

Table of Contents

Preface and Conference Organization

Chapter 1: Computer Aided Design and Engineering

Finite Element and Modal Analysis for Connecting Rod Used in Piston Type Air Compressor X.X. Liu and M. Chen	3
Parameterized Drawing Design of Drum Used in a Transformer Elevated Seat C.H. Fu	7
The Modular Design of the Valve Based on Solidworks Y. Xu	11
Finite Element Analysis of Coronary Sent with the Presence of Plaque and Vessel by Balloon Expansion W.Y. Yu, J.G. Wang and Z.J. Qin	16
Research on Side Detector by the Finite Element Modeling X.H. Zhao, C.L. Meng, Y. Li and T. Liang	21
Cooperation Design of Target Area for ICF Facility Based on Top-Down Mode Y.L. Xu, M.Z. Zhu, G. Chen, W.K. Wu, X.J. Chen, Z. Huang, M.C. Wang, X.H. Que and B.X. Wang	25
Quality Evaluation for Model Based Definition of Aerospace Products K. Mi, Y. Hu and C. Yin	30
A Numerical Study on Pedestrian Kinematics and Injury Parameters in Bus Collisions S.J. Zhao, L. Li, F. Wang and J.K. Yang	35
An Optimization Design of Knee Airbag for Driver Protection from Inter-City Coach Frontal Impact H.Y. Wang, J.K. Yang, X.Q. Jiang and L. Li	40
FEM Analysis of Helicopter Gondola for Live Working K. Liu, F. Peng, M. Jiang and D. Ni	44
Finite Element Analysis of Spontaneous Burst of PV Modules during Encapsulation Y. Zuo, Z. Zhang and T. Wang	48
Full Vehicle Handling Prediction and Correlation X.L. Zhang and R. Guo	53
Modal Analysis of School Bus Body Frame Z.W. Tian, Y.G. Wei, H.J. Si, X.M. Mei and Y. Kuang	61
Modeling and Simulation of Computerized Glove Machine's Knitting Element Based on SolidWorks Y. Fang, J.B. Liu, G.Q. Wang and F.T. Xia	66
Study on Modular Design of Trimming Die Structure for Automotive Panels Y.L. Wang and G.Y. Wang	73
The 3D Modeling Design of Cutting Machine Based on Solidworks J.J. Wang and X.J. Wang	77
The Development and Application of Grab Design System Based on Solidworks and CBR Y.T. Sun, L.D. Zhang and X.R. Qin	81
The Study on Dynamic Modeling of Complex Mechanism Based on Multi Software Collaboration C.L. Ma, F. Li, Y.B. Feng and X.G. Yao	87
Analysis and Simulation of Virtual Dense Storage System Y.N. Xue and M.D. Shen	91
Application of Finite Element Analysis Software MSC.Marc in Material Tests Q.L. Sun, Z.R. Liu and L. Yang	95
Design and Modeling of a New Reliable Handcuff Ring J. Zhang, C.R. Liu and H. Liu	99

Modal Analysis of Portable Multifunctional Scooter Based on Solidworks Z.D. Huang, S. Liu, C.L. Wang, X.B. Qi, Z.Q. Yang and Q.Y. Lang	103
Position Tolerance Process Capability Prediction under Maximum Material Condition S. Zhang, J.G. Gao, H. Wang and X.Q. Zhang	107
Algorithm for Tool Path Offsetting Based on NURBS Surface Y. Yue	111
Numerical Simulation on Controlling Factor of Energy Distribution in Coal Bump H.T. Li, C. Jiang and J.X. Liu	115
Simulation Analysis and Structure Optimum Design of the High Speed Conveying Manipulator Based on ADAMS F.W. Xue and J.P. Zhou	121
3D Machining Process Planning Based on Machining Feature Recognition Technique C. Liang, X. Zhang and Q. Zhang	127
Finite Element Analysis of Contact Stress for Herringbone Gear K. Li	137
Kinematic Simulation of Serial Mechanism Based on ADAMS X.Y. Qi, C.X. Pan, G.Q. Chen and X. Li	142
Optimization of the Rotor Chuck Structure Based on Finite Element Analysis X.H. Guo and X.L. Chen	147
Customized Saddle Design Method Based on Cubic B-Spline Surface Q.J. Yang, S.X. Zheng and J. Li	151
Effects of Cont Rail Joint Type on Bus Rollover Crashworthiness H.C. Hong and H.W. Huang	156
Finite Element Analysis of Worm Auger in Meat Grinder S.L. Li and J. Lu	162
Finite Element Analysis and Optimization for the Structure of NC Forming Machine L.M. Liu, Z.D. Shan and F. Liu	166
Mechanical Characteristics Analysis and Design Optimization of the Derrick L.Y. Song, J.W. Wang, P.C. Dong and T.L. Zhuang	174
3D Magnetic Field and Temperature Rise Analysis of Dry-Type Transformer Based on Finite Element Method H. Xu and Z.D. Yin	181
The 3D Finite Element Analysis of Magnetic Controlled Reactor H. Xu, Z.D. Yin and B. Wang	185
Finite Element Analysis of Hydraulic Clipping Machine Shear Platform Based on ANSYS H.L. Wang, Y.H. Sun, M.B. Li, G. Lin, Y.Q. Feng, S.L. Wu, C.H. Huang and J. Chen	190
The Simulation and Design of a Kind of Fitness Ball Testing Machine B. Tong, Y.C. Yin and L. Wu	194
The Numerical Simulation of the Lateral Inhomogeneous Deformation of the Permafrost Subgrade Y.S. Fan, X.S. Mao, Q.M. Meng and B.B. Luo	198
The Virtual Assembly Simulation and Optimization Design on Single Screw Pump of Offshore Petroleum Well Cementing LADS Device Z.X. Wang	203
Research of Armored Anti-Riot Vehicles Repair Based on Virtual Maintenance Technology R.J. Zhan, C. Ma and S. Wang	209
Research on Measuring Key Errors of Plane-Generated Enveloping Hourglass Worm H. Lu and Z. Liu	214
Study on the Reconstruction and Microscopic Contact of Engineering Surfaces Q.L. Wang, P.L. Li, W. Wang and X.W. Liu	219
Decoding Algorithm of Circular-Pipes Packing in Multi-Pipe Intersecting Structures S.Y. Huang, L. Xu and Z.Z. Ye	223
Optimization Design of Oil-Water Separator Based on Fuzzy Synthetic Evaluation Y.D. Zhang and Y. Liu	231
Simulation Analysis of Adjustable Movable Blade Axial Flow Fan A.H. Zhu	236
Spectrum Analysis of Noise in Low Head Francis Turbine L. Lu, L.D. Zhang and X.B. Liu	242

Implementation about Virtual Experiment for Development of Local Shockwave X.W. Liu, K. Luo, Y.M. Yang, L.M. Song and J. Jin	246
--	-----

Chapter 2: Mechanical Design

Research on a New Faucet with the Function of Depressurization and Throttling M.J. Tian, Y.H. Guo, Y.Q. Li and H.H. Guo	253
The Main Cleaning System Design of Garbage Sweeper C. Xue and Y. Hu	257
The RDC Clamped Circuit Research on the High-Speed Flat Sewing Machine Y.S. Hu, A. Gao and D.J. Mu	261
Design of Household Multi-Function Vacuum Cleaner H.Y. Jin and Z.W. Zhu	266
Experimental Investigation into a New Melt-Blowing Die for Dual Rectangular Jets Y.D. Wang and X.H. Wang	270
A Study on the Supporting Plate of the Steaming Bucket L. Chen, Z.G. Sun, Y.C. Liu, C.N. Yang and W.Q. Huang	274
Design of a Leveling Device Q.Y. Lv, Y.S. Mei, Y. Sun and K. Liu	278
Design of Low-Rise Escape System Y.Q. Feng, C.W. Sun, C. Yang, X.X. Cai, Y.L. Chen and L.Z. Zhang	282
Research on Cotton Stalk Harvester Based on Double Roller Type Z.G. Pan	286
The Design and Optimization of Boom of Tunnel Multi-Purpose Installing Truck Y. Cheng and Y.Q. Tan	290
Design of Maize Picker Device X.R. Lü and X.L. Lü	294
Research of Multifunctional Automatic Ground Cutting Machine H. Yang	298
Graphic Establishment of Crank-Rocker Mechanism Design Based on Optimum Transmission Angle of Optimization Method D.Y. Huang and X.L. Wang	301
Mechanics Analysis and Optimized Design of Aircraft Skin Pass Damage Repair T.J. Dong, J. Chen and H.P. Ding	306
New Low-Speed Motor with Interior Pushrod Harmonic Transmission Device - Theoretical Profile Deduction and Kinematics Analysis X.L. Yang, J.F. Liu, H.S. Liu, L. Lin and M.N. Si	310
Dynamic Matching Analysis of Engine and Torque Converter in Tracked Coach Car W. Sun, B. Ma, J. Ma and J.Y. Wu	314
Modeling of Sewing Machine with Independent Rotation Axe Z.W. Shi and W.H. Sun	319
A New Process for the Tubular Shipload Y. Lv, Z.R. Song, F.Y. Yang, C. Gong, R.P. Wang and Z.B. Wang	325
Design and Research of the Air-Suction Peanut Precision Dibbler X.L. Lü, Z.C. Hu, H.J. Zhang and W. Wang	330
Technical Study on Four-Crane Joint Lifting of Large-Sized Structures Y. Lv, F.Y. Yang, M.W. Yang, C. Gong, J.H. Liu and F.J. Li	335
Heat Transfer Characteristics Analysis of Intermediate Rotating Ring in Mechanical Seal Based on COMSOL Z.W. Liu, L. Dong and K. Li	339
Analysis on Circumferential Seal Ring in Engine under Different Conditions Y.T. Yan, X.L. Qian, G.Y. Hu and L.S. Zheng	343
Design Research of Linear Motion Unit Based on Magnetic Suspension Principle Y.X. Zhao, M.D. Shen and X.H. Shen	347
Development of the Energy Recovery in Construction Machinery J. Gong, Q.H. He, D.Q. Zhang, Y.M. Zhao, C.S. Liu and Z.Y. Tang	351

Research and Design on Reciprocating Oilless Air Compressors Y.F. Zhu	358
---	-----

Chapter 3: Innovative Design Methodology and Product Design

Gannan Native Products Bamboo Packaging Design Research Y. Zhang, J.F. Huang and J.X. Cheng	365
Innovative Design for Autogenous Medium Cyclone Based on TRIZ Y.J. Chen	370
Innovative Methods of Wine Packing Based on TRIZ K. Qiu	374
The Research on the Effectiveness of Brand Triangle Model for Product Life Cycle Design X.B. Liu and W. Li	378
A Study on Full Life Cycle Based Product Package Design S.Y. Zhang, Y. Mei and X. Han	384
An Analysis on the Ergonomics in the Design of Automobile Instrument Panels J.H. Zhang	388
Researches on the Flood Protection and Anti-Seismic Self-Help Bed J.B. Lu, H.S. Zhao and X.L. Guo	393
Standing Office Furniture Design Based on Human-Machine Interaction Research L.L. Liu and L. Zhang	397
Application of Integrated Product Development Model Oriented to R&D Projects of the Brazilian Electricity Sector J.A. Pereira, O. Canciglieri, A.E. Lazzaretti and P. Moreira de Souza	401
Innovation Development Process for Dog with Two Disabled Hind Legs Wheelchair N. Chansangsri and N. Thawesaengskulthai	410
A Semantic Annotation Framework to Assist the Knowledge Interoperability along a Product Life Cycle Y.X. Liao, M. Lezoche, E. Rocha Loures, H. Panetto and N. Boudjlida	424
A Tentative Exploration on the Design of Articles for Daily Use and the Life Wisdom of “Putting Down” L.S. Guo	430
Integration Definition Methods to Support Product Design for Assistive Technology M.L.M. Okumura, O. Canciglieri, T.M. de Souza and R.I.M. Young	434
The Research of Bamboo Design Based on Sustainable Design Concept L.Y. Huang and Z. Wang	438
Study on Prototype of Upper Apparel for Young Man Based on Human Anthropometrics L.N. Cui	442
Ontology Enabling Information and Knowledge Modeling for Product Design A.M. Li, F.R. Kou, Q.Y. Niu and H.B. Tian	446
Mapping the Open Innovation Ecosystem: An Analysis of the Technical and Strategic Level M.A. Nerone, O. Canciglieri, M.T. Arns Steiner and R.I.M. Young	450
Research on Design of Multi-Bar Raschel Lace J.Z. Yao, G.M. Jiang, Y. Zhang and Y. Zhang	461
The Application of Paper Materials in Children Furniture W.D. Bai, J. Xu and J.Z. Zhang	465

