulic Tile Press	
Y. Pan	832
The Fault Diagnosis Model of FMS Workflow Based on Adaptive Weighted Fuzzy Petri Net	
H.L. Pan, W.R. Jiang and H.H. He	837
Safety Analysis and Design of Wireless Monitoring System	
B. Qian and H.Y. Zhang	844

Chapter 6: Measurement Techniques, Technologies and Equipment

Recognition of Branch Insulation Parameters in Coal Mine Distribution Network using Least Squares Method	
J.W. Zhao	851
Application of Sliding Window-Genetic Programming Algorithm in Alert and Forecast for Mine Safety Monitoring	
R.H. Ma, X.H. Dong and J.L. Wang	855
Camera Calibration of Binocular Vision Based on Virtual 1D Target	
Y.B. Guo, G. Chen, D. Ye and F. Yuan	859
The Electronic Measuring System Design of Identifying Freshwater Fish Meat with Different Freshness	
X.J. Yang and Z.H. Yan	864

Chapter 6: Measurement Techniques, Technologies and Equipment

A Low Frequency and High-Precision Microbarograph Monitoring System	
L. Li, Z.H. Zhou, C.X. Lv, B. Liu, H.C. Zang, P.Y. Yao, J. Yuan and Z.L. Hua	873
Research on Key Technologies of the Needle Loom Condition Monitoring System	
H. Deng, B.T. Song, H. Liu, H. Zhang and S. Yang	878
Determination of Multi-Element in Egg of Poyang Lake <i>Anas platyrhynchos</i> by ICP-AES	
Y.G. Tu and Y. Zhao	882
Method of Disease Diagnosing Based on SVM and Rough Set	
B.L. Liu and L.X. Gao	887
The Design of Pressure Meter Based on Ultralow-Power Consumption Technique	
Z.Y. Xie, L.P. Zheng and H. Zhang	891
Road Load Spectrum Collection and Analysis of AMT Actuating Mechanism	
X.H. Zou, K. Qiao and X.H. Shi	895
Research on the Computational Algorithms for Layer Wound Linear Variable Differential Transformers	
L. Jiang and G. He	899
Classification of Floral Origins of Honey by NIR and Chemometrics	
X.Y. Liang, X.Y. Li and W.J. Wu	905
Modeling and Simulation of the Dissolved Oxygen Monitoring System in Aquaculture	
D.Z. Huang	910
Researches on the Size Measurement of Mechanical Parts Based on Image Processing	
H.J. Dong, H.J. Yang and G.H. Han	915
Feature Extraction of Leaf Images for Mite Disease in Cotton Fields	
Z.H. Diao, Y.M. Song, Y.P. Wang and H. Wang	919
Research of Ultrasonic Flow Detection Method Based on Hydrodynamics Analysis	
L.J. Sun, M.L. Liu and Y. Hou	923
Research on Non-Invasive Measurement of Optical Parameters of the Tissues by Support Vector Machine	
Y. Li, J.J. Xu and H.P. Liu	929

Determination of Trimethylamine in Air by Cataluminescence-Based Gas Sensor K.W. Zhou, C.X. Gu, X. Li, D. Su, H.Z. Yang and X. Shen	933
Monitoring and Research of Power Ultrasonic Honing Vibration Frequency X.Q. Xing, C.Q. Gao and X.J. Zhu	937
Granary Temperature and Humidity Detection System Based on MCU L. Jin and T. Zhao	941
Flow Rate Measurement Method and Apparatus of Thick Pastes S.Y. Zhang, Z.N. Wang, X.D. Hao and M. Wu	945
Principle Error Analysis of Three-Point Supporting Type Barycenter Measurement System Y.X. Hao, Y.H. Liu, S.W. Yang and H.T. Cheng	951
Design of Data Acquisition and Storage System for Digital and Analog Signal Based on FPGA H.L. Wang, H.R. Wang and H.F. Ding	955
Study on the Attenuation Behavior of Acoustic Wave in ER Fluid N.H. Yu and J.J. Fan	960
An Measuring and Evaluation Method of Coaxiality Error for Large-Scale Holes W.J. Xie	964
Vehicle Braking Efficiency On-Line Monitoring and Evaluation with MFDD W.L. Li, W. Zhou and L. Gao	968
FEM Study on the Dynamic Effects of CMM Geometric Errors Y.L. Chen, Y.N. Peng and Z.H. Wei	972
Design of Measurement System for Solid Propellant Kneading Machine's Pot Temperature X.L. Jin, S. Chen and B.J. Ma	976
Sizing System for Automatic Construction of Dress Shirt Patterns for Men Y.L. Choi	981
Structural Damage Detection of the Simple Beam Based on Responses Phase Space C. Cheng, Z.H. Nie and H.W. Ma	989
Wheat Sedimentation Value Determination Based on Near Infrared Spectroscopy L.J. Sun, M.L. Liu, L.L. Xu, X.F. Li and X.D. Mao	996
Automatic Identification of Crack in Ultrasonic Infrared Imaging F.Z. Feng, C.S. Zhang, Q.X. Min and P.C. Jiang	1001
The Curing Residual Strain Monitored by Fiber Bragg Grating Sensors H. Tian, C.S. Ye and X.T. Bao	1007
The Design and Implementation of the Terminal in a Vehicle Exhaust Real Time Detecting System F. Lin, J. Yan, Z.Z. Ye, Y.J. Song and H.Y. Chen	1012
A Test of Mtem' Application in the Iron Mine ahead to Explore the Water X.H. Liu, P.S. Zhang, L.H. Sun and S. Chen	1016
Research on the Utilization of Smart Meters' Information under the Background of Smart Grid H.C. Guo, D.X. Niu, J.P. Liu and Z. Ma	1023
A Sinusoidal Grating Design and Performance Analysis B. Zhou, Z.Y. Liu and L. Rao	1027
Method of Dynamic Detection for Clutch of Real Vehicle Based on RFID Technology L.H. Yu and L.R. Wang	1031
Research on Aircraft Attitude Testing Technology Based on the BP ANN Z.J. Liang and T.H. Ma	1038
Research and Application of Portable Real Protection Potential Measurement System of Buried Steel Pipeline X.F. Zhao	1042
Application Research on Aqua-Sim for Underwater Acoustic Sensor Networks T.Q. Liu, G.J. Han, C. Zhu and C.Y. Zhang	1046
The Insights of Node Deployment for Localization Accuracy in Underwater Acoustic Sensor Networks C.Y. Zhang, G.J. Han, C. Zhu and T.Q. Liu	1050
Application of Self-Calibration in Flatness Assessment T.T. Guo, X.X. Wang, H. Zou, B. Hong, J. Zhao and M. Kong	1054

