Table of Contents

Preface

Chapter 1: Mechanical Engineering

Chassis	
X.L. Xie and F. Gao	3
Design and Optimization of Clutch Hydraulic Shift Control System in Automatic Transmissions with Failure Protection Function S.H. Tang, Y.F. Liu and X. Han	11
The Common Fault Analysis and the Solution of CKA6140 NC Lathe L.F. Li	17
Singularity and Dexterity Analysis of the Test Tilter for the Optical Landing Aid System H.D. Wang, J. Sun, G. Ji and Y.Q. Bi	22
Analysis on Current Technical Status and Development of Tumbler Screening Machines in China and Abroad X.H. Duan and C.H. Zhang	26
Fuzzy Multiple Attributes Decision-Making Hybrid Model for Selecting Aircraft Baseline Scenario	20
R.B. Wang and L.X. Gu	30
Design of a Horizontal Axis Turbine Marine Energy Generation System H.P. Hu, S.M. Wang and K. Tian	37
Adaptive Optimization Design of Machining Center Tool Changing Manipulator K.Z. Sun and J.Y. Zhou	43
Fatigue Damage of a Cutter Used for Cutting Cashew Nut under Random Load Y.F. Fu, J. Gong, D.M. Zhu, Y.J. Liu, H. Huang and M.F. Huang	49
Key Technologies Research of Helicopter Transmissions H.L. Xue, G. Liu, X.H. Yang and B. Han	55
Structure Strength and Stability Analysis on the Truss under the Operation of Lifting Z.M. Zhao	61
Modeling and Simulation on the Gas/Water Two-Phase Ballistics of Trans-Media Aircraft M. Wu	66
Kinematic Error Analysis of Parallel Machine Tool Based on Rigid Body Dynamics X.G. Chen, Z.T. Xu and H.B. Wu	71
Simulation of Frictional Thermal Effect during Blade-to-Case Full Annular Rub L.L. Wang, S.M. Li, G.C. Tian and J.Y. Li	79
Influence of Micro-Morphology on Thermal Elatohydrodynamic Lubrication of Water- Lubricated Tenmat Bearing	85
N. Dong, Y.Q. Wang, Q. Liu and X.B. Huang Analysis to the Depth of Subgrade Workspace of the Heavy-Loaded Traffic Main Road in	83
Shanghai X.J. Wen and Y.F. Bai	91
A Study on the Influence of Sun Gear Misalignment on Planet Load Sharing and Lifetime	
of Planetary Gear Using MSC.ADAMS K.M. Kang, P. Mou, D. Xiang and G. Shen	99
Nonlinear Behavior Analysis of a Flapping-Wing Mechanism with Clearance Joint X.P. Wang and G. Liu	107
Analysis on Shear Stress Design Index of Long-Life Asphalt Pavement under Complex Traffic Conditions	117
Y.J. Qiao and X.R. Ma	115
Design and Research on the Split Pipe-Jacking Structure Y.F. Bai, G. Wang and Z.Y. Zhou	121

Chapter 2: Mechatronics, Automation and Control, Intelligent Systems

Co-Simulation of an Integrated Braking System Based on Dual-Motor Drive by Using ADAMS and SIMULINK J.W. Yong, N.G. Ding, F. Gao and X.R. Hu	133
Study on the Mechanism of Magnetic Paraffin Control of Crude Oil Based on the Reorientation of Paraffin Crystals Induced by Magnetic Field	
W.W. Zhang, D.D. Wang, T.T. Wang and S.C. Zhang An Approach for the Implementation of Intelligent PID Controller Based on Fast Genetic	137
Algorithm E.Z. Song, N.S.I. Albakirat and N.F. Mohammed	142
Research of Large Erecting Control System Based on Fuzzy PID Control Algorithm W.L. Guan, Q.H. Gao, Y.H. Li and Z.H. Liu	146
An Investigation of Undulating Shape Adaptation Characteristics of a Hydraulic-Driven Bionic Undulating Robot	1.50
H.J. Xu, L. Zhang, C.Y. Pan and X. Zhang Wireless Monitoring and Controlling Marine Navigation Parameters	150
I. Morsi, M. Zaghloul and M. Elfiky Research on PCS Real-Time System Based on Integrated Control and Simulation	157
S. Liu, S.S. Shi, Z.W. Zhang, J.T. Chen and Z. Wang	164
Rapid Design of DC Motor Speed Control System Based on MATLAB X.L. Wang, T.Y. Yin, J.T. Chen, J.X. Liang and Y. Li	168
Research on Integrated Control and Simulation of Three-Phase Voltage Source PWM Rectifier Based on 64-bit RTW	
S.S. Shi, Z.W. Zhang, L. Shu, T.Y. Yin and Y. Li	172
Industrial Remote Control System Based on C8051F120 H. He, X.J. Xu, Z.H. Zhang and C.Q. Mao	176
B/S Structure-Based Remote Management System in CNC L.L. Yan, Y.R. Chen, W.J. Ren and Y. Yu	180
Programmable Control on Initial Phase of Oscillation Using AD9854 Y. Leng and X. Shi	184
Research and Simulation on Repairable Device Preventive Maintenance Control Policy H.S. Su and J.D. Li	189
The Research of Signal Optimal Control Strategy Based on SCATS L.X. Yang and X.Q. Zeng	196
Research on Intelligent Control System of LED J.Q. Zhang, F. Xiong, H.B. Gan, W.B. Sun and L.L. Liu	203
The Multi-Scenario Semiconductor Lighting Control of Driver Refactoring J.S. Li, F. Xiong and G.Q. Qu	209
Design of Microfluidic Chip Rapid Laser Carving Worktable H.W. Zhang, A.G. Wu and Q.Z. Ding	214
The Simulation Experiment and Research on an Improved Cumulative Sum Anomaly Detection Method	
H. Zhao	219
Design and Implementation of the Door Module of Gates D. Zou	226
Chapter 3: Electronic and Embedded Systems	
Design and Optimization of Microstrip Stub Bandstop Filter Based on ADS Q.Y. Zhu and X.L. Meng	233
Design of Carpet-Knitting Machine Control System Based on Embedded System W.G. Lv, J. Bai and C. Zhang	239
Design of High Performance Sample Hold Amplifier for Pipeline ADC R. Zou	244