Chapter 4: Optimization in Design Processes

Multi-Objective Optimization of Internal Combustion Engine Valve Springs Based on NSGA-II Y.J. Wang and G. Zhang	473
A Multi-Objective Quality Optimization System for Injection Molding Process Parameters W.C. Chen, Y.F. Lin and P.H. Liou	478
Brake Parameter Optimization Design Based on MOEA/D Y.J. Zhang, Y. Zhang, X.Y. Wan and X.D. Zheng	484

Development of Naval Ship Synthesis Model in Concept Design Y.H. Hou, J.N. Zhang and C.B. Zhen	490
An Improved Real Time AR Method for Double Vessel Motion Prediction Q. Yang, C. Wu, J. Zou and H.S. Chen	494
Structure Analysis and Optimization of Hydraulic Tool Turret Cabinet of CNC Lathe L.P. Liu, Y.J. Yan, Y.A. Peng, H.D. Li and Q.Z. Dong	498
The Research and Application on Optimization Design of Lifting Mechanism - The Hydraulic Cylinder Structure Design L. Xie and Q. Sun	503
Research on Remaining Driving Range Estimation of Electric Vehicle Based on Dynamic Working Condition C.Q. Du, G. Du, K.C. Tan and Y.S. Liu	509

Chapter 5: Green Design and Green Manufacturing Technology

Multiple Views Description and Operation Mechanism to Operation Mode of Green Manufacturing System X.K. Tian and Y.Q. Wang	519
Application of Green Manufacturing in Automobile Enterprises L.L. Wang, Y. Guo and T. Zhang	523
Multi-Functional Product Design Based on Green Design Concept J.X. Cheng	527
Research and Exploration on Green Design of Household Electrical Appliances A.H. Guo	531
Research on Suitability Ecological Updating Technology System of Traditional Wooden Residence Z. Li and S. Lei	535

Chapter 6: Kinematic and Dynamic Analysis of Machines and Mechanisms

Engineering Kinematic Theory of Ground Contact Pressure in the Annex to the Hydraulic Port Facilities D. Tyu and V. Korovkin	541
Fewer Degrees of Freedom Dynamic Analysis of Mechanical Excavator Working Device G.Y. Lin, X.K. Zhou, Y. Zhou and Y.M. Zhang	549
Stress Attenuation Mechanism of Foam Core Sandwich Panels Subjected to Close-Range Blast Loading Z.Q. Fan, H.H. Ma, Z.W. Shen and M.J. Lin	561
Research on the Cornering Characteristics of Three-Axle Vehicle B. Xu, S.M. Cui and X.Y. Wu	567
Study of the Relationship between the Vibration Response and Milling Instability S.L. Nong and S.H. Gao	571
Analysis of Vehicle Tire Impact Force Based on Collision Model W.J. Ma, X. Guan and P.P. Lu	576
Optimization Analysis on Gyroscope's Three Dimensions Complicated Motion and Lash-Force W.L. Yang and X.H. Lu	581
Expansion of Baker Transformation and its Dynamics Characteristics L.H. Ma, J.K. Li, W.M. Shen and J. Qu	587
Dynamic Characteristic Analysis of Irregularity under Turnout by Vehicle-Turnout Rigid-Flexible Coupling Model M. Chen, Y.Y. Luo and B. Zhang	591
Optimization Design of Vibratory Jaw Crusher with Double Cavities Based on MATLAB J.C. Zhang and L.C. Wang	596

Dynamic Response Analysis of Wind Turbine with Tuned Mass Damper under Typhoon Conditions	
Q.Y. Zhang and H. Zhou	600
Solving Nonlinear Optimization Problems of Steering Trapezoid Mechanism Based on an IPSO	
L. Liu, P. Zhou, J. Luo and Z. Pi	607
Synthesis of Timing Diagram of Mechanisms of Machine	
A. Jomartov	614
Motion Simulation Analysis and Load Analysis of the Moving Beam System in the Walking Beam	
F.H. Wang and Y.C. Zhu	619
Analysis and Control the Influence Factors on the Dynamic Load Coefficient of the Crawler Crane Working Mechanism	
G.Y. Lin, S.Q. Cao and C.J. Guo	626
Research on Optimal Excavating Trajectory of Large Mining Shovel	
G.Y. Lin, H.Z. Han, J. Zhao and A.F. Li	633
Research of Flow-Induced Vibration of Flexible Plate Based on Fluid-Solid Interaction Method	
R.Q. Xi, X.D. Jiang and Y.S. He	642
Folding-Boom Lorry Crane Dynamic Modeling and Motion Control	
W.Z. Du, F. Lu and T. Liu	646
Analysis and Optimization of Dismantling Machine Shear Head Based on ANSYS Workbench	
W.P. Du, Y.J. Zhang, C.Q. Zhou, A.H. Zhang, J. Yu and P. Liao	653
Simulation of Motion Trajectory of Parachute Inflation Process	
J.L. Tian, Y. He, L. Chen and B. Wang	658
Research on Parameter Optimization Method of an Air Vehicle Gliding Trajectory	
F.P. Wang, Y. Xu and C.Y. Li	662
Kinematics Simulation Based on ADAMS Belt Conveyor Rollers	
J. Yang and X.J. Wang	666
Design and Motion Simulation of the Clamping Mechanism of Micro-Structure Injection Molding Machine	
B.G. Chou, H.Z. Cai, G. Zhou, Y.J. Zhang and J. Zhuang	670
Modal and Strength Analysis of Crankshaft in Piston Compressor	
Z.J. Sun and J.T. Dai	676
Strength Analysis of Crankshaft Interfaces Considering Contact Problem	
L.H. Ouyang, X.T. Deng and Z.F. Yue	680
Kinematic Analysis of Swiss Lever Escapement	
J. Pan, Y. Fu and R. Du	684
Analysis of Kinematics and Dynamics of Crank-Rocker Mechanism	
H. Wang, R.R. Zhang, S.L. Xiao and P. Leisner	690
Structure Strength Analysis for Fork Joint of the Universal Coupling Based on FEM	
Y. Xing and P.F. Yao	696

Chapter 7: Analysis and Control of Vibration and Noise

Experiment for Vibration Suppression Based on Particle Damping for Gear Transmission	
W.Q. Xiao and W. Li	703
On the Bifurcation of Periodic Motion of Rotor Ball Bearing System Considering Five Degrees of Freedom	
L. Cui and Q.S. Wang	707
Residential Building Sound Pollution and Control Measures	
N. Xu, C. Zhang and L. Ma	711
Sound Source Identification and Acoustic Contribution Analysis Using Nearfield Acoustic Holography	
J.H. Deng, J.H. Dong and G.D. Meng	717
Modal Test for Response Amplitude Operator of a Deepwater Semi-Submersible Platform	
L.P. Sun, S.L. Cai and Z. Kang	725

A Study on Effects of Gear Backlash on Differential Vibration J.L. Xu, P. Wei, F.Y. Huang and H.J. Wang	730
Analysis of Noise of Gear Transmission System and Control Z.G. Zhang, B. Fang and X.Q. Li	735

Chapter 7: Analysis and Control of Vibration and Noise

Dynamics Simulation Analysis of an Airborne Electronic Equipment Based on Ansys and Modal Test K.S. Wang, C.R. Li, Y.C. Pang and H.H. Guo	741
Offshore Marine Ambient Noise Measurement Study Based on Laser Interferometer Hydrophone Z.L. Hua, L. Li and Z.H. Zhou	746
Study on the Combustion Noise Characteristic of Low Speed Diesel Engine L.Q. Yan and H.J. Ge	750
Study on the Influence Factors of Vibro-Acoustic Characteristics of Plate Structure Based on Series Approximation Y.Y. Zhu, R.W. Dai and S.Y. Gao	754
The Analysis of Self-Excited Vibration in Processing System of Single Blade Rigid Boring Reamer Z. Dong and X.Q. Shen	761
The Harmonic Response Analysis of Workover Rig Platform Base on ANSYS Workbench X.R. Wang, J.Q. Jin and Y.Z. Li	766
Research on Tail Pipe for Engine Performance and Exhaust Noise S.L. Yuan and C. Zhang	770
Research on Dynamic Balance Method of Precision Centrifuge T. Liu, Y. Xu and B.Y. Mao	777
Study on the Dynamic Characteristics of the Large Diamond Circular Saw Blade M. Zhao, L. Zhang and B. Wu	781
Vibration Control of Erecting System Based on Fuzzy Adaptive PID Controller Z. Xie, J. Xie, W.Z. Du and D.J. Huang	785
Study on Bending, Buckling and Free Vibration of Hard-Core Sandwich Plate Based on Revising the Soft-Core Reissner Theory H.Y. Zeng, R.J. Yan and Y.Y. Hu	790

Chapter 8: Design and Research of Mechanical Transmission

Kinematics Analysis on Planar Gear Transmission Mechanism with Computer J.F. Sun, Y.Z. Zhu, J. Wang and Q. Wang	797
Research on Modeling Method for Oil-Film Stiffness Calculation of Point Contact Based on EHL S.S. Li, J. Shao, F. Yu, J. Ling and B. Chen	802
The Analysis of the Transmission Scheme of the 9 Speed Automatic Transmission Based on the Expend Lever Method M.F. You, G.Q. Hou and M.Y. Wang	811
Worm and Worm Wheel Kinematics Simulation of a Rail Transport Based on ADAMS Z.Y. Tang and X.J. Wang	818
Contact Trace of Internal Meshing Double Circular-Arc Spiral Bevel Gears Z. Lin, L.G. Yao and Q. Lin	822
Study on the Influence of the Installation Error of Ball Screw Feed System W.W. Zhang, H.L. Chen, S.H. Jia and Y.Q. Wang	826
Research on Nonlinear Dynamic Characteristics of the Double-Worm Gears Anti-Backlash Drive Mechanism D.H. Zhao, S.J. Zhou, Y.H. Wu, Q.Y. Wang and F. Lu	831
Normal Method for Tooth Surface Generation of Helical Gear J. Lin, R.Q. Li and H. Shen	836

Effect of Face Width on Bending Stress of Spur Gear Using AGMA and FEA A.A. Umar, A.S. Ahmad, A.G. Yusuf and Z.I. Bibi Farouk	840
Parametric Modeling of Involute Spur Gear Based on AutoCAD X.L. Guo, H.S. Zhao and J.B. Lu	845
High Speed Gear Parametric Modeling and Dynamic Analysis Y.Y. Liu, M.C. Xiong and Q. Li	849
Dynamic Analysis of a Spur Geared Rotor-Bearing System with Nonlinear Gear Mesh Stiffness Y.C. Chen, C.H. Kang and S.T. Choi	853
Vibration Response Analysis of Crack Gear with Internal Excitation Y. Sun, H. Hu, F.L. Yin and X. Feng	862
Design and Analysis of Double Wishbone Suspension Module with Wheel-Track Variant Wheels C.H. Shi, S.H. Kang, C.H. Li, J.Z. Hu, L. Huang and X.Z. Zhang	867
The Experimental and Design Method Research on Interference Fit of Fabricated Single-Arm Planetary Carrier Y.T. Sun, X.R. Qin, L.D. Zhang, Q. Zhang and Q.Y. Zhao	874
The Deformation Characteristics of Hydro-Forming of Differential Gear Box for Automobile W. Huang, H.B. Yu, H. Lu and S.J. Qin	880