Determination of Residual Organic Solvents in Antitumor di-phenyl-di-(2,4-dichlorobenzohydroxamate)tin by Capillary Gas Chromatography L.L. Miao, Y.E. Li, Y.L. Li and Q.S. Li	1058
The Design of Real-Time Power Detection System in Communication Equipment X.J. Yi, J.X. Jiang, D.W. Guo and D.F. Zhang	1063
Research on Frequency Conversion Selective Measurement and Error Correction Algorithms in Grounding Characteristics Measuring System S.Q. Wang, X.W. Chen, Z.J. Guo and X. Wang	1068
Identification Research on CMP Multi-Zones Pressure System Y.W. Wen, X.C. Lu, H. Zhang, K. Zhou and P.Q. Ye	1074
Measurement of Spacecraft Simulator Motion Parameters Based on Multi-Vision System Y.B. Guo, H.P. Ma, Q. Xia, G. Chen and F. Yuan	1080
The Radius of an Ultrashort Pulsed-Laser to Fresnel Diffraction of a Serrated Aperture H.S. Wang	1085
Study on the Online Dynamic Weighing System of Heavy Duty Apron Feeder Based on Labview Q.G. Deng, H. He and B. Hu	1089
A Least Square Solution for Energy-Based Source Localization in Sensor Networks N. Jiang and W.B. Ai	1094
Design of the Time Interval Generator Automatic Verification and Management System Y.J. Fu and X.B. Hou	1099
A Height Estimation Method Based on Joint Time Delay and Phase Estimation for Wideband InSAR or InSAS S. Zhang, J.S. Tang and H.P. Zhong	1105

Chapter 7: Dynamic Analysis of Mechanical Systems and Mechanical Transmissions

A Study on Drive Capstan Stiffness of Cable-Driven Picking Manipulator H. Luo, Y.G. Tang and J. Shen	1113
Structural Vibration Control of the Magnetic Flywheel Based on GA-PID Neural Network H.Y. Fu, P.F. Liu, Q.C. Zhang, G.D. Li and D.B. Dong	1120
Dynamic Analysis of Variable-Step Feeding P.F. Chen, J.F. Cai and S.B. Xu	1125
Vibration Characteristic Similarity Appraisal of Conticaster Vibration Table W.Z. Yang, Z. Cui, X.P. Ren and F.Q. Su	1130
The Abnormal Vibration Source Analysis of Automobile Drive Axle C.H. Yang, N.C. Guo, H.S. Song and W.K. Shi	1134
Study on the Non-Linear Dynamic Stability of a Cracked Rotor System S.Q. Lv, L. Tian and G.W. Zhao	1138
Enclosure Active Structure Acoustic Control Based on Multi-Agent System Z.C. Li, L.N. Gu and N. Chen	1142
Effect Factors Analysis of Flow Generation Noise from Muffler Element with Inserted Tube H.J. Zhao, H.X. Wang, J.D. Chang, Q. Li and L.P. Tian	1149
Study on Impact of Powertrain Mounting Stiffness on Vehicle Vibration Characteristics Y.Z. Men, H.B. Yu, H. Wang and L. Xu	1154
Research on Influence of Intertooth Space Confriction to Transmission Efficiency under EHL W.H. Liang, K. Liu, X.L. Liu and Y.H. Cui	1158
A Vibration Analysis and Evaluation System Construction Based on On-Line Inspection Y.C. Xia	1164
Vibration Transfer Analysis of High Speed Train Considering Car body Flexibility T.L. Chen, J. Zeng, Y.H. Lu and L.M. Zhang	1168
Dynamical Analysis for Mechanical Arm of the Coal Sampling Machine Based on Rigid-Flexible Coupling Model L.L. He and R.L. Li	1172

A Modal Analysis of Eccentric Shaft of Caster Vibration Device J.L. Shi, X. Yang and D.D. Ma	1176
The Development of Structure Random Vibration Parameter Analysis Tool Software under Hot Environment Condition G.Q. Wu, X.L. Han, J.M. Du, L. Li and C.M. Hu	1181
Virtual Prototype Modeling and Dynamic Simulation for a Large Pendulum W.M. Lin, Y. Zhang, H.Y. Xiang and B.A. Han	1190
Study on Dynamic Simulation of Hydraulic Die Forging Hammer Based on VPT Y.J. Zhang	1194
Research of Dynamic Performance of Reciprocating Compressor Valve J.Q. Jin, G.L. Sui and D.Y. Shen	1198
Vibration Modal Analysis of the Upper Frame of Hydraulic Excavator C.P. Zuo, Y.Q. Zhou, R. Huo, L. Wang and H. Li	1203
Analysis on Structure Stress Characteristics of Top and Low Slewing Frame of Tower Crane B. Li, H.D. Liu, B. Cai and Z.L. Song	1207
Analysis of Local Stress and Vertical Deflection of Down Chord of Inverted Triangle Cargo Boom of Tower Crane B. Li, Z.L. Song, Y.X. Ke and H.D. Liu	1212
The Design of Transmission Scheme of the 6-Speed Automatic Transmission Based on the 01N Automatic Transmission M.F. You, Q. Wen, M.F. Zheng and Z.W. Li	1217
Analysis on Dynamic Characteristics of Paper Feeding Device Y. Huang, J.F. Cai and R. Xie	1224
Dynamic Simulation and Analysis of a Dual-Link Suspension J.Z. Feng, L. Liu, S.L. Zheng, D.W. Gao and T. Sun	1230
Dynamic Performance Analysis for Milling Head Box of Spiral Drill Collar Machine K. Wang, Y.X. Song and X.W. Sun	1236
Analysis and Modeling of Error Sources for Spiral Bevel Gear Honing Machine Based on Multi-Body System Theory G.Z. Zhang, J. Han and Y.Y. Liu	1240
Optimization Method of the Rubber Elastic Element Structure Based on the Vibrational Power Flow W.W. Liu, J.J. Lou and H.P. Wu	1244
Transmission Study on Dynamic Characteristics of Front Suspension LCA Bushing L.E. Peng and R. Guo	1249
The Study on Experimental Modal Analysis of High-Speed Rotational Shaft J. Zhao and J.C. Yuan	1253
Modal Experiment and Analysis of Needle-Punching Machine Z.L. Tang and J.C. Yuan	1257
The Performance Study of Three-Ring Gear Reducer Y.K. Liu and Y.L. Wei	1261
Influence of Top-Structure Form of Tower Crane on the Factor for Hoisting a Grounded Load Y.J. Xia, W.M. Mei and Q. Miao	1265
Research on the Dynamic Characteristic of the Bogie in Dynamic Track Stabilizer on Working Conditions L.H. Wang, G.W. Liu and Y.Y. Huang	1270
Dynamic Analysis of a Free-Free Beam G.C. Han, Y.H. Wu, F.G. Bian and C. Liu	1274
Research on Involute Master Measuring Apparatus Q. Liu, Y. Ma, S.Y. Ling and Q.M. Wang	1280
Dynamic Analysis for New Low-Speed Motor with Interior Pushrod Harmonic Transmission Device X.L. Yang, J.F. Liu, J.C. Zou and W. Ding	1284
Methods for Determining the Dynamic Load of the Shipbuilding Gantry Crane X.Y. Qian, C.B. Yin and F. Ma	1288