Chapter 9: Fluid Mechanics and Fluid Engineering

Spanwise Penetration Depth with Turbine Disk Inclination Z.W. Yuan, J. Zhang and D.S. Zhu	887
Design of a Pressurized Trapezoidal Shaped Conduit Using the Rough Model Method (Part 1) B. Achour and M. Riabi	892
Flow Filed Simulation Analysis and Structural Optimization of Automotive Catalytic Converter T.Z. Sui, L. Wang and Y. Wang	899
Numerical Simulation of Magnetic Gravity Compensation for Ferrofluid Y.C. Shi, C.L. Xu, Z.S. Lei, Y.B. Zhong and J.H. Guo	904
Molecular Dynamics of the Flow Properties of Liquids in Wedge Nanochannel Y. Jia and Y. Shen	908
A CFD Study on Cavitating Flow in High-Speed Centrifugal Pumps under Low Flow Rates J.P. Yuan, Y.W. Zhu and A.X. Ge	914
Accumulator Absorb Shocks Simulation Analysis on Pavement Hydraulic Power System G.H. Fang, J. Hu and X.C. Wang	924
Effect of Different Airfoils on Performance of Axial Fan B.L. Zhou, J.P. Yuan, Z.X. He and F. Hong	928
Experimental Study of Cavitating Flow inside Enlarged Transparent Injector Nozzles and its Effect on Spray Y.H. Chen, Z.X. He, X.B. Chen and D. Jiang	935
Experimental Study of Hydraulic Flip Phenomenon inside Diesel Nozzles Using Diesel and Biodiesel Z. Shao, Z.X. He, Z.W. Zhou and X.C. Tao	940
Numerical Simulation of the Centrifugal Separator for Oil-Water Emulsion N. Kharkov, O. Ermak and O. Aver'yanova	944
Numerical Simulation of the Hydrodynamic Cavitation of the Impinging Streams Mixer F. Wang, Z.X. He, Y. Ma and C.S. Li	951
Research on Unsteady Pressure Fluctuation within the whole Flow Passage of a Fire Turbopump L.J. Wang, Y. Yuan and L. Xue	956
Study on Internal Parameters of Cage-Type Trim of Multi-Stage Depressurization Steam Trap S.X. Li, Q.W. Ding, X.G. Xu and Y.L. Fan	964

The Development of Hydraulic Control System for Large Highland Hydraulic Intelligent Pesticide Spraying Machine Z.W. Wang, L. Sun and J.H. Li	968
The Selection of the Optimal Load Matching Parameter Based on MATLAB J.X. Gao	972
Distribution of Indoor Air Quality under Air Conditioning Running B.W. Liu	976
Numerical Simulation on Internal Flows of Reducing Cross J.P. Yuan, W.T. Sun, Y. Luo and B.L. Zhou	980
Study on Nonlinear Damping Properties of Hydro-Pneumatic Suspension System for XP302-Pneumatic Tyred Roller B.S. Xing, N.N. Wang and L. Xu	987
Aerodynamic Analysis of the Static Port's Step Height H. Yang and S.P. Yang	992
Effect of T-Shaped Micro-Channel Structure Dimension on Formation of Micro-Liquid-Columns Formed by Vertical-Shear-Flow Z.X. Wang, Z. Li, H.Z. Cai, Y.J. Zhang and J. Zhuang	998
Flow Field Numerical Simulation on the Membrane Aeration Biofilm Reactor C. Yu, G. Wang, J. Zhang and S.P. Zhan	1003
Global Multiscale Finite Element Method for Flow in Fractured Media X.L. Li, G.W. Meng, L.M. Zhou and F. Li	1007
Numerical Simulation of IHF Fluorine Plastic Centrifugal Pump Inner Flow F.L. Qi, Y.X. Yan, W. Zhao and S.Q. Cao	1011
Diffused Structure of Drained and Back-Ventilated Rainscreen Claddings M.V. Petrochenko and E.B. Yavtushenko	1015

Chapter 10: Reliability and Fault Diagnosis in Mechanical Engineering and Manufacturing

Based on Reliable Probability Design of Automobile Parts Z. Xu	1025
Development of the Equipment Combat Resilience Evaluation System Based on SPA D.X. Zhang, J. Qiu, S.H. Zhou and J.Y. Zhang	1029
Research and Application of Expert Safety Testing (EST) Based on Entropy Theory G.G. Dai, T.T. Miao and J.R. Zhao	1033
A Maintainability Prediction Method of NC Machine Tools Based on Comparing with the Benchmark Failure Mode Q.B. Hao, Z.J. Yang, G.W. Meng, F. Chen and B.B. Xu	1037
Constructing Reliability Analysis Model of Complex Systems Based on FMEA-FTA-BN D.Z. Ma, W.F. Ding, Y.Q. Jiang and Z. Zhou	1042
Estimation of Failure Rate and its Applications in the Case of Zero-Failure Data M. Han	1046
Research on Thermal Protection of One Gas Generator Z.Z. Liu, B. Zhao, Z.H. Chen and C.G. Yu	1050
Application of the Blind Source Separation Based on Time-Frequency Analysis in Mechanical Fault Diagnosis Z.N. Li, F. Zhang, X.P. He and Y.X. Xiao	1054
Reliability Modeling for Systems Subject to Interactional Competing Failure Processes W.P. Huang, J.L. Zhou and J.H. Ning	1063
A Method Used for Mechanism's Motion Accuracy Reliability Analysis C. Li, B.C. Wang, X. Han and S.Y. Zhang	1069
Power Plant Boiler Failure Analysis of Main Components H.L. Xia	1073
Study of Engine Fault Diagnosis Based on Wavelet Packet Decomposition and Neural Network F.F. Yu, C.Y. Du and X.K. Zeng	1077

Research on Temperature Stress for Contacts Reliability of Electric Connector Y.Y. Du and Z.L. Sun	1082
Fatigue Life Assessment of a Ship Unloader Crane B. Xu, T. Zhang, F.Q. Wu and Z.R. Yan	1086
Signal Acquisition and Analysis of Shaft Unbalance Vibration Test H.P. Zhang, H.W. Chen, B. Hu and C. Tian	1090
Failure Risk Evaluation of Security System Based on Fuzzy FTA N. Qu, Z.H. Li, N.W. Cheng and J.W. Li	1094
Research on Intelligent Fault Diagnosis Technique of Complex Equipment R. Zhu, M.J. Huang, G.B. Ding and S. Jia	1098
An On-Line Condition Monitoring System for Oil Film Bearings of Cold Rolling Mill B. Sun and H. Cao	1102
Design and Implementation of Knowledge System of Wireless Communication Equipment Fault Diagnosis Y. Yang	1108
Variable Speed Estimation for Wheel-Bearings with STFT and BP Neural Network Y. Zhou, B. Chen, B.C. Gao and S.J. Zhang	1112
Reliability Analysis of Cold Standby Compound System J.J. Xu and Z.J. Xiao	1116

Chapter 11: Mechanical Structural Strength and Reliability

Design and Trial of MW-Scale Wind Turbine Blade Fatigue Loading Control System Y.C. Wang, J.Z. Wu and G.H. Liao	1123
Reliability Analysis of the Suspension Device in the Refit of a Tracked Vehicle W. Sun, B. Ma, J. Ma and Y. Zhao	1129
The Rod Force Law Analysis of 600MW Air Cooling Tower T. Liang, C.L. Meng, Y. Li and X.H. Zhao	1135
Finite Element Analysis and Improvement of Traverse Table Platform Based on Workbench and Pro/E J. Li and G.S. Ren	1139
Finite Element Analysis of Structural Strength of Concrete Mixing Truck's Frame H.X. Sun, H.K. Wei, X.F. Zhao and J.R. Qi	1143
Modified Stress Severity Factor Method Based on 3D-FEM X.H. Yang, X.J. Liu and Z. Hu	1150
Reliability Analysis of Composite Structure Using ANSYS Software W.T. Zhao, F. Guo and X. Li	1155
Reliability and Sensitivity Analysis of Laminate Using Different Methods W.T. Zhao, X. Li and F. Guo	1159
Study of Anchor Bolt Support in Deep Hard Roof of Roadway of Tangshan Mine R.X. Zhang, Y.K. Lv and C. Jiang	1163
Numerical Simulation Research of Optimization Design of Supporting Half-Coal Roadway in Deep Stope Working Face X.T. Zeng, N. Wang, C. Jiang, Y.Y. Zhang and C.H. He	1169
Research of Unloading Technology of Defect Method in Dynamic Pressure Roadway R.X. Zhang and C. Jiang	1175
Shock-Resistance Research of Ship Structural Subjected to Underwater Explosion Y.G. Xie	1180
Study of the Precursory Rules of a Deformation Localization of Coal Specimens R.X. Zhang, C. Jiang and Y.K. Lv	1185
The Three-Dimensional Similar Simulation of Stress Regular Pattern of Roof of Large Mining Height X.T. Zeng, N. Wang, C. Jiang, Y.Y. Zhang and G. Chen	1190
A Stress-Strength Interference Model with Strength Degradation Following a Gamma Process J.C. Shen, L.M. Liu, A.S. Jiao and X.B. Yi	1196

Rigid Joints Transferring Forces outside Box Columns with Deviation of Column's Verticality - Finite Element Method Simulation G.X. Liang, Z.G. Xu, W.M. Chen and C.G. Deng	1201
The Modal Analysis with Finite Element Method for Body Section of EBZ160 Roadheader Z.F. Dong, L.Y. Fang, G. Dan and C.F. Deng	1207
Thin-Walled Cross-Sections and their Joints: Tests and FEM-Modelling N. Vatin, J. Havula, L. Martikainen, A.S. Sinelnikov, A.V. Orlova and S.V. Salamakhin	1211
Topology Optimization Design of Pre-Stressed Plane Entity Steel Structure with the Constrains of Stress and Displacement L. Yao, Y.X. Gao and H.J. Yang	1216
Evolutionary Structural Optimization Using the Minor Value of Material Efficiency X.G. Hu and H.M. Cheng	1223
Structure Design and Antiknock Performance Analysis of New Mine Refuge Chamber X.Y. Gong, X. Gao, J. Guo, J. Xu and C.M. Chen	1227
Local Weak Support Effect on the Stability of Surrounding Rocks in Deep Roadway W.J. Hu and H. Cheng	1232
Optimization and the Dimensional Analysis in Structural Engineering Problems E.V. Seko	1236
Intensity Design and Analysis of the Underwater Instrument Cabin Shell Y.S. Wang, G.Y. Lu, C.X. Zhou and J. Yu	1242
Research on Structure Damage Identification Method Based on Multi-Modal Parameters J. Sun	1250
Analysis and Preventive Measures of Offshore Steel Structure Welding Crack S.Q. Zhang, H.C. Zhang, M.L. Li and W. Xu	1254
Design of High-Speed Moving Point Target Measurement System Q.Y. Lv, Y. Sun, D.D. Zhang, Y.S. Mei and X.J. Tao	1258
Structural Damage Detection and Classification Algorithm Based on Artificial Immune Pattern Recognition D.W. Zhang, Y.M. Mao, F.L. Kan and N. Chen	1265
Research on Lifetime Remaining of Bridge Based on Gray Theory Y. Zhang, H.X. Huang and S.S. Cheng	1270
Study on Elasto-Plastic Response of the Unsupported Random Launching Site for the Missile J. Ren, X.H. Zhou, D.W. Ma and J.L. Zhong	1274

Chapter 12: Inspection and Control the Quality of Manufacturing Process

Algorithm of Multi-Causes Process Quality Diagnosis Using Binary Tree and Intermediate Quality Q. Niu, R. Mo and N. Wan	1283
Hydraulic Cylinder Boring Quality Range Analysis Based on Orthogonal Test X.Z. Wang and J.H. Yang	1289
Quality Diagnosis in Dynamic Process Based on Multi-Feature S. Zhang	1293
Research on the Aerospace Six Sigma Improvement Mode C.F. Jia and B. Duan	1297

Chapter 13: Mechatronics and Robotics

A sliding Mode Control of Active Suspension Using H₂/GH₂ Approach to Surface Design S.B. Liu, X.X. Luo and Z.H. Wan	1305
The Design and Development of Fully Automatic Ultrasonic Hot Rig J.R. Zhou, W.G. Cui and H. Huang	1309
Improvement of Folded Line Assistance Characteristics Curve for EHPS System G.H. Fang and L.B. Zhang	1314

Study and Design on the Automatic Drying Machine of Spinneret D. Wang, Y. Zhou and C.C. Yang	1318
The Development of the Automatic Cleaning Machine for Spinneret Orifice X.D. Fu, P. Feng and C.C. Yang	1322
Design and Analysis of a Linear Ultrasonic Motor with Composite Bending and Torsional Vibration Modes H.L. Wang, W.S. Chen and J.K. Liu	1327
Powertrain Simulation Research of Coaxial Series-Parallel Hybrid Electric Bus D.J. Pei, D.C. Qin and S.C. Pan	1333
Development of 6-DOF Transportation Vibration Platform Y. Zhu, S.S. Zhu, G.J. Wang and Y. Gao	1339
Design of Robot Obstacle Surmounting or Avoidance with Two Arms in Unknown Environment L. Li and L.Y. Guo	1344
Mechanism Design Method for Obtaining a Cylinder-Like Objects Pose and Position L. Luo, K. Chen and J.H. Chen	1348
Analysis of Typical Phenomenon in Quadruped Robot Engine PID Control J.Y. Wu	1353
Kinematics Analysis of Virtual Prototype System on Multiple Redundant Bionic Arm K. Zhao, X.J. Liu, L.M. Song, C.G. Wang and L. Yuan	1360
Control and Design of Intelligent Robot Arm H.L. Jia, M. Yu, P.J. Chen and D.F. Dong	1364
Iterative Learning Impedance Control for the Robot J.B. He, Z.W. Yao, Z.F. Luo, G.J. Li and S.G. Zhou	1368
Research on Real-Time Performance of the Distributed Control System Based on RTLinux P. Zhang, Q. Guo and B. Wang	1372
Dynamics and Structural Analysis for Arm Equipped on Intelligent Wheelchair L.D. Zhu, Z. Gu, C.C. Zeng and G.B. Luo	1376
Development on Experimental System of Kinematic Performance of 3-TPS Hybrid Robot J.S. Shi, K. Wang, L.D. Zhu, W.S. Wang and J.Y. Yang	1380
Dynamic Parameter Identification of the Base of a Space Robot when Considering the Gravity Gradient H.X. Sun, Z.L. Chen, G. Chen and Q.X. Jia	1384
Optimal Camera Placement of Large Scale Volume Localization System for Mobile Robot Y.F. Wu, G.Y. Li and H. Yan	1390
Finite Element Simulations of an Inchworm Type Piezo-Driven Rotary Actuator H. Huang, L. Fu, H.W. Zhao and C.L. Shi	1396
The Kinematics and Dynamics Analysis of Rescue Robot Based on Adams and Matlab Simulation Z. Xu and J.Y. Gao	1400
Abiot: A Low Cost Agile Sonic Pest Control Tricopter L. Quan, F. Wang and R. Li	1408
Research of Design Synthesis for MEMS Device of Serpentine Spring H.Q. Wang, Y. Lu and H.Z. He	1412
Size Optimization of a Weight-Balanced Haptic Device X.Y. Niu, C. Zhao and H. Wang	1417
Inverse Kinematic Solution and Dynamic Model to 3PTT Parallel Mechanism X.Q. Hao	1421
Forward Kinematics Analysis and Experiment of Small-Caliber Well Rescue System X.J. Sun, C.J. Wang and J. Wu	1426
Improving Navigational Accuracy for AUVs Based on an Adaptive Modified Square-Root Cubature Kalman Filter C. Sun and J.L. Li	1430
Optimal Locomotive Parameters of Four-Legged Bio-Robot by Minimizing Energy Consumption S.H. Park and D.P. Hong	1435
The Mechanism and Transmission Design of Robotic Fish in Coal Mine Z.F. Dong, J. Deng, J.T. Tang, Q.Q. Wang and Q. Li	1442

Research on Size Synthesis Optimization Design of a Bionic Exoskeleton for Index Finger Rehabilitation	
Q.Y. Meng, S.L. Tan, H.L. Yu, Q.L. Meng and J.H. Yi	1447
The Direct Kinematics Solution of the 6-RSPS Simulator Platform with BP Networks	
J.J. Li, C.J. Yang and W.H. Sun	1451
Modeling of Rotating Piezoelectric Vibration Energy Harvesters with Nonlinear Magnetic Forces	
B. Guo, Z.S. Chen, C.C. Cheng and Y.M. Yang	1457
Rig Test and Analysis of Dynamic Engagement Process of Wet Clutch	
H.Y. Jin, X.S. Cheng and X.F. Song	1461
Design of a VCM Actuator Using Halbach Magnet Array for Active Vibration Isolation System	
M.H. Kim, H.C. Kim, D.P. Hong and D.G. Gweon	1465

Chapter 13: Mechatronics and Robotics

Design and Modeling of a Biomimetic Stingray-Like Robotic Fish	
Y.W. Wang, J.B. Tan, B.T. Gu, P.F. Sang and D.B. Zhao	1473
Target Location of Industrial Robot Based on Vision	
G.H. Jia	1478
Method of Optimization Design of Permanent Magnet Retarder	
Y.Q. Huang, X.F. Li, Y. Chen and Y. Jiang	1482
Modeling and Co-Simulation of Stop and Go Cruise Control System	
D. Xiao, L. Li, P.F. Li and J. Su	1486
Design of Guidance Law with Impact Angle and Impact Time Constraints	
L.P. Feng, Z.E. Fan and Y.G. Zhang	1493
Study on Battery Management System Design of Electric Vehicle and Strategy of the SOC Estimation	
Z.A. Yu and J.P. Jian	1500
Study on the Teleoperation Virtual Liver Surgery Simulation System with Haptic Feedback	
Y.H. Fang, F.J. Huang and B. Wu	1507
Design on Control System for Electro-Hydraulic Hitch Equipment of Tractor	
Q.L. Du and X.H. Chen	1513
Research on Movement Relationship and Multi-Axis Motion Control Strategy for the Big Attack Angle Device of the Low-Speed Wind Tunnel	
W.H. Chu, W. Gai and Z.H. Gu	1517
Research on Speed and Position Precise Control about Actuating Hydro-Cylinder of Model Support Mechanism in Wind Tunnel	
N. Liu, F. Wang, W.H. Chu and S.C. Li	1524
A Dynamic Simulation Approach for Servo-Control System	
Z.P. You	1531
Design of Drainage Pipe's Intelligent Exhaust Valve	
M.J. Zhu, S.G. Ye and B.G. Jin	1535
Tractor-Semitrailer Stability Integrated Control Based on TruckSim-Simulink Co-Simulation	
C.Y. Wei, Z.Y. Long, L. Xie and M.Y. Xie	1539
Intelligent Control on Valve-Controlled Motor Speed Servo System	
S.Y. Jiang and Y.J. Liu	1543
Study on a Fuzzy Logic Control Strategy of Regenerative Brake for Vehicular Hybrid Power Source	
T. Sun, Y.K. Sun and X. Wang	1547
Design and Implementation of the CNC Monitoring System Based on Internet of Things	
Y.L. Zheng, H. Lin and X.L. Su	1552
A Survey on Infrared Weak Small Target Detection Method	
Z.M. Li, L.F. Mei and M. Song	1558
Design and Application of a Kind of Micro-Gripper with Pneumatic Control System	
Z.T. Zhang, H.P. Li and D. Xu	1561

Automatic Weight Classifying Machine of Objects with Load Cell K. Prewthaisong	1565
Research on Sterotype Kettle Screw Error Compensation X.L. Chen	1569
Research on the PID Control Strategy in BP Neural Network of Terrain Detector-Milling Cutting Depth System X. Feng, H. Hu, F.R. Kong, S. Qiu and Y. Sun	1573
Optimization and Simulation Analysis of Electro Hydraulic Control System of Clutch Engagement Pressure H.Y. Jin, X.S. Cheng and X.F. Song	1579
Control Method Research of Parallel Operation of Power System with Multiple Sources J.L. Yu, L.H. Cao, H. Mu and J.N. Li	1583
Control Strategy of Hybrid Electric Vehicles Based on Driving Style Identification X.Z. Tang, S.J. Yang and H.C. Xia	1587
Adaptive Backstepping Sliding Mode Control of Electro-Optical Tracking Servo Turntable K.Y. Li, F.Q. Tian and J. Wang	1597
Design of Direct Drive Electro-Hydraulic Actuator Based on Internet of Things Technology L.H. Wang and Y. Wang	1601
Research on Positioning Control of Pneumatic-Hydraulic Intensifier X.J. Yang	1606
Analysis and Design of Automatic Transmission' Hydraulic System Based on Logic Analysis J.H. Li and W.T. Yu	1611
Fuzzy-Neural Network Control on Secondary Hydraulic Transmission System F.Y. Zang, Y. Wang and X.Z. Kong	1615
Study on Aerodynamic Layout of Two-Dimension Trajectory Correction Projectile J.Y. Zhang, X.Y. Wang, Y.P. Hao and Y.Y. Guo	1619
Study on Control Strategy for Locking-Up Process of Torque Converter Y. Jin, X.X. Liu and W.P. Liu	1623
Research on Software Development of Flow Characteristic Measuring System of Motorcycle Electronic Injector T.Z. Yang, H.B. Xue, H.J. Zhao and L. Yuan	1627
A Control Strategy for Continuously Adjusting Attack Angle in Wind Tunnel Experiments S.X. Zhang, W. Gai, W.H. Chu and N. Liu	1632
Study and Analysis of Electronic Throttle Control System Applied in Hybrid Electric Vehicle M.S. Wan, Z.M. Wu, B.L. Li, L.Y. Lv, N. Sun and W.L. Ge	1637

Chapter 14: Advanced CNC Technology and Equipment

Development of the Software for Ball Nut Grinding Process Based on Siemens 840D System J.F. Shao, J. Li, N.Y. Shen and Y.Y. He	1645
Research and Implementation of Tool Space Compensation Technology of Five Axis CNC Machine C.J. Li, Q. Liu and H. Liu	1651
Study on Tool Path Generation and Direct Interpolation Method L.J. Chen, H.Y. Li and H.J. Zhang	1657
Research on Contouring Control of Dual Linear Motors L.M. Wang and H. Zheng	1661
Thermal Error Compensation and Modeling for CNC Boring and Milling Center J. Sun, Y.P. Xu and X. Liu	1665
Thermal Error Compensation on Boring & Milling Machining Center Feed System Based on PMAC J. Sun, X. Liu and Z.X. Li	1669
Contour Tracking Control for Direct Drive X-Y Table Based on Equivalent Errors Model Z.T. Wu and J.Y. Xu	1673
Simulation and Analysis for Cooling System of High-Speed Motorized Spindle C.L. Lei, Z.Y. Rui and Y.C. Zhou	1677

Design and Development of Availability Information System for Heavy CNC Equipment Based on Cooperation of Network	1681
L.H. Wei, J. Huang and H.H. Xu	
Numerical Control for Multifunction Machining Based on Dual MCU	1686
C.D. Shen and X.H. Zhang	
Research on Optimization of Rotation Angle and Singular Area Handling in Five-Axis Post-Processing	1690
Q.X. Fan, G.R. Yan and B.G. Liu	
The Design of Reconfigurable Machine Tools about Lathe and Milling Machine Based on Modularization	1696
X.Z. Li, C.M. Wang and J.K. Xu	
Establishment and Analysis of Mathematical Model of the Accuracy Identification of Five-Axis CNC Machine Tools	1700
R.B. Shi, Z.P. Guo and Z.Y. Song	
Graphical Fault Diagnosis Expert System of CNC Machine Tool Based on B/S	1707
B. Shen, S.Y. Zhao, J.H. Wang and J. Fleischer	
Design on the New Composite Rail of Beam in CNC Gantry Machine Tool	1713
H. Lu	
The Data Acquisition and Processing of Cutting Parameter Database	1717
L.P. Wang	

Chapter 15: Embedded Systems

A New Method Implementation of Kalman Filter Based on FPGA	1725
X. Li, C. Wang, Q.Z. Zhang and X.F. Zou	
Design and Implementation of Federal Kalman Filter Based on FPGA	1729
L. Jia, J. Gao, C. Wang, X.F. Zou and Q.Z. Zhang	
User Interface Design of 1090ES Mode Embedded Ground-Based Transceiver System	1733
D.Y. Zhang, X. Yu and Z.Y. Liu	
Design of Real-Time Large Field Video Display System Based on FPGA	1739
J.B. Chen, Y.M. Qiao and Z.W. Hou	
Design of the Wireless Data Acquisition System for Experimental Rabbit Rectal Temperature Based on Bluetooth and ARM Technologies	1744
M.W. Wang, Q.J. Li, Q.H. Li and W.Q. Guo	
Design of Ultrasonic Anemometer Based on ARM	1748
K. Zhao	
Design and Implementation of Audio Process System Based on DSP	1752
C.X. Chen and Y.H. Mao	
Design of Wireless Communication System Based on nRF24L01	1756
X.R. Jiang, Y.M. Lv and X.H. Cheng	
Integrated Power Semiconductor Embedded in the Automobile Skylight System Application and Research	1760
S.Q. Ma and C.J. Wang	
The Systematic Study of Music Spectrum Display Based on FFT	1764
L. Jin and Q.L. Du	
Design of Embedded Software Reliability Testing Scheme and Protocol for Intellectual Ammeter	1768
X. Gao, P. Wang, B. Zhao, Y. Liu and N. Huang	