Distribution on Transmission Ratio of Cylindrical Gear Reducer L.L. Zhu and G.X. Wang	1295
---	------

Chapter 8: Fluid Power Transmission and Control

The Electro-Hydraulic Proportional Technology-Based Experimental Research into Gradually Pressurization System on Cotton Lap of Roll Machine J.Q. Yu and J.C. Yuan	1301
Finite Element Stress Analysis of Intersection Region of Nozzle and Blind Flange J.H. Dong and B.J. Gao	1307
Research on Optimization of Flow Field in 60t Tow-Strand Tundish by Hydraulic Model J.J. Zhang, W.F. Gao and Z.G. Peng	1311
Design and Analysis of Hydro-Viscous Winch Hydraulic System Q.R. Meng, S.F. Lin and J. Wang	1317
Hybrid Excavator Test Bed Hydraulic Load System Design Z.H. Huang, H.W. Gao and Y. Xie	1322
Research on Pneumatic Performance of Aero-Engine Blades through Function Method W.S. Liu, Y. Sun, G.D. Shi and X.L. Liu	1326
Study on De-Icing Fluid Pump Station's Flow Pulsation Suspension Methods L.W. Wang, Y.S. Long and Z.W. Xing	1330
Simulation of the HCCI Combustion Based on Single-Zone Combustion Model Y.S. Jin, J.S. Lin and Z.S. Yan	1335
Design and Implementation of the Integrated Test Platform for the Hydraulic Components Z.H. Liu, Q.L. Zeng, C.L. Wang and H.X. Kang	1340
Prediction Model of Control Valve Characteristics Y.D. Xie, Y.J. Liu and Y. Wang	1345
Numerical Simulation of Convection Heat Transfer in a Plate Channel with Sintered Copper Porous Ribs X.W. Lu, D.Z. Yang, W.J. Cao and Z.Y. Zhou	1350
Theoretical Study of Transmissivity of Electromagnetic Wave in Magnetorheological Fluids Y.Q. Wan, J.J. Fan and N.H. Yu	1356
Research on Maximum Wind Energy Capturing of DFIG H.H. Song and D. Tian	1360
The Research of Internal Fluid State Influence in the Divergency of the Straight Cone-Shape Draft Tube Y. Lin, S.R. Han and D.C. Zhang	1364
Fluid Field Analysis for Cyclone Separator Used on Grain Cleaning L.X. Geng, L.J. Zhang and Q.X. Shi	1369
Impeller Finite Element Analysis of Extractable Explosion-Proof Contra-Rotating Axial Fan for Mine Local Ventilation FBDC Q.D. He, W.Q. Yu and S.F. Xiao	1372

Chapter 9: Mechatronics

A Linear Macro/Micro Platform Design Based on FEM Simulation L.F. Zhang, Z.L. Long, J.W. Fan, Z.C. Wang and J.Z. Yang	1379
The Effect of Electrode's Material on Immobilization of Sulfite Oxidase Enzyme in Construction of Sulfite Biosensors A. Ghoseyri, A. Farahbakhsh, S. Khakpur and N. Hosseinfakhrabadi	1387
A Human Half-Top Kinematic Motion Tracking System Based on Disparity Information of Stereo Camera Y. Kim and S. Jun	1391
Map Matching-Aided In-Motion SINS Initial Alignment G.W. Zhang, J.B. Chen, C.L. Song and T.T. Wang	1395
Modeling and Design of 3D Visualization on Giant Magnetostrictive Actuator F. Zeng, J.J. Lou and S.J. Zhu	1402