Chapter 16: Technologies of Machine Vision and Image Processing

Automated Judgment for Chin-Up Exercises Based on Microsoft Kinect Image System	1775
S.F. Zhao and B. Luo	
Human Behavior Recognition Based on Motion Decomposition	1780
S.P. Zhu and Y.H. Chen	

Key Point Location and Segmentation Method of Automatic Diagnosis System Based on the Palm Images	
H.W. Du, K. Xiong, J. Liu and Z.Z. Han	1784
The Image Process Based on Intelligent Transportation System	
W.Q. An, X.F. Bo and C. Jia	1789
Confidence Based Hierarchical Online Ensemble Visual Tracking	
W.H. He, Z.J. Liu and J.M. Qu	1794
A Robust Face Representation Method for Face Recognition	
Z.K. Li	1801
A Content-Oriented Image Metadata Model	
C. Zhang, P.Z. Zhang and J.P. Gong	1805
A New Measurement System of Yarn Appearance Based on Machine Vision	
J.J. Li, C. Wang, W.X. Tu and B.Q. Zuo	1810
A Study of Self-Adaptive Front Vehicle Recognition Algorithm Based on Multi-Features	
M.H. Xu, C.J. Xia and H.M. Zheng	1815
Adaptive Background Image Calculation for Video Sequences Based on Optical Flow	
H. Zhu and X.P. Ji	1820
Face Detection Based on the Theory of Fractal Compression	
Q.S. An, Y.B. Chen, J. Fan and J.L. Wang	1825
Image Capturing and Segmentation Method for Characters Marked on Hot Billets	
Q.J. Zhao, P. Cao and Q.X. Meng	1830
Research and Implementation of Real-Time Pedestrian Detection Algorithm	
M.H. Xu, H.M. Zheng and C.J. Xia	1837
The Application of Image Processing in Medical Detection Technology	
L.P. Wan, T.C. Li, G.Q. Li and B. Ruan	1842
Improved Algorithm for Wavelet Threshold Denoising and Application in Crack Image Recognition	
H.B. Li and X. Xia	1846
The Fusion Algorithm of Infrared and Visible Images Based on Computer Vision	
M.H. Deng, J.X. Kang and Y.J. Li	1851
A Novel Vehicle Type Recognition Based on Template Matching	
T. Li, D.M. Li and Y.M. Dou	1856
An Improved Rapid SURF Algorithm Based on Region of Interest	
Y.J. Liu, R.Q. Wan, Z.R. Wang and C.C. Jiang	1861
Multiple Objects Tracking Based on Mixture Features	
D.M. Li and T. Li	1869
People Counting Based on the Analysis of the Mass	
T. Li, D.M. Li, R.J. Huang and X.Z. Zhao	1875
View-Invariant Face Detection for Colorful Image	
H. Zhang, L.J. Wang, Z.J. Wang and W.Y. Yuan	1880
Technology and Simulation of Image Enhancement Based on Wavelet Threshold	
B.L. Lin	1885
The Key Technology Research of Kinect Application in Sport Training	
Y.L. Che and Z.J. Lu	1890
Rock Intelligent Recognition and Measurement of Particle Size	
L.H. Luan and L.J. Guo	1894
A Survey on Solar Image Segmentation Techniques	
Y.Y. Fan, W.J. Li and F. Wang	1899
Design and Realization of Efficient Verification Platform Based on System Verilog	
M.H. Xu, Q. Yu and A.Y. Guo	1903

Chapter 17: Sensors and Technologies of Measurements

A New Method to Explore the Marine Topography by Gravity Gradiometry	
B. Ji, S.F. Bian and Z. Wang	1911
Design and Study of Sensor Layout of Magnetic Navigation Smart Car	
C. Jia, X.F. Bo, W.Q. An and X.F. Chen	1916

Finite Element Analysis of Different Outlet Diameter on Fluidic Gyroscope Performance J.B. Chen, L.H. Piao, J.J. Zhao and X. Ding	1920
Research and Analysis of a Portable Precision Temperature Sensor H.Q. Yao, H. Cao, F. Jiang and B. Sun	1924
Research of Characteristic Extraction Algorithm of Ballistic Missile Hyperspectral Databased on Horizontal Traversing Time S.H. Liu, W. Sheng and X.Z. Zhang	1932
Research of Characteristic Extraction and Matching Algorithm of Ballistic Missile Hyperspectral Data Based on Quantization Coding Method S.H. Liu, Z.J. Bi and L. Lu	1936
A Manhole Covers Intelligent Monitoring Terminal Based on Dual Frequency RFID and Acceleration Sensor Z.B. Wang, J.C. Wang and H.B. Zhang	1942
Design of the Monitoring System for Valuable Chinese Herbal Medicine Growth Based on CC2430 B.H. Zhu, D.Q. Zhu and Y.L. Zhu	1948
Information Fusion and Application of Fiber-Capacitive Sensor Q. Song, G.J. Meng, L. Yang, D.Q. Du and X.F. Mao	1952
Inverse Hysteresis Compensation of One-Dimensional Piezoelectric Scanner with Generalized Prandtl-Ishlinskii Model D. Luo, S.H. Chen, W. Chen, G.H. Jiao and Y.F. Lu	1956
Research on Signal Detection Method of High Precision Based on Bayesian Fusion of Multisensory System C. Chen and H.H. Wang	1962
A New Compressed Sensing Image Transmission Scheme in Wireless Sensor Networks M. Yang, Z.G. Wang and L. Zhang	1968
Analysis of Force Transducer Calibration Accuracy Based on Different Influence Factors Y.Z. Zhao, G.T. Li, Z. Niu and D.C. Weng	1973
Classification Moving Vehicle Based on Multisensor Data Using Fusion of Multi-Class SVMs Methods X.Y. Chen, X.F. Chen, S.Q. Zhang and W.B. Zhang	1978
Design of the Chemical Reaction Tank Temperature Acquisition System Based on Wireless Sensor Networks M.W. Wang, Z. Yao, W.Q. Guo, Q.H. Li and Q.J. Li	1982
Eddy Current Testing Probe to Improve the Defect Detection Sensitivity of Metal Tube S.Q. Zhang, Y. Liu, H.J. Xu and C. Yin	1987
Evaluation of Optoelectronic Performance of Four Organic Photo Detectors Structures L. Wang, Q.F. Niu, J.S. Camacho and T. Dong	1991
Frequency Characteristics Analysis of High Frequency Current Transformers Y. Dong, X.X. Chen, Y.R. Li, Y.M. Zhang and C. Wei	1996
The Research on Measurement Accuracy of RIM-FOS Y.Q. Jin and L. You	2005
An Electrochemical Mercuric Ion Sensor Based on CdS Nanoparticle Label H. Fan, F.S. Liao, G.B. Wei and N. Hong	2009
An New Electrochemical Sensor for DNA Ligase Detection H. Fan, G.B. Wei, F.S. Liao and N. Hong	2013
Development of Piezoelectric Three-Dimensional Dynamometer for $\Phi 300\text{mm}$ Wafer Grinder J. Zhang, W. Wang, M. Qian, R.K. Kang and Z.J. Ren	2017
Moving Defect Localization of Wheel-Bearings with Particle Filter and MUSIC S.J. Zhang, B. Chen, B.C. Gao and Y. Zhou	2021
Principle Experimental Study about Collapsible Fuel Tank Based on Quality Measurement Method N. Liu, J.C. Wang, J.X. Yang and T.M. Liu	2026
Research on Coplanar Capacitive Sensor Design for Film Thickness Measurement Y. Gong, H.Y. Zhu and N. Li	2030
The Application of Oxygen Indicator in Food Packaging S.Y. Xie, X.H. Liu, H.B. Li and C. Huang	2037

Transient Signal Detection in Non-Gaussian Noise Using Stochastic Resonance and Wavelet Domain Power-Law Detector H.Y. Dong and Z. Yang	2043
Hydraulic Excavator Bucket Teeth Load-Time Courses Measurement X.L. Hu, W. Yan, Q. Xiang and Y.T. Xie	2048
The Measuring Machine Designing for Detection Iron Tower Component W. Li, J.G. Liu, C.X. Pan and L.J. Qin	2053
A Novel Harmonic Detection Method Based on Wavelet Analysis L. Wu and Y.Z. Gao	2057
Application of the OPC Technology in the No-Load Test Platform of the Metro Bogie G.S. Ren, L. Gai and X.Q. Yin	2062
Accuracy Analysis of Point Cloud Registration Based on Mark Point X.H. Liang and J.W. Liu	2067
The Proof of Equivalence between "Moment of Inertia Based Method" and "PCA Based Method" in LOS Detection L. Hong	2071
Research on Ranging Method Based on Binocular Stereo Vision X.Z. Lv, M.T. Wang, Y.F. Qi, X.M. Zhao and H. Dong	2075
Compare with the Identifying Tape Image of Longitudinal Tear in Average Filtering and Median Filtering M.M. Zhang and P.H. Li	2082
Calibration Methods of Proximate Analyzer L. Wang, Y. Xu and X.H. Li	2089
Improvement of Waveform Analysis Method Based on Polynomial Fitting for Liquid Drop Fingerprint Q. Song, D.Q. Du, L. Yang, G.J. Meng and X.F. Mao	2093
Mathematical Model and Simulation for Testing Aspheric Surface Using the Digital Moiré Patterns by Circular Sub-Region Stitching Method Y.C. Man and C.Y. Zhou	2097
Design and Implementation of a Kind of Ship Underwater Electric Field Signal Collection Equipment Hardware X.B. Wang, L. Xia, X.J. Wang and Y. Liu	2102
Study on Resolution Capability of Beam Space MUSIC Estimation Algorithm H. Zhou and Z.J. Huo	2106
Design of Intelligent Dynamic Weighing Instrument Based on AT89S52 Z.Y. Sun	2111
An Comprehensive Automatic Monitor under the Conditions of Deepwater Environment Y. Shi, X.L. Zhao, K. Li and G.H. Wei	2115
Research of pH Value Temperature Compensation Module Based on the Least Squares Method X.L. Zhao, Y. Shi, K. Li and G.H. Wei	2121
Research on Power and Brake Detection Integration of Wheeled Construction Machinery C.C. Gong, M. Lu, H.F. Ling and B. Li	2126
The Research on Dynamic Torque Test of Overrunning Clutch Based on Load Identification Technology C.M. Zhu, Y.B. Zuo and G.X. Wu	2132
Design of Surface Contour Detection System Based on SCM M.M. Tan and Z.Y. Zhang	2137
Fast Calculation Method for the Magnetic Field of Coil above Conductive Plate S.Q. Zhang, C. Qi and G. Chen	2141
Onsite Detection Technology and its Application for Electric Cable Partial Discharge Y.Y. Man, C. Zhang, X.G. Xi, M.L. Wu, Y.W. Dong, Z. Sun and X.X. Chen	2145
Application of Beidou Satellite Communication Technology in the Landslide Remote Monitoring and Early Warning System G.L. Sun, Z.G. Tao, B. Zhang, D.G. Hou and H.P. Li	2150
Compared of Polarity Correlation Algorithm and LMS Algorithm for Flow Velocity Measurement P.C. Yan, M.R. Zhou and Y.C. Ma	2155

Development of New Smart Meter with Optimized Power Line Communication Module M.F. Gong, B.Q. Liu, W.S. Wang, Y.Q. Lin, H.T. Ge, N.X. Yang and F. Qiu	2160
Extremum Median Filter Method Used in Data Analysis of Spray Heat Exchange Temperature Test Z.F. Dong, X.W. Cheng, Y.D. Han, J.T. Tang and G. Dan	2165
Redundant Method for Measuring Downhole Posture of the Steering Drilling Tool Z.L. Liu, W.S. Yan and W.W. Xiao	2170
Research on the Metrological Verification System for an Equipment Y.L. Huang, H. Bai, J.W. Feng, H.Z. Fan and J.F. Ma	2175

Chapter 17: Sensors and Technologies of Measurements

Signal Measurement Error Analysis of the Bayesian Network of Mechanical Fault Detection Y.X. Zhang, L. Lan and X.H. Wang	2183
The Research of Judging the Phenomenon of Roof Separation Based on Principle of Dynamic Time Warping Algorithm D.D. Liu, G.C. Qiu and H.L. Che	2187
Design and Calibration of a Cutting Force Dynamometer Z.J. Ren, J. Zhang, Z.Y. Jia and Y.Y. Shang	2191
Influence of Temperature and Pressure on Nozzle Array Fluidic Gyroscope J.B. Chen, L.H. Piao, J.J. Zhao and X. Ding	2195
An On-Line Water Quality Monitoring System for the Reservoirs Based on Android Z.W. Dai and H.Y. Liao	2199

Chapter 18: Electronics Technology and Communication

Applications of Optical Fiber Access Network B.M. Liu and L. Zhou	2205
Effect of Spontaneous Radiation of Vertical-Cavity Semiconductor Optical Amplifier Bistability L. Zhou	2209
Optical System in Laser Inter-Satellites Communication L. Zhou	2213
PC Transceiver Programming in GPRS Wireless Transmission Module X.H. Kuang, Z.Y. Yao, Z.Y. Wang, J.M. Zhou, J. Li, J. Hu and S.M. Wang	2217
Research on the AFEC Algorithm of Active Network in Wireless Environment Q.X. Shang	2221
An Implementation of Wide-Range Digital Delay Locked Loop D. Zhou, J.Y. Zhang and B. Ye	2226
Frequency-Hopping Communication Technology Based on Self-Adaptive MIMO-OFDM System J.X. Ruan, Y. Xu and M. Cui	2230
LabVIEW-Based Intelligent Digital Voltmeter Design F. Gao, L.F. Liu and H.W. Zhao	2237
Optimization of Vehicle-Borne Radar Antenna Pedestal Based on Modified NSGA-II D.G. Zhao and Q. Li	2241
Research on Blackout Measurement and Communication of Reentry Vehicle Y.L. Zhang, Y.X. Qu, X.C. Liu and B. Cong	2248
Electromagnetic Shielding Technology Applications in the Electronics Shelter T. He, H.X. Tang, K. Lv and J.L. Wan	2254
Performance Analysis and Simulation of BCH Code in Communication Q.X. Shang and C. Zhang	2258
Performance Analysis of AF Relaying Systems with Partial Relay Selection H. Zhang, D.L. Hao and H.Y. Ding	2262
Research on Neural Network Control Technology for Satellite-Based Laser Communication Tracking Turntable L.H. Wang and X.Q. Wu	2266

Research on S-Band DDS-Driven PLL Low Spurious Frequency Synthesizer Y. Zhao and Y.Q. Liu	2272
Attacking a Measurement Device Independent Practical Quantum-Key-Distribution System with Wavelength-Dependent Beam-Splitter and Multi-Wavelength Sources T. Yu, H.Y. An and D.W. Liu	2277
Design and Realization of Infrared Simulation of SPI Communication D.X. Zhou, C.X. Zhang, L.L. Liu and S. Han	2284
Network Control of Disaster Recovery Plan Q. Liu, M. Yu, H.L. Jia and P.J. Chen	2289
Pilots Precoding Scheme for Massive MIMO System H. Zhang, D.L. Hao and X.Y. Liu	2293
A Spectrum Sensing Based on Support Vector Machine Algorithm in the Building Indoors Environment X.H. Xia, F.J. Luan and M.X. Li	2297
The New Research of Spectrum Sensing Technology for Cognitive Radio Y. Peng and Y.J. Wang	2301
Simulation of a Characteristics Identification Algorithm W.C. Yang, R. Li and Z.D. Shang	2306
Fast Demodulation Algorithm for Rate Compatible Modulation by Log-Map Principle Q. Zou and M. Wang	2310
A Precoding Algorithm Based on Truncated Polynomial Expansion for Massive MIMO System H. Zhang, D.L. Hao and X.Y. Liu	2315
The Application of an Improved Genetic Algorithm to Signal Acquisition M. Shi, C.C. Tian, Q.M. Yi and S. Li	2319
Study on Triple-Antenna KINRTK Problem Using BDS Signal C.B. Xiang, S.F. Bian and Z.M. Wu	2323
Simulation Research of a Soft Power Bi-Directional DC-DC Converter Y. Zhang and J.D. Li	2327
The Application of Sliding Mode Control in Current Source Converter J. Bai, S.Q. Lu and J. Liu	2331
Narrowband Bandpass Microstrip Filter Design Y. Li	2338
A New-Type Data Transmission Scheme and Key Technology of Electric Energy Data Acquisition System L.J. Dong, E.G. Zhu, Q. Zhang, X. Liu and Y. Liu	2342
Simulation Research on MAC Layer Protocol Base on OPNET Modeler Y.M. Mao, D.W. Zhang and F.L. Kan	2349
ZigBee Network Routing Algorithm Based on the Research N. Chen, C.T. Wang, F.L. Kan and L.G. Zhao	2353
The Development and Applications of SAW RFID Technology F. Chen and J. Mao	2358
RFID Middleware Research for Enterprise Production Information Integration N.F. Ren, W. Xu and Y. Li	2363
Research on MAC Protocol for Wireless Sensor Network Y.M. Mao, F.L. Kan and D.W. Zhang	2368
Node Capture Attack Detection in Dynamic WSNs Based on New Node Tracking P. Lu, G.W. Zhang and F.C. Yang	2372
Study on WSN Localization Algorithm and Simulation Model Based on Kalman Filtering Algorithm L.Z. Gao	2380
WSN Coverage Enhancement Algorithm Based on Particle Swarm Optimization J.X. Wang and X. Li	2386
Cluster-Based Multipath Routing Algorithm of Ant Colony System for Wireless Sensor Networks J.Y. Zhang and D.Y. Chen	2394

Chapter 19: Computational Mathematics and Algorithms of Data Processing and Data Mining

Research of an Improved Double-Array Trie Tree Algorithm W.C. Yang, B. Jia and Q.Y. Qu	2401
System Fault Sequence Prediction on CRH2 EMU Based on Improved GSP Algorithm X.Y. Liu	2405
Reactive Power Optimization Using Multi-Objective Particle Swarm Optimization Algorithm Based on Pareto Y. Ai, Y.X. Su, D.H. Zhang and Y. Peng	2409
Bp Neural Network Optimized by PSO and its Application in Function Approximation J.Y. Li	2413
Structural Expert Modeling of Buildings on the Basis of Mamdani's Algorithm T. Soldatenko	2417
A Class of Nonlinear Difference Inequality with Weakly Singularity in Engineering Z.Y. Hou and W.S. Wang	2426
Application of the Improved Mapping Approach to Exact Solutions and Chaotic Patterns for a Nonlinear Equation Y. Lei, S.H. Ma and J.P. Fang	2430
Based on SVM Classification of Connection Pools Algorithm J. Zhao and H.Y. Xiong	2435
A Buffer Pool Optimization Algorithm Based on Max-Heap X.M. Xiong	2439
Matrix Analysis and Design Based on Algorithm of Paper Analysis C.L. Fang and Y. Du	2443
Speech Signal for the Recognition of Emotion by Cultural Genetic Algorithm C.C. Chen, W. Gong and W.L. Fu	2447
Intrinsically Knotted and 3-Linked Graph Q.P. Ren and G.H. Wang	2451
Research and Implementation of Multidimensional Customer Behavior Segmentation Model Based on Bayes and Fisher G.H. Wang, Z.Y. Liu and S.B. Zhang	2455
The Random Walk Model for Tibetan Network Public Opinion Dissemination Behavior K.Y. Deng, J.W. Deng, Y.X. Li and S.D. Li	2459
Two Differential-Integral Inequalities in Engineering W.S. Wang and C.M. Huang	2463
Estimation of Unknown Function in a Class of Singular Difference Inequality in Engineering C.M. Huang and W.S. Wang	2467
$H_{p,p}$ ($1 \leq p \leq \infty$) in the Unit Circle M.P. Ovchintsev	2471
Segmentation and Iterative Algorithm for Repair of Turbine Blade H.D. Wu, J. Gao and D.T. Zheng	2474
Riccari Equation Expansion Approach to Construct Complex Wave Solutions for the Related Schrodinger Equation Z.H. Pan and S.H. Ma	2480
Application of ADE-FDTD Method in Lossy Lorentz Media Q.C. Nie and B.K. Chen	2486
The Differential Measurement Model that under the Equal Principle and its Application S.Y. Wang and S.Z. Chai	2490
Chaotic Time Series Adaptive Prediction Based on Volterra Series F. Dai and G.H. Liao	2495
Correlation Coefficient Matrix Based PD Feature Dimensional Reduction Y. Wang, J.S. Yuan, H.K. Shang and S. Jin	2499
Ensemble Learning in Data Mining of Fetal Cardiotocograms X.Y. Chen, B. Liu and X. Xia	2505

Analysis of LED Light Source Energy Consumption for Lighting System Optimized by BP Neural Network Based on Genetic Algorithm	2509
D.Q. Wei, H.C. Chen and J.W. Lu	
Combination Forecasting Method Based on IOWA Operator and Application	2515
D. Liang, L.F. Ma, Y.F. Hu and S. Wu	
Research and Implement of an Improved Frame-Slotted ALOHA Anti-Collision Algorithm	2519
L. He, G.P. Liu and C.Y. Han	
An Advanced AOI-Cast Algorithm Based on PCA	2523
Y. Wang	

Chapter 20: Monitoring, Control Systems and Intelligent Systems

Fuzzy Adaptive Direct Generalized Predictive Control Algorithm in the Application of AWC Control	2529
F.C. Yin, G.S. Ma, Y.F. Ji, J.X. Yu, D.H. Gu and D.H. Zhang	
Main Clutch Teaching System Designed on PLC	2533
J.Y. Wu, Y. Jin and W.P. Liu	
Observer-Based Control of a Class of Switched Fuzzy Systems	2539
H. Yang, H.H. Lü and L. Zhang	
Switching Control for a Class of Discrete-Time Switched Fuzzy Systems Based on LMI	2543
H. Yang, H.H. Lü and L. Zhang	
Switching Control for a Class of Switched Fuzzy Systems	2547
H. Yang, H.H. Lü and L. Zhang	
The Design of Automated Parking Brake Performance Test Equipment	2551
J. Yan, F. Lin, Z.Z. Ye and J.W. Shao	
The Design of LED Streetlights Controller with Light Control Long Time-Lapse	2555
Y. Li and C. Kui	
The Research on the System of Double-Holding Water Tank Liquid Level Control with the PID Control	2559
M. Yu, H.L. Jia and P.J. Chen	
Converter Control Strategy Analysis on EESG	2563
Z.X. Lin and H.H. Xu	
Simulation Analysis of Electro-Pneumatic Proportional Fuzzy-PID Control System Based on AMESim/Simulink	2568
S.Y. Wang, G.S. Ren and P. Nie	
An Automatic Controlling System of Flushing in Washroom	2573
C.Y. Zhong	
Siemens PLC Software Redundancy in the Design and Implementation of Biomass Pellet Fuel Gasification Test of Strength	2578
X.L. Li, J. Liu, Y. Xie and T.Y. Yun	
The Study on an Automatic Safety Warning System of Mistakenly Entering Charged Interval	2585
L. Chen	
Design and Implementation of Wireless Lighting Nodes Based on JN5168	2589
F. Pan and Q.H. Yang	
PC Interface Design for Wave Energy Power Generation Remote Monitoring System	2596
X.H. Kuang, Z.Y. Wang and Z.Y. Yao	
Research on the Path Optimization Algorithm of Drilling Rig Discharging Pipe System	2601
Z.Q. Jiang, B.B. Wang, H.R. Dong and Q.B. An	
Design of Household Carbon Dioxide Heat Pump Controller Man-Machine Interface Based on C8051F500	2606
Y.R. Li and T.F. Zheng	
Hardware Implementation Tasks to Configure Regulators	2611
V. Goncharov, I.O. Ilyin and A. Kudryavtsev	
Study on Fault Diagnosis Expert System of Aircraft Power-Supply System	2617
X.Y. Zhuang, Y.Y. Xu and Y. Bao	