A DSP-Based Control System for Precision Variable Rate Fertilization X.Y. Tang, Y.Z. Chen, Y.K. Peng, X. Wang, Y. Xu, W.L. Yang and W. Wang	1408
Design of a Type of Cleaning Robot System H. Peng and Z.C. Huang	1415
Analysis of the Biomechanics of the Fingers in Different Writing Stances M.C. Tsai and S.C. Huang	1419
Modeling of Five-Axis Linkage WEDM for Complex Curved Surface and its Simulation X.R. Wang, P. Wang, Y.C. Cui and T. Han	1423
The Study of 3-D Magnetic Field Finite Element Analysis for Giant Magnetostrictive Actuator F. Zhang, Z.X. Ma and S. Gao	1427
Development of a Precision Micro-Assembly Machine for ICF Targets W.R. Wu, D.H. Yu, L. Zhang, Z.R. Qiu and X.H. Huang	1431
Development of Integrated Testing Instrument for Mechatronic System B.L. Liu and L. Li	1436
High-Temperature Capacitive Mode Pressure Sensor Based on SiC H.Y. Yu, H.J. Lv, W.Z. Song, Z.B. Yang and M.H. Pang	1440
Characteristics Ansys of Hydraulic Cushion for High-Speed & High-Precision CNC Lathe L.P. Liu, Q.Q. Gao and G.H. Deng	1444
Optimization Problem Research for Machining Accuracy and Cost of CNC Lathe Based on Adaptive Particle Swarm Optimization W.W. Liu and Y. Zheng	1448
The Navigation and Positioning Method of Active plus Passive Ultrasound-Guided Robot for Liver Cancer Coagulation Therapy Y.Y. Cao, B.J. Qi, S.X. Wang and W.T. Cui	1453
Sensitivity Analysis and Numerical Simulation of the Planar Mechanism Kinematic Accuracy R.J. Zhang, Q.X. Jia, L. Meng and J.W. Qiu	1460
The Kinematic Modeling of a 2-DOF Rotational Parallel Fixture S.L. Cai, W.T. Huang and L.B. Peng	1465
Design and Realization of Helical Rotor NC Automatic Programming System F. Chen, L.Y. Gu, Y. Yang and C.Y. Jia	1469
Design of AMT Hydraulic Shift System Based on the Logical-Shift Formula T. Mei and J.J. Li	1474
Fuzzy Adaptive Terminal Sliding Mode Control for Attitude of Flapping Wing Micro Aerial Vehicle W.H. Lu, S.B. Hu, J. Wei and D.M. Cao	1478
Novel Compensator for Aircraft Electromechanical Actuator N. Wang and Y.J. Zhou	1483
Research on Magneto-Rheological Torque Servo Devices G.F. Li, M.Z. Han, C.Y. Shan, J. Liu and J.X. Yang	1488
Study on Tilt Properties of Orifice-Compensated Aerostatic Thrust Bearings L. Wei and M.M. Deng	1492
Research on the Internal Model Decoupling Control of High Speed Spindle Y.S. Li, J. Meng and Y. He	1496
Path Recognition Method for Vision Navigation of Tobacco Harvester Y. Li, Z.X. Guo and W.S. Wei	1502
Research of CNC Automatic Programming Method Based on Process Database J.H. Tao, X.J. Fei, M.Y. Zhu, X.C. Liu and H. Liu	1506
Error Analysis of a 2-PRS/2-UPS 4-DOF Parallel Platform S.L. Cai, L.B. Peng and W.T. Huang	1511
Dynamic Analysis of Key Parts of CNC Milling Machine Based on FEM W. Cong, Z.Y. Zhang, J. Li and E.X. Han	1515
Finite Element Analysis of Milling Head Box of CNC Machine Tool L. Sun and X. Wang	1519
Statics Analysis for the Crossbeam of Large Gantry CNC Machine under Six Working Conditions X.L. Deng, W.M. Yang and J.C. Wang	1523

Automobile Frame Side Rail Detection System Based on Machine Vision Y.Z. Men, H.B. Yu, H. Wang, J.G. Gao and X. Pan	1527
A Practical Algorithm for Ball-End Mill Using a Five-Axis CNC Grinding Machine X.J. Sun, F. Tang and X.H. Wang	1531
The Application of PLC in the Stepper Motor Closed-Loop Control System Design X.Y. Wang	1537
Dynamic Analysis and Structure Improvements on Machine Tool Bed L. Sun, M.H. Wang, B.F. Shan, J.L. Bai and H. Zhou	1541

Chapter 10: Industrial Robotics

Structural Design of the Robot Arm for Massage Based on the Chain Drive Z.L. Wang, Q. Liang and B.C. Zhang	1547
Temperature Uniformity Control in the Low Pressure Process Chamber of the IC Equipment H. Huang, T.N. Yang, C.M. Li, Q.L. Zhang and Z.D. Huang	1552
Study on Two-Step Method for Robot Dynamics Parameters Calibration Q.X. Jia, T. Li and G. Chen	1557
The Path Optimization of Spray Painting Robot for Two Path Pattern K. Teng and Y. Zeng	1563
Analyzing Moving Character of a Novel Parallel Mechanism H.J. San, Y.M. Wang and J.X. Liu	1568
Forward and Inverse Position Solution Analysis of 2UPR/1SPR 3-DOF Parallel Mechanism H.J. San, Y.M. Wang and J.X. Liu	1573
A Hardware & Software System for Unmanned Ground Vehicle Control with Robotic Arm & Color Detection M.S. Rahman, M.S.U. Chowdhury, M.A. Wazed and M.M. Roshid	1577
Robust Adaptive Sliding Mode Synchronous Control for a Planar Redundantly Actuated Parallel Manipulator Y. Long and X.J. Yang	1583
Research on Pneumatic Control System of Box Unfolding and Closing Mechanism of Horizontal Type Boxing Line C.W. Chai and J.F. Cai	1589
Path Planning with Motion Optimization for Car Body-in-White Industrial Robot Applications P. Božek and K. Trnka	1595
Industrial Robot Control Using Inertial Navigation System T. Pintér and P. Božek	1600
Application of Optimized BPNN Based on QGA in PID Control of Coal Mine Detection Robots Y.Y. He and Z.G. Niu	1605
An Introduction to Parallel Robot Mechanism Z.Y. Xue	1609
Ant Colony Optimization Based on Local Optima Breaking Mechanism for Unmanned Vehicle Path Planning in Cross-Country Environment M.Y. Feng, H. Li, Y. Yuan and J. Cao	1613
Study on Genetic Fuzzy Wavelet Neural Network Controller of Robotic Manipulator Y.L. Wang and D.Y. Wang	1619
A New Design of Programmable Multi-Axis Controller Y.Z. Hu and Q.Z. Zhu	1625
A Robot Vision System in ABU Robocon Contest: Visual Servoing Navigation and Object Tracking X.H. Li, P. Zhang and S.N. Lin	1630

Chapter 11: Control Technologies and Intelligent Systems

Duffing Chaotic System Stability Control Based on Sliding Mode Control D. Ma	1639
An Intelligent Water-Saving System Y.P. Yang and H.H. Weng	1643
Study on Data Detector of Synchro-Self-Shifting Clutch on Combined Diesel or Gas Turbine Power Plant Y. Tian, K.L. Wang, Y.F. Zhang and S.Y. Li	1647
The PLC Control System of Box Processing Combined Machine Tool L.Y. Li	1651
Parameterization of Emotion Expression through Robot's Body Language T. Sapsaman and T. Benjawilaikul	1656
The Effect of Hexa-Orientation Press Control System Development on Diamond Material Grade H.Y. Hua and Z. Zhang	1661
Multi-Echelon Integrated Inventory Control Strategy of Equipment Spare Parts H.Q. Gu, C. Zhang and Q. Shi	1665
Research on Vacuum Consumable Arc Remelting Furnace Control System with Drop Short Pulses Testing G.Y. Lv and S.X. Hu	1670
A System of Multistep Self-Learning Forecast and its Application on Oil Refining Industry J. Chen	1675
Application of Critical-Siphon Theory to Fastest Deadlock Controller for a Class of Flexible Manufacturing Systems J.K. Chiang and D.Y. Chao	1679
Remote Monitoring System on Mining Visualization Y. Yang, Y.L. Li and J. Li	1683
The Analysis of Soft Starting System of Brushless Excitation Synchronous Motor X.Z. Yang and G.G. Cheng	1687
Based on Adaptive Control in the Process of the Liquid Level Instrumentation Control System Design M.M. Cai	1692
The Design of AGV Control System and its Application in Printing Center P. Zhang	1696
An Exception Handling Approach for Service-Based Business Processes Z.M. Shang	1700
The Research on the Intelligent Control of Geographic Information System Design to Agricultural Production S.R. Wang, J.S. Zhao and S.Z. Lei	1705
The Vehicles ESP Safe Test System Based on Aid Wheels Breaking Control Vehicle System L. Zhang, G.Y. Wang, F.Z. Yu and Z.F. Zhang	1710
Design and Implementation of Remote Monitoring System for UPS in Unattended Observation Station X.F. Tian, X. Zhang and L.L. Zhao	1717
Quantum Artificial Bee Colony Algorithm for Knapsack Problem Z. Liu and Y.A. Hu	1722
Research on Control Technology of Hydro-Viscous Winch Q.R. Meng, J. Wang and S.F. Lin	1729
A Chaotic Cellular Neural Network System Research and Implementation Based on FPGA Z.P. Chen, P.F. Cai and E.Z. Dong	1734