The Research and Prospect for Hardware System of Intelligent Control of Greenhouse Environment	2623
Z. Zhu, S.H. Zheng, D.P. Ye, X.Y. Tong and W. Xu	
The Study of Simulation on Variable-Frequency Air Conditioning Systems Adopted by Control Strategy of Hybrid Automata	2629
Z.Q. Liu and Z.J. Wu	
Design of Solar Energy Based Intelligent LED Street Lighting Controller	2633
B.G. Jin, Y.D. Yu and M.J. Zhu	
Facilities Vegetables Monitoring and Control System Design Based on WCF and Internet of Things	2637
L. Yan, G.W. Wang and S.F. Wu	
Research of the On-Line Capacitor Measurement and Protection Device Based on STM32	2641
M.F. Gong, F. Qiu and K.L. Song	
Robust Estimation for Discrete-Time Uncertain Systems with Markov Jump Delays	2646
L.P. Feng, S. Pan and F. Xiao	
Software Design of Automotive Parking Heater Remoter and Receiver	2651
Y.T. Ge, X.M. Liu and X.T. Yin	
The Multi-Attributes Assessment Method of Control Performance Based on Data Driven	2655
L.C. Qi, H.Z. Kong, J.W. Qiu, Y.Q. Liu and X.G. Du	
The Research of Free Pendulum Flat Control System Based on MCU	2661
D.L. Qu and Q.L. Du	
Anti-Collision Control Research on Ocean Drilling Platform Drill String Automated Processing	2665
Z.Q. Jiang	
Output Stable Control Design for a Class of Nonlinear Systems Based on Adaptive Fuzzy Logic Systems	2670
Z.L. Gao, Y. Pan, J. Xiong and J.P. Chen	
The Stabilization of Switched Systems with Input Saturation	2676
L. Jing and L. Liu	
Optimization of the Dynamic Performance of the Direct Drive Volume Control System Based on Orthogonal Experiment	2680
A.Q. Huang and Y. Wang	
Student Attendance Check System Based on Fingerprint Identification Technology	2685
C. Lv, Z.D. Liu, H.B. Zhang and Y. Xiu	
Design of Laboratory Management System Based on RFID	2689
S.Q. Ma and C.J. Wang	
The Design of Smart Home Monitoring System Based on ZigBee and Voice Recognition Technology	2693
J. Huang, Y.C. Yang, X.D. Zhai and C. Yang	
Research and Design of Distributed Self-Adaptive Highway Monitoring System Based on WSN	2698
M.S. Gu, Y.S. Yan, J. Wei and H.Y. Wang	
Design and Development of Transformer Data Monitoring System Based on J2EE	2703
B. Qu, J.B. Nie, M.X. Shen and K. Wang	
Design of the Wireless Monitoring System Based on CC1100 in Greenhouse	2709
J. Bao, H.B. Chen, R.X. Ou and J. Wu	
Control System of Sand Milling Collection Machine Based on PLC	2713
Z.K. Chen, S. Qiu, H. Hu and Y. Sun	
Design for Intersections Safety Pre-Warning System Based on Cooperative Vehicle Infrastructure System	2721
W.J. Wu	
The Research and Application of the PID Controller Based on the Improved BP Network	2726
Y. Yao	
Consensus Control for Battery Management System	2732
C.H. Yang, F. Zhang, D.Y. Yang and J. Lin	
H_∞Control of Fractional Nonlinear Differential Systems	2737
L. Li	

Guided Route Creating Algorithm in Advanced-Surface Movement Guide and Control System	
R. Wu, W.A. Jiang, J. Long and Z.Y. Shang	2741
The Application of LabVIEW in Network Complementary Monitoring System	
X.F. Bo, C. Jia, W.Q. An and X.F. Chen	2748
Study on Fault Classification Method for Control System	
L. Jia and Z.H. Liu	2754
Design of Inverter Communication Network Query Engine	
F.M. Cheng	2758
Trenchless Rig Remote Monitoring System Software Development Based on VB	
L. Han, C. Wu, P. Zhang and J.H. Bai	2762
Antiwindup Controller Design for Phase-Lead-Lag Controller	
X.Y. Fu, G.B. Zhang and M.R. Zhang	2767
Carrier Aircraft Urgent Takeoff In-Flight Alignment Extended Set-Membership Estimation	
Y. Yao, S. Pan and Y.Q. Wu	2772
Prediction of Network Utilization Based on ARMA Model and RELS	
H. Zhang, F. He and C.Y. Han	2780
An Improved DMOC Method with Gradient Penalty Term	
L. Gao and J.Y. Ding	2784
Hydraulic Control System Design for XYZM Plate-and-Frame Filter Press	
L.X. Hou, F.G. Li, C.X. Ju and W. Xu	2788
The Design of Bending Force Shape Control System Based on Fuzzy Adaptive Control	
J.S. Ma	2794

Chapter 21: Energy and Power Engineering

Uncertainty Estimation Method for Windspeed Random Fluctuation Based on it's Amplitude Modulation Effect	
J. Wan, Z.G. Zhao, G.R. Ren, C.C. Qiao, C.R. Lei, J.F. Liu, S.L. Wei and D.R. Yu	2801
Numerical Study of Effect of Injection Parameters on Combustion and Emission Performance of a Direct Injection Diesel-Natural Gas Engine	
G.M. Guo, Z.X. He, X.X. Sun, Z.R. Zhang and X.C. Tao	2806
Simulation and Test for Turbine Air Powered Engine	
J. Liu, J.T. Han and J.C. Deng	2810
Research on the Influence of Temperature and Illumination Strength to Photovoltaic Generation System	
K. Li and D.A. Zhao	2815
Simulation on Ground Temperature Change of GSHP System in Severe Cold Regions	
L. Bai and P.X. Wang	2820
Study on Drilling Technology of Excavated Foundation for Transmission Lines	
G.R. Tang, M. Jiang, K. Liu and F. Peng	2825
Study on the Choice of Logistics Supplier in Wind Power Manufactures Based on Fuzzy Comprehensive Evaluation	
N. Li and J.G. Li	2830
A Hybrid Sequence Modulation Technique for Common-Mode Voltage Reduction in Current Source Converters	
J. Bai, J. Liu and S.Q. Lu	2834
Micro-Grid System Based on Compressed Air Energy Storage	
Y.J. Liu, W.H. Li, X.H. Luo, C. Su, S.X. Ding, G.Z. Wu and D.P. Zhang	2841
A New Method of Short-Current Limiting	
H. Xu and Z.D. Yin	2846
Study on Main Electrical Connection of 500kV Smart Terminal Substation	
Y.Q. Huang, N. Liu and J.H. Zhang	2850
Design and Simulation of Permanent Synchronous Drive Motor for Electric Vehicle	
C.Y. Qu and X.P. Wang	2854
On the Possibility of Fractional-Slot Concentrated-Winding Permanent Magnet Machine for Wind Power Generation	
X.P. Wang and C.Y. Qu	2858

Full-Bridge ZVZCS Converter Design Based on Power System B.W. Sun	2863
Design for Boost DC-DC Converter Controller Based on State-Space Average Method S. Su, J.Q. Yang, J.X. Zou and W.B. Zhang	2867

Chapter 21: Energy and Power Engineering

Ground Distance Algorithm for Single-Phase Grounding Fault of Four-Parallel Transmission Lines Based on Twelve-Sequence Component Z.A. Yu, M.Z. Cheng, P.Y. Guo and N.L. Tai	2873
Modeling and Simulation of MPPT Algorithm for PV Grid-Connected System Y.T. Yan, Y. Yang, J.Q. Yang and W.B. Zhang	2880
Capacitor Voltage Balance Control for Diode Clamped Multi-Level Inverter Based on Charge Refreshing L.P. Zhong, Q.M. Gu and S.P. Zhang	2885
Rotor Current Analysis on Transient Performance of Low Voltage Ride-Through of Doubly Fed Induction Generator W.J. Zhang and Z.X. Han	2891
Application of Combined Intelligent Algorithm in Load Forecasting S.F. Wang and H.C. Yang	2895

Chapter 22: Manufacturing Management and Engineering Management

Measuring the Successful Factors of Dynamic Capabilities by Decision Making Trial and Evaluation Laboratory (DEMATEL)-Based Model P.Y. Huang, Y.J. Wang, S.B. Tsai and J.J. Guo	2903
System Analysis and Simulation Modeling as the Basis for Unique Design of Port Terminals for Bulk Handling K. Nikolay	2907
The Re-Cognition and Direction of Chinese Labor-Intensive Industry B. Sun and Z.H. Chen	2911
A Methodology for Replenishment of Products on Supermarket Sector C.T. Scarpin and M.T.A. Steiner	2915
Experiencing Integrated Management in a Virtual Learning Environment D. Wollmann, M.T. Arns Steiner, P.J. Steiner Neto and O. Canciglieri	2924
Forecasting for Machine Tool Sales Based on Grey Linear Regression Model D. Liang, Y.F. Hu, L.F. Ma and G.Z. Sun	2935
Risk Age of Passenger Ships Based on Port State Control Data M.L. Sun and Z.Y. Zheng	2939
The Study and Realization of Grading Modeling Risk Assessment for Buried Gas Pipeline L.J. Li, J.Y. An and L. Zhou	2944
Applying Quality Function Deployment Techniques in Lead Production Project Selection and Assignment C.C. Chen and Q. Zhang	2954
The Index System Based Risk Evaluation for Electricity Power Market Self-Regulation Building J.C. Liu, Y.X. Wu, X. Yu, J.B. Liao, T. Liu, S.X. Wang and C. Deng	2960
The Impact of Knowledge Management Strategy on Performance in Taiwan's Manufacturing Companies H.L. Huang, Y.Y. Chen and W.H. Fang	2967
Analysis and Short-Term Prediction of Information Service Industry's Prosperity Index N. Wang, F. Sun and X.H. Shan	2971
Research on Enterprises Knowledge Transfer under NPI Model Based on the System Dynamics X.G. Xu and D.B. Shen	2977

The Effect of Authentic Leadership on Leader Creativity: The Mediating Role of Creative Process Engagement C. Zhao and Z.H. Gao	2982
An Empirical Research on Fuzzy Alliance Network of Chinese Automobile Industry G.M. Yu	2987
Study on Competitive Advantages of Automobile Industry in Wuhan from the Perspective of Industry Cluster X.H. Zhang	2991
Study on Development Strategies of Chinese Equipment Manufacturing Industry L.P. Chen	2996
Analysis of the Contribution Rate of Technological Progress to the Development of Coal Industry J. Guo and F. Ding	3000
The Research on the Characteristics and the Construction of Collaboration Design Platform in Industry Cluster Y. Cui, Q. Wang, H. Guo, Y. Wang and H. Jiao	3004
Intelligent and Green Buildings Project Management Scope Definition Using Project Definition Rating Index (PDRI) T.J. Chu, A.P. Chang, C.L. Hwang and J.D. Lin	3008
Complex Models of Active Control Systems at the Modern Developing Enterprises V.G. Borkovskaya	3012
Explore the Underpinning of Applying "System Dynamics" Research in Construction Project Management -A Literature Review from 1998 to 2012 T.R. Gan	3016
System Building of Supervision for Construction Engineering Quality under the Perspective of Life-Cycle G.B. Han	3022
Construction Work Tasks Duration: Pessimistic Scenarios Based on PERT Method S. Bolotin, A. Dadar and I. Ptuhina	3026
Research on Competitive Strategy - Case of a Taiwan Technology Material Manufacture Enterprise R. Saito, Y.J. Wang and S.B. Tsai	3032
A Research in Knowledge Management System for the Development of DSS Y.F. Liu, D. Xie and Y.J. Yuan	3037
Maintenance Management Issues and Solutions for Bridges in the Small Town C.C. Su	3041
Research on Remanufacturing of Gear Reducer Z.F. Li, C.K. Du and S.Q. Huang	3045
High-Tech Manufacturing Enterprises' Competitive Strategies – The Case of Printed Circuit Board Manufacturing in Taiwan Y.C. Lin, B. Yu and S.B. Tsai	3050
Establishment and Application of Risk Forecast Model of Construction Project Based upon BP Neural Network X.X. Li	3056
Power Quality Management in Distribution Systems A.R.T. Góes, M.T. Arns Steiner, P.J. Steiner Neto and O. Canciglieri	3060
Model of Optimum Planning of Civil Engineering in the Settlement Territory V.S. Soldatenko	3069
Production Line System Research Based on LINGO D. Liang, D.D. Xu, F. Kong and S. Wu	3078
Research on the Equipment Support Decision Making Agent X. Zhang, X.M. Du, N. Zhu and X.B. Li	3082
Method of Selection Manufacturing Projects Based on FANP Model Z. Li, D.Y. Sun and C. Xiao	3087
Merging Algorithm for Multi-Varieties and Small-Batch Orders in Iron and Steel Enterprise G.J. Dong, L. Li, X.T. Wu and J. Su	3092
An Algorithm for Economic Lot Scheduling Problem R.W. Luo, R.H. Xie, L.W. Xiao and Y.F. Zou	3097