Chapter 11: Control Technologies and Intelligent Systems

Research on Cogent Automatic Fingerprint Identification System R. Zhang and F. Wang	1741
An Improved Fast Intelligent Tracking Algorithm with the Gain Adjustable D.S. Si, X.X. Wang and C. Chen	1748
The Research and Design of Smart Home Based on Virtual Reality Technology K. Yang	1753

Development of Full-Automatic Flap Disc Production Machine Based on PLC Control System	
D.H. Tang, W.J. Feng and D.Y. Luo	1757
Research on Influencing Spreading Model of Road Congestion Based on Traffic Flow and Cellular Automata Approaches	
Y.Z. Men, H.B. Yu, X.S. Li, H. Wang and L. Xu	1761
Pole-Placement for Multi-Input Linear Systems by State Feedback or State-Derivative Feedback	
Z.H. Gao and X.C. Ye	1765
The Design of the Monitoring System Based on Marine Environment Buoy	
X.H. Kuang, Z.Y. Wang, C. Yang, H.B. Huo and Y.X. Wu	1769
Automatic Liquid Level Detection System Based on LabVIEW	
L. Yu, W.N. Liu and H.H. Wu	1772
A New Intelligent Device Used for Monitoring Environment Safety	
C.J. Wang, Y.Z. Liu and L. Ma	1776
Quasi-Likelihood Deconvolution of Non-Gaussian Non-Invertible Moving Average Model	
M.S. Zhang and J. Huang	1781
The Flow Ratio Process Control System Design Based on Improved PID Algorithm	
D.Y. Luo, Y.F. Chen, P. Wang and F. You	1788
Research of Coke Rate Prediction of Blast Furnace Based on Operative Characteristics of Auxiliary Resources	
Y.H. Wang, H. Zhang, Z.G. Jiang and G. Zhao	1792
Design of Chemical Water Treatment Control System Based on Quantum PLC	
Z.Y. Ye	1798
Research on Intelligent Elevator Control System	
X.M. Jiang, Z.X. Hua and Y.N. Rui	1802
Application of the PID Control in Mine Calorific Value Regulating System Based on PLC	
X.M. Liu and S.Q. Wang	1806
Identification and Control Design of Fuzzy Takagi-Sugeno Model for Pressure Process Rig	
A. Subianto, F. Yusivar, B. Budiardjo and M.I. Al-Hamid	1810
A Merging Method for Siphon-Based FMS Maximally Permissive Control with Simple Structures	
D.Y. Chao and Y.L. Pan	1819
The Application of Fuzzy Smith-PID Controller on Geothermal Air Conditioning System	
L. Li and L. Ai-Lian	1823
Research on Automatic Testing System of Vehicles Steering Angle	
H.D. Fu and Z.Z. Wang	1827
Improvement of Set-Covering Weighted Control Model of S³PR	
D.Y. Chao, Y.N. Lien, J.T. Chen and Y.Y. Shih	1831
Research and Application of Automation Controlling System for Plate Ultra Fast Cooling Process	
X.L. Chen, B.X. Wang, Y. Tian, G. Yuan, Z.D. Wang and G.D. Wang	1836
Structures for Weakly Dependent Siphons of S³PR	
D.Y. Chao and J.T. Chen	1841
Stability Analysis of Quantized Feedback Control System	
D.S. Luo, X.K. Hu and Y.W. Feng	1845
Intelligent Algorithm in Automatic Fire Alarm Application	
Y.Q. Wang, Y.W. Wang, C.M. Pei, X.Q. Yang and H.R. Ye	1851
The Design of Dynamic Response System Based on Digital Emergency Plan	
W.D. Huang, B.L. Ding and L. Yan	1855
Parallel PSO-Based Optimal Strategy Study of Energy Efficient Operation Control for Train	
H. Hu	1861
The Improvement of Control System of Wind Turbine Gearbox Test Device	
X.L. Li, D. Liu and C.X. Wang	1866