Modeling and Analysis of Machining Center Reliability Based on MATLAB X. Li, C.G. Yang, X.C. Zhu and X.F. Yuan	3102
A Hybrid Genetic Algorithm for Production Capacity Allocation Problem with Multiple Regional Demands in Supply Chain Z. Wang and L. Huang	3107
Analysis of Engineering Supervision Process Base on Asymmetric Information F. Zha and T.Z. Wei	3112
Lean Manufacturing in Operations Management in Improving the Efficiency of Manufacturing Processes J. Jambor	3117
Logistics Network Optimization of Import Crude Oil in China Based on Genetic Algorithm J. Chen	3126
Solving the Problem of General Job Shop Problem by Using Improved Cellular Genetic Algorithm Z.M. Li, Y. Zhang, X.D. Zheng and X.Y. Wan	3130
An Effective Method for Capacity Analysis of Aircraft Digital Assembly System L.M. Zhao	3136
Improved Data Structure for the Orthogonal Packing Problem V.A. Chekanin and A.V. Chekanin	3143
Research on Lean Information System of Coal Enterprises C.F. Liu, J.H. Liu and G.X. Yang	3147
Analysis of Machining Workshop Manufacturing Based on Unit K Means Clustering D. Liang, F. Kong, D.D. Xu and G.Z. Sun	3152
Modeling in Mixed-Model Assembly Lines Based on Object-Oriented Petri Net H. Dong, H.B. Xin and J.H. Yan	3156

Chapter 23: Logistics and Supply Chain

Study on Green Supply Chain Management Model of Chinese Home Appliances Enterprises W. Liu and J.X. Chen	3163
The Problem of Selecting Supplier for Retailer in Supply Chain N. Liang	3167
The Supplier Selection in the Category Management Based on Trust N. Liang, B.H. Zhu and Y. Dong	3171
Negotiation Model for Assuring Quality in Supply Chain Using Stackelberg Game K.S. Shin and B.C. Kwon	3175
Under the Environment of Agile Supply Chain Inventory Control Research L.L. Wang, T. Zhang and Y. Guo	3179
Design of Simulator for Reverse Supply Chain Network S.J. Lim	3183
Optimization Control of the Bullwhip Effect in Supply Chain Inventory H. Dong, J.H. Liu and L.Y. Liu	3187
Research on Urban and Rural Areas of Yunnan Cold Chain Logistics Knowledge Alliances Building L.X. Han and F.C. Li	3191
The Research of Supply Chain Based on the Order Agriculture H. Dong and Q.S. Lv	3195
Research on Chinese Supermarkets' Logistics Distribution Model P. Zhang, X.S. Jiang and W.L. Gai	3199
Study on the Public Logistics Nodes of Industry Cluster District and Location T.T. Li, L. Qin and X.J. Ge	3204
The Research on Port Logistics Mode and the Selection D.Q. Sun and Y. Yang	3209
New Formulation for an Economic Order Quantity Distribution Policy in Vendor-Managed Inventory Routing Problems T. Guimaraes, C.T. Scarpin and M.T. Arns Steiner	3219

The IOT and Smart Logistics Model as the Center of Agricultural Products IOT Port Y. Chen	3237
Automobile Industry Supply Chain Inventory Modeling and Optimization Based on MPC D.X. Wang, J.J. Dou and Y.H. Chen	3241
Research on Mixed Intelligent Arithmetic of Reuse Reverse Logistics Centers' Location Model L.F. Dai and X.F. Wang	3246

Chapter 24: Traffic and Transportation Systems

A Cooperative Positioning Scheme Based on Beam-Forming for Intelligent Transportation Systems L. Du, N. Liu, R. Fang, N. Li and X.H. Song	3255
Traffic Flow Forecasting Based on Land-Use Planning Q. Liu and J.J. Zhang	3260
Acoustic Internet of Vehicles: Localization and Sound Synthesis to Increase Traffic Awareness W. Zhang, L.H. Zhang and J.J. He	3266
Analysis of Air Traffic Flow Management Effect Q.F. Zhang	3271
New Approach for Modeling of Air Traffic Flow Q.F. Zhang	3275
The China Air Traffic Flow Management Problem Q.F. Zhang	3279
Improvement Research of Path Selection Algorithm in Traffic Guidance System L.L. Li and J.P. Tang	3283
Research on Integrated Transportation of the Vehicle Logistics W.L. Tian and C.X. Cao	3287
Research and Design of Road Traffic Flow Detection System Z. Song and Q. Ye	3291
The Research on Area Classification in Intercity Rail Traffic Forecast Based on Cluster Analysis D.M. Yao and D.Y. Jiang	3296
Optimal Control of Air Traffic Networks Q.F. Zhang	3300
Research on Traffic Sign Detection Algorithm M.H. Xu, Y.D. Liu and C.J. Xia	3304

Chapter 25: Applied Information Technologies and Knowledge Processing

Design and Implementation of Intelligent Management System of Amusement Park Based on Two-Dimensional Code R. Shan, L.L. Qi, J. Yang, Y.P. Zhang, J.F. Ding and K. Zhou	3311
The Design of Campus Online Supermarket Management System C.Y. Zhang	3316
The Development of Android Mobile Game Based on App Inventor2 L. Wu and J.W. Shen	3319
Research about Automatic Text Summarization Based on Discourse Structure of Chinese M.N. Zhang and W. Fu	3323
Study on the Impact of Web-Quests as Communication Technology on Electronic Reading G. Zhang	3327
Software Quality Evaluation for Control System Based on Extension Theory X.Y. Liu and J. Zhang	3331
The Design and Realization of Remote Data Synchronization Based on Configuration Software L. Guo	3336

The Research Status and Prospect of Virtual Community in China Y.F. Liu, T. Yu and Y.J. Yuan	3340
Mixed Integer Programming Models for Two Identical Parallel Machines with a Single Server Y. Zhan, H.T. Zhu and Y.G. Zhong	3344
The Design of the Online Collaborative Music Production System B.H. Liu, Y. Li and W.L. Fu	3348
Design and Implementation of System Framework Based on Web Z.D. Gao	3353
A Design of Data Fusion Management System Based on LabVIEW J.F. Gao and J.L. Shao	3356
The Research of Data Mining Technology in Customer Relationship Management T. Song, G.J. Chen and Y.M. Luo	3360
Study on the Application of Computer in the Taxi Intelligent Management System M. Fan	3364
Extraction of Classification Rules in Databases through Metaheuristic Procedures Based on GRASP G. Pavanelli, M.T. Arns Steiner, A.R.T. Góes, A.M. Pavanelli and D.M.B. Costa	3369
The Research of Data Privatization Based on Cloud Wisdom Remote Monitoring System D.D. Yi, H.Q. Ying, X.P. Liu, S. Shen and W. Lv	3376
The Algorithms of Dynamic Servers for Scheduling Aperiodic Real-Time Tasks – A Review F.X. Zhang	3380
Dental Surgery by Using Object Oriented Designing L. Sun	3384
Mining Association Rules Algorithm and its Application Based on Key Transactions Z.X. Wang, G.F. Ma, S.L. Ma, S.Y. Li and Y.S. Cheng	3387
Research on the Content-Based Video Indexing for Smart Grid M.L. Yan	3391
Multi-User Interactions Using Active Rule B. Dong	3396
Analysis of Development and Research Trends of Aerospace Engineering Based on CiteSpaceII J. Lin, G. Bi, P.G. Zhang and L. Mai	3400
Research of Personalized Intelligent Information Retrieval System Based on Agent Y. Hong	3406
Semantic Retrieval for Ontology-Based Aircraft Fault Knowledge Y. Zhou, B. Tian, Z.Y. Zeng, Z.Y. Jia and Y. Zhou	3410
Sentiment Information to Vector, a more Automatic Approach for Sentiment Analysis L. Du, W.R. Xu and P.Y. Liu	3418
A Conceptual Knowledge-Link Model for Supporting Dental Implant Process A.L. Szejka, O. Canciglieri, M. Rudek and H. Panetto	3424
Agents Software with Ontologies in Expert Systems to Support Dental Prosthesis Design Decisions D.J. Czelusniak, A.L. Szejka and O. Canciglieri	3430
VRP Problem Research with Workshop Road Constraints Based on Tabu Search Y.J. Feng, H.P. Zhu and F. He	3438
An Improved RSSI Location Algorithm Suitable for Digital Workshop Y.F. Leng, H.P. Zhu and F. He	3444
A Brief Review of Trust Evaluation in Networked Manufacturing System Z.H. Liu and K. Yan	3450
A Method for Multimedia Resources Management and Sharing in Cloud Manufacturing System Z.H. Liu	3454
Review of Document Structure for Flight Data Analysis Program L.L. Zheng and D.L. Yao	3458
Research on Collaborative Development System of Electric Network for Small and Medium Enterprise Y.H. Zhang, W. Wang, D.D. Jin, X.W. Liu and W.T. Lu	3462

Chapter 26: Environmental Protection and Environmental Engineering

The Latest Developments and Applications of Anion Water H.G. Wei, Q.S. Li, Z.Z. Li, F. Wang and Y. Xiao	3471
Experiment Study of Demulsifier on the Oily Wastewater Treatment B.J. Liu, J.C. Shi, L.P. Guo and Y.P. Li	3475
<i>Pantoea agglomerans</i> an Agent to Remove Residual Copper from Aquaculture Activity P. Paulina, G. Corsini, T. Mario and A. González	3479
Biosorption of Cu²⁺ by Anaerobic Granular Sludge B.R. Yang, D.X. Liu, X. Niu and C. Ding	3483
Environmental Protection Technology of Modern Lead-Acid Battery Production Y.H. Shu, Z. Cheng and X. Liu	3489
Research on the Mercury Distribution Regularities in Mercury Halo Zone Soil L.N. Cao	3498
Dynamic Changes of Relative Carrying Capacity of Resources in Dongting Lake Y.J. Yu and L. Wu	3502
Research on Carrying Capacity of Resources and Problems of Sustainable Development in Hunan Province Y.J. Yu and L. Wu	3506
Application of PFSC in Seawater Desalination Pretreatment J. Cheng, S. Cheng and X.F. Cao	3510
Path Design of Municipal Life Waste Recycling System M. Liu, L. Lei and Y. You	3514
Effects of Sand Dune Stabilization on Plant Diversity of Interdune Lowlands in the Semi-Arid Sand Dune Fieds S.G. Yan and Q.T. Xu	3518
Study on CO₂ Intensity Reduction Allocation of Construction Industry in East China Y.H. Mao, J. Shao and Y. Li	3522
The Research of the Influence Condition on the Nitrification Stage of the “SH-A” Craft Processing the Coal Based Needle Coke Wastewater X.H. Zhu, D.Y. Li, Y.W. Jin, S.C. Wang and M.J. Shan	3527
The Research of the Intelligent Given and Control for the Dissolved Oxygen in the Aeration Process of Sewage Treatment C. Li, H. Zhang, H.Z. Dai and M.J. Huang	3530

Chapter 27: Advanced Technologies in Area of Education

Independent College Electronic Information Specialty Applied Creative Talents Training Method Research B. Lin	3537
Coach Evaluation Model Based on the Comprehensive Weights Y. Tang	3541
Research on Approach to English Writing Instruction Based on CAE J. Lu, C.X. Zhao and R.H. Xu	3546
The New Engineering Training Method Based on the "Excellence Engineer Education Program" Y.Z. Chen, S.Y. Zhong, W.F. He and J. Ye	3550
Monitoring System Construction of Autonomous Learning for College English Based on IT K. Wang and Y. Yang	3554
Research on the College Students' Physique Test Based on Artificial Neural Network and Support Vector Machines Approach H.S. Liu	3558
A Study of Bilingual Education in Electrical Information Courses Based on Information Technology K. Wang and Y. Yang	3562

The Cultivation of Multiliteracies in the Context of Multimedia Instruction Z. Guo	3566
The Analysis of Database Management Curriculum Reform Based on Working Process M.M. Hua	3570
The Integration of Information Technology in College English Courses K. Wang and Y. Yang	3573
Strategies of Cultivating Information Literacy for College English Teachers Based upon Information Technology K. Wang and Y. Yang	3577
Prospect Analysis of IOT Application in Fixed Assets Management of Colleges and Universities Y. Peng	3581
An Applicable Solution for Setting Up Intelligent Schools by Using Internet of Things Technology J.C. Chang, Y.J. Li and S.B. Tsai	3585