Chapter 12: Electronic and Microelectronic Technology

Design of a SoC With High-Speed DDC for Software Radio Receiver J. Deng, L.T. Liu, Y.J. Li, X.Z. Huang, X. Huang and L.C. Liu	1875
The Application Study of Multifunctional Injuries-Simulating Platform W.W. Sun, K. Chen, X.H. Xu and M.T. Mi	1880
Multi-Band Antenna of Mobile Handset with Metal Frame for Wireless Communication L.B. Kong and S.S. Zhong	1886
Spacial Filter of Weighting Method Based on Spectrum Analyse X.M. Li, G.M. Huang and D. Xia	1890
One Kind of Study of the Even Charge-up Method of Intelligence for Common Storage Battery Group of UPS H.N. Yu	1897
Experimental Analysis on Initial Arc Column Voltage Gradient in Fuse Filled with Silica Sand Y.Y. Xiao, J.W. Zhuang, B. Chen and J. Wu	1902
A Effective Equalization Based on Multi-Mode for Series Grouped Battery Strings S.M. Zhang and L. Yanig	1908
Design and Implementation of Robot Soccer Communication Protocol Based on Ant Colony Algorithm Y.L. Liu and Z.Z. Chen	1913
Design of the Equalizing Charge Circuit Based on Bidirectional Energy Transfer H.J. Liang, Y. Zeng, K.P. Xu, Z.W. He and M.Y. Gao	1919
A Novel Three-Port Combiner Based on Coaxial Cavity S.N. Zhang, Q. Ye and C.W. Luo	1924
Development of Uphole Monitor for MWD in Underground Directional Drilling in Coalmine L.P. Wang, J. Gao, J.M. Zhang and Z.J. Shi	1929
An Opto-Electronic Image Sensor Using for Low-Light-Level in Neutron Digital Radiography(n-DR) A.M. Zhang, B. Wei, P. Feng, D.L. Mi and Y. Ren	1934
Application of Kalman Filter in SOC Estimation of Power Lithium-Ion Battery C. Zhao and X.K. Chen	1939
Poly-NiO/Nb:SrTiO₃ Based Resistive Switching Device for Nonvolatile Random Access Memory C. Hu and Y.D. Zhu	1944
Design of Counting Device for Contact IC Module L.L. Wang	1948
The Improved Design of Engine Ignition System J. Zhao, T. Zhang, J.X. Su and G.M. Luo	1952
A Parallel Space-Time Block Code Based Transmission Scheme F. Hu, L.B. Jin and J.Z. Li	1959
Research for Biofouling Detection Based on Optical Fiber Self-Referencing Technique and ANN H.P. Ma, Y.B. Guo, Y.Q. Jin and F. Yuan	1965
Synchronization and Anti-Synchronization of the Chaotic Modified Chua's Circuits via a Same Controller J.C. Leng and R.W. Guo	1972
Research on UCAV Communication Data Link Capability Increasing Scheme L. Deng, X.C. Zhou, D.W. Ma and H.J. Zhai	1976
On Application of LDPC Coded Modulation in Optical Fiber Communication Z.X. Wang and P.X. Wang	1980
Design and Implementation of Radio Spreading-Sequences Beacon Based on Quadrature Frequency-Conversion J. Xue, J.H. Zou, Y.L. Zhang and X.B. Fang	1984
Design of High-Speed Remote Image Data Storage Memory Based on LVDS H.X. Zhang, Z. Guo and Y. Ye	1989
Polarization Changes of Elliptically Polarized Laser Beams Propagating in Slant Path through Turbulent Atmosphere M. Gao, W.N. Nan and H. Lv	1994

The Research and Analysis about Attenuation Characteristics of Wireless Signal in Limited Space J. Ma and X. Ying	1999
The Intelligent Design of Solar LED Street Lamps Based on MCU L.M. Li, L. Zhang and Y.F. Zhang	2005
Design of Automobile Exhaust Wireless Monitor System Based on GPRS/GSM/GPS Z.Z. Ye, J. Yan, F. Lin, Y.L. Zhang and H.Y. Chen	2009
Design of Azimuth-Sign Wireless Autonomous Positioning System G.F. Pan, J. Wang, J. Xue, Y.L. Zhang and S. Liang	2014
A Highly Directional Light Emitting Diode Light Guide Bar Based on Concave V-Grooves C.F. Chen, B.H. Lin and S.H. Kuo	2019
A Low-Distortion Single Fingerprint Acquisition Optical System Z.M. Wu, X.P. Yang, H.B. Xie, Z.H. Chen, F. Li, B. Li and L.L. Cao	2023
The Anomalous Threshold Voltage Prediction by Grey Model GM(1,1) for Submicron MOSFETs S.L. Chen and D.Y. Shu	2027
The Light Extraction Efficiency Enhancement in Organic Light-Emitting Diodes with Substrate Modifications C. Wang, J. Wang, K. Yuan and L. Yu	2031
High Efficiency Performance of Stack-Gate 0.35um P-Channel Flash EPROMs S.L. Chen and D.J. Tseng	2035
Three Dimension Thermal and Mechanical Simulation of Microbolometer to Detect Terahertz Wave L. Yu, J. Wang, K. Yuan and C. Wang	2039
Simultaneous Synchronization and Anti-Synchronization of the Two Identical BVP Oscillators J.C. Leng and R.W. Guo	2045
A Mobile Computing SoC Design X.W. Liu and L.M. Liu	2049
Design and Simulation of High Gain X-Band Horn Antenna for Calibration Y.L. Zhang, G.F. Pan, J. Xue, Y. Xie and S. Liang	2053
The Special Research on a Low Noise Amplifier X. Yin, Y. Yao and J.L. Jia	2057
Use of the Fuzzy-Based Taguchi Method for Improving the Yield of BGA Packaging K.H. Hsien and S.C. Huang	2062

Chapter 13: Embedded System

The Contactless Card Reader Based on Microcontrollers X.W. Liu and L.M. Liu	2069
The STM32 and Programmable Power Supply Communication in the ELID Grinding Dynamic Control System Y.Q. Zhu, Z.F. Hu and B.J. Ma	2073
Embedded Measurement Platform Design for Mine's Dynamic Weighing Bridge C.X. Zheng and J. Chen	2079
The Development and Application of the Basic Functions of the EMS of Four-Cylinder Gasoline Engine Y.J. He, Y. Wang, F.Y. Song, B. Hong and X.L. Li	2083
The IP Design for a Customized Mobile SoC X.W. Liu and L.M. Liu	2087
Embedded Systems to Build Modern Automation and Manufacture X.W. Liu and L.M. Liu	2091
An FPGA Based Frame Rate Enhancer for LCD Display in Embedded Systems K.P. Xu, J.Y. Huang, H.J. Liang, Z.W. He and M.Y. Gao	2095
Study of Embedded Power Environment Remote Video Monitoring System Y.Q. Wang, Y. Hu, X.Q. Yang, H.R. Ye and C.M. Pei	2100

Chapter 14: Signal and Intelligent Information Processing

Signal Separation Based on Focused Neural Network Filter X.M. Li and J.M. Lv	2107
Adaptive Reconstruction Based on Romp Algorithm X.H. Xu and D.F. Chen	2111
Moving Target Detection Based on Principle of Connectivity and Texture Gradient M. Huang, Y. Zhang, G. Chen and G.F. Yang	2117
Shadow Detecting and Shadow Interpolation Algorithm for InSAS S. Zhang, M. Chen and J.S. Tang	2121
A Robust and Rapid Image Preprocessing Method for Finger Vein J.B. Xie, T. Liu, Z.Z. Huang, P.Q. Li and W. Yan	2126
Weight to Vision Neural Network Information Processing Influence Research C.H. Yin, J.W. Chen and L. Chen	2131
Particle Swarm Optimization Least Square Support Machine Based Missing Data Imputation Algorithm in Wireless Sensor Network for Nuclear Power Plant's Environmental Radiation Monitor S. Gao, Y.G. Tang and X. Qu	2137
Research on the Edge Detection Method of the Rice Leaves Image Based on Phase Consistency under the Complex Environment L.B. Liu, C.J. Zhao, H.R. Wu and R.H. Gao	2145
A Hybrid Method to Search the Optimal Hamiltonian Circuit Y. Wang, W. He and D. Tian	2149
Morphological Reconstruction Based Segmentation of Lung Fields on Digital Radiographs B.Y. Zhu and H. Chen	2155
Coordination Method on Cloud Computing Clusters Z. Xu	2160
The Method of Feature Extraction of Weak Multi-Frequency Signals Based on the Array of Modulated Stochastic Resonance S.L. Tu, Z.Y. Wu and Z.Y. Wu	2164
The Fusion Process of RS(Remote Sensing) Data Based on Wavelet Neural Network L.M. Zhang and X.Q. Zhao	2171
Research on the Optimized Algorithms on Neural Network X.Q. Wu	2175
Classification of Single Cereal Grain Kernel Using Shape Parameters Based on Machine Vision L.L. Wu, J. Wu, Y.X. Wen, L.R. Xiong and Y. Zheng	2179
Detection for Corn/Weed Images Using Moment Invariants by BPNN Classifier L.L. Wu, J. Wu, Y.X. Wen, H. Peng and Z.H. Zhu	2183
On Implementation of Software Acoustic Cancellation Y.F. Wang, Y.H. Lv and H.Z. Cai	2187
A New Variable Step Size LMS Adaptive Filtering Algorithm and its Analysis W.J. Cai	2193
Low SNR Singal Recovery System Based on Stochastic Resonance H. Deng, H. Liu, B.T. Song, H. Zhang and S. Yang	2197
Research on Improved Image Enhancement Algorithm Based on Fuzzy Set X.W. Liu and C.Y. Liu	2201
A Novel Method to Estimate the Unknown Mixing-Matrix for Blind Source Separation N. Chen and H.Y. Zhang	2206
An Information Fusion Algorithm Based on Dopplerlet-Hough Transformation M.H. Deng, Q.S. Zeng and L.Y. Zhang	2211
Study of Adaptive Chaos Embedded Particle Swarm Optimization Algorithm R. Hua, D.J. Chen and Y.Z. Ye	2217
Radio Channel Research in Coal Mine Laneways Y. Yang, Y.L. Li and J. Li	2222

Yawning Detection Based on Mouth Feature Points Curve Fitting W.Y. Ding, L. Zhang and Y.H. Chen	2227
Cartoon Avatar Processing Based on Image Edge Detection Y.S. Zhang, L.M. Sun, X.H. Shen, Y. Zhou, Y. Li and W. Wang	2232
Analysis of Airplane Timing Equipment's Automatic Test Based on ATS Platform X.X. Zhan, S.Y. Hao, J.F. Si, Y.F. Zhang and C.F. Yu	2236
Image Texture Feature Extraction & Recognition of Chinese Herbal Medicine Based on Gray Level Co-Occurrence Matrix Q. Liu, X.P. Liu, L.J. Zhang and L.M. Zhao	2240
Classification of Biological Spectrum Based on Principal Component Cluster Analysis L.S. Zhang and A.J. Shi	2245
Image Restoration Based on Improved PSO Algorithm Z.Y. Ye	2249
Convergence of a Class of Nonorthogonal Wavelet S.G. Zhao	2253
Research on a Kind of Distribution Selection Method for Right Censored Data Based on Data Expansion Algorithm J.H. Wu, H.B. Liu, Y.D. Wang and J.W. Lei	2257
Improved Vision Based Driving Space Analysis by Condensation of Image Data Y.F. Mao, H. Wiedmann and M. Chen	2260
Application of the Compound Model of BP Neural Networks and Wavelet Transform in Image Definition Identification R.K. Gong, Y.N. Zhang, C.H. Wang and L.J. Zhao	2265
An EEG Analysis Research For Epileptics Using Probabilistic Neural Network X. Xu, J. Song, Y.T. Hu, W.X. Shi and X. Zhu	2270
Object-Oriented Zhangjiangkou Mangrove Communities Classification Using QuickBird Imagery D.S. Zhang, L.X. Cong, Z.Q. Wang, H. Chen and F. Wang	2274
Applying Data Mining Methods to Structural Identification M. Horalova Kalinova, G. Michalconok and D. Gabriska	2279
Inter-Harmonic Detection Based on AR Model Spectral Estimation and Nonlinear Optimization H.Q. Zhang, R. Liu, Z.H. Fu and K. Zheng	2284

Chapter 15: Software and Computer in Research and Engineering Solutions

Ranking Algorithms for Keyword Search over Relational Databases C. Wang, J. Ding and B. Hu	2291
The Application of Bezier Curves about the Visualization of the Threaded Binary Tree X.B. Yang and B.Z. Chen	2297
Research and Design of the Automobile OBD Data State Monitoring System Based on the Android Phones W.D. Huang, Y. Zhang and J.H. Liu	2301
Fidelity Evaluation of Bridge-Type Grab Ship-Unloader Visual Simulation H.J. Lu, D.F. Chang and X. Liu	2306
Risk Assessment of Smart Grid Cyber Security Based on Multi-Level Fuzzy Comprehensive Evaluation Method K.W. Zhang	2311
Scene Simulation of UAV's Glide Motion Based on Creator and Vega Prime P. Zhang, B.W. Song and X.X. Du	2318
Research on the Die Steel Cutting Simulation System Based on Intelligent Layout Algorithm M.J. Zhou, T.J. Ma, X.J. Zhao and S. Li	2323
Analysis on A 1-out-n Security Protocol Based on Threshold Idea L. Yu and J.Y. Ye	2329
The Study of Military Conceptual Model Based on Tactical Decision-Making Simulation J.G. Liu and Z.F. Wu	2333

Managing Emergency Material Distribution Knowledge Using Ontology-Based Modeling for Emergency Distribution Decision	
L. Zhang, D.L. Jiang, Y.R. Ju, Q.Z. Wang and P.P. Li	2337
Security Design of Web-Based Information Integrated System	
T. Chen and H.P. Pan	2341
The Application of Improved Color Petri Net in Hardware Design	
P. Liu, Y.Z. Liu and C.J. Wang	2345
An Approach of Web Service Discovery and Composition Based on Logic Petri Nets	
S.Y. Deng and Y.Y. Du	2351
ZigBee Technology Application in Disaster Rescue	
F. Jiang and W. Zhao	2358
Parallel Computing Application in Rectangle Packing Problem	
X.C. Wang and Z.X. Jin	2362
The Research of Railway Passenger Flow Prediction Model Based on BP Neural Network	
Y. Wang, D. Zheng, S.M. Luo, D.M. Zhan and P. Nie	2366
On Visualization of Journals Reference Network Based on Force-Directed Layout Algorithms	
X.Y. Du	2370
The Design of the Sensor Node of IOT Based on SIM20	
X.H. Kuang, Z.Y. Yao, H.B. Huo, J.J. Li and Y.X. Wu	2375
The Research and Implementation of Geospatial Data Management Based on ArcGIS Service	
F. Zheng, H.R. Lu, Y. An and L.J. Guo	2379
Building Bridges among Local Area Networks	
J. Chen	2383
Analysis on Internet Attack and Security	
J. Chen	2387
Objects Collision Detection in Virtual Scene	
R.G. Zhang, Z.F. Wang, X.J. Liu and K. Liu	2391
Research of Digital Watermarking Algorithm Based on DCT Transform	
Y.J. Zhang	2395
Weapon-Target Assignment Problem in the Warship Fleet Based on Fast and Elitist Non-Dominated Sorting Genetic Algorithm	
X.L. Chen and S. Shen	2399
Early-Warning Model for Tourism Environment Carrying Capacity in Scenic Spots Based on Fuzzy Inference	
X.P. Yang and E.C. Li	2405
Simulation and Analysis of AUV's Hydrodynamics when Moving in the Near-Seabed	
F.Z. Zhao, B.W. Song and X.X. Du	2409
Research of Digital Simulating Model of Assembling Shunt Capacitor	
J.J. Xiong, M. Sun, R.X. Fan, T. Ding and L.J. Qian	2413
A B/S-Based Multi-Server Framework for Knowledge Component Implementation	
Z.J. Ming, J. Hao, Y. Yan and G.X. Wang	2419
Numerical Simulation on the Stress and Strain of Lining Structure with Double Shield Tunneling Construction	
F. Wang and T.J. Cui	2425
A Collaborative Filtering Recommendation Method Based on Item Category	
W.B. Deng and J. Liu	2430
The Vestibular System Modeling in the Head and Eye Movement Research	
C.Y. Wang, B. Yao, H.Z. Bi and H.B. Jia	2434
Design and Implementation of Module Hot-Plugging in Equipment Management Platform	
S.R. Wang, D.E. Meng and J.S. Zhao	2438
A Quantum-Behaved Particle Swarm Algorithm Combined with Chaotic Mutation	
X.R. Li and Y.X. Jin	2442
The Design and Development of Learning Log Management System for C Language Web Classroom	
J.J. Chen, Z.S. Ren and Z.H. Fu	2447

Study on Custom Service Combination Based on BPEL Y.J. Cai and Z. Le	2451
Applying RBF Neural Networks and Genetic Algorithms to Nonlinear System Optimization H.F. Wang and X.A. Xu	2457
Flow and Density Difference Lattice Model and its Numerical Simulations Analysis H. Dai, Z.Z. Yuan and J.F. Tian	2461
Study on Network Emergency Evaluation with Web-Based Information C.M. Wang	2466
An Intelligent Method Optimizing BP Neural Network Model H.H. Xing and H.Y. Lin	2470
Error Resilience Scheme for Real-Time Video X.W. Ding, Y.G. Dagnew and A.P. Yang	2475
A Framework for Filtrating Software Measures in Software Measurement Process J.Z. Wang and J.J. Ding	2479
Research and Implementation on XML-Based Data Exchange Platform L. Zhao, F. Deng and S.F. Du	2483
The Research and Application of Sorting Algorithm in Aircraft Scheduling Problem H.R. Xu, L.H. Yang, Q. Huang and J. Wang	2488
Random Choice of Logistics Distribution Route Based on Dynamic Programming H.J. Zhao and D.M. Huang	2493
Research on Particle Swarm Optimization for Protein Structure Prediction S.G. Wang, F.J. Wang, S.F. Jiang and H.J. Zhang	2497
On the Construction of Safety Running and Management Systems for Chinese E-Government System D.P. Zhao and R.X. Zhang	2502
Numerical Simulation of Overpressure about Muzzle Blast Flowfield Z.X. Guo, Y.T. Pan, K.W. Li and H.Y. Zhang	2506
Application of Visualization and GIS Techniques in Water Conservancy Works N. Xie and Z. Yang	2510
Efficient Front-End Cache for XEN Virtual Block Device X. Mi, W. Ye and A. Liang	2514
Development of Information Management System Used in Laboratory Y. Hu	2518
Intelligent Voice Terminal with Image Retrieval Function Z.X. Wei and J.M. Liang	2522
Information Service: Podcast Course Video-Sharing System, for Example W.L. Huang and M.S. Chen	2526
Application of Red Spider Software in Multimedia Network Classroom S.M. Jia, X.L. Dai, A.Y. Chen and X. Zhou	2530
E-Commerce Model Research Based on Cloud Service D.J. Ma	2534
Slicing Objects Using UML State Diagram X. Wang, F. Wei and C. Cheng	2538
Traffic Status Prediction and Analysis Based on Mining Frequent Subgraph Patterns G. Xu, H.H. Jin and J. Liu	2543
Architecture Design of Urban Intelligent Transportation Using Cloud Computing J.Z. Wang and Z.J. Wang	2549
The Application Research of Private Cloud in the Data Centers Colleges of Universities X.P. Wang, L.X. Feng and J.D. Zhao	2553
The Research and Application in Intelligent Document Retrieval Based on Text Quantification and Subject Mapping Q. Wang, S.N. Qu, T. Du and M.J. Zhang	2561
Research on Evaluation Index System of Multimedia Teaching Software Y.X. Liu, Z.H. Yuan and W. Shi	2569
Trust Federation of Identity Management in Distributed Environment D.M. Li, Y.H. Wang and J.Y. Chen	2574

Study on Teaching Method of Project in the Operating System L.N. He, G.M. Gu and B. Chen	2579
Study on the Software Trustworthiness Measurement Algorithm Based on the Grey Relational Analysis J.F. Yang	2583
Information Hiding of MS-Office Compound Document G.M. Zhu, X.G. Zhan and X.L. Zhou	2587