The Real-Time Control Technology of the Bidirectional Charger Based on the RTW X.L. Wang, J.T. Chen, J.X. Liang, T.Y. Yin and Y. Li	248
Simulation of DC Regulated Power Supply by SVPWM Control Y.M. Su, H.Y. Zhu and F. Zhao	252
Critical Clearing Time Associate with Relation of Power Load Factor and Frequency in Transient Stability M.J. Lin	257
Research on the Full Electronic Light Detector of the Coach P. Zhang, H.Y. Ma and Y. Lou	263
Design of Permanent Magnet Synchronous Motor Drive Circuit Based on IPM X.L. Lin, D.F. Dong and W.H. Zhou	270
Vehicle Detection System Based on Magnetoresistive Sensor H. He, C.Q. Mao, H.Y. Pan and Y. Li	277
Design and Implementation of Data Acquisition System Based on ADXRS649 Gyroscope S.M. Sun, J.H. Wang and J. Liu	281
Chapter 4: Applied Mathematics, Computational Methods and Algorithms, Data, Image and Signal Processing, Identification	
Cloud Extraction of Satellite Image Using Fuzzy C-Means Clustering Approach X.L. Li, Y.C. Tian, K.Z. Xing and G.Q. Ma	289
Color Image Segmentation of Live Grouper Fish with Complex Background in Seawater G.Q. Ma, Y.C. Tian, X.L. Li, K.Z. Xing and S. Xu	293
Another Note on Stability of Sliding Mode Dynamics in Suppression of Fractional Chaotic Systems L. Viere, D. Shi and V. Wang.	303
J. Yuan, B. Shi and Y. Wang A Robust Optimisation Approach of a Simultaneous Cost-Risk Reduction under a Just-in- Time Environment Using a Genetic Algorithm F.E. Dabee, R. Marian and Y. Amer	303
A Novel Piece-Wise Linear Algorithm for Human Skin Segmentation R. Subban, P. Perumalsamy and G. Annalakshmi	317
A Novel Method for Segmenting and Ranking Nuclei for Cervical Cell S. Ravi and G. Annalakshmi	321
Two New Parallel Algorithms Based on QPSO Y.X. Qian, K. Dong and X.N. Zhang	325
Comments on "A Novel Image Encryption-Compression Scheme Using Hyper-Chaos and Chinese Remainder Theorem" S. Bai, G.B. Zhu and X.Y. Ji	333
Research on Multi-Distribution Center Location Based on Fruit Fly – Immune Algorithm Y. Liu, J.J. Sun and X. Wang	338
The B ₄ -Modalized Propositional Logic C.G. Cao, Y.F. Sui and S.B. Deng	343
Adaptive Detection Algorithm Research of Road Image Edge Line X.Z. Lu and H.C. Pang	347
An Improved ESPRIT Algorithm for Fast Frequency Estimation K. Liu, C.C. Sun and J. Sun	351
System of HD Digital Audio Decoder M. Zhou	355
The Optimization of SIFT Feature Matching Algorithm on Face Recognition Based on BP Neural Network B. Liao and H.F. Wang	359
A Method of Extracting Acceleration of Boost Phase Based on Orthogonal Curve Fitting Y. Huang, J. Wu, L.H. Wu and W.D. Sheng	365
A Moving Object Detection Algorithm Based on Joint Gradient L.K. Ma, J.Y. Peng and X.Y. Fen	373
A Color Image Encryption Algorithm Based on Improved DES Z.L. Lan, L. Zhu, Y.C. Li and J. Liu	379

Broadband Coherent Signal Direction Finding Algorithm Improvement J. Wang and L. Lu	385
A New Method for Decision Tree Based Discernibility Matrix and Degree of Consistent	
Dependence L. Liu, B.S. Wang, Q.X. Zhong and H.L. Hu	390
The STAP Method for Moving Sonar Reverberation Suppression S.D. Zhao, K. Yan and T.Z. Zhou	395
A New Implementation Method of Viterbi Decoding in OFDM System Based on FPGA S.W. Zheng, G.H. Cai, H.W. Wang and G.Y. Zhang	399
A Particle Filter Algorithm Based on Mixing of Prior Probability Density and UKF as Generate Importance Function L. Lu, J. Wang, M. Yang and S. Geng	403
Analysis of the Interrelationship between Trip Chain Pattern and Trip Mode Choice Based on Multinomial Logistic Model	
S. Yang, W. Deng, D.X. Wu and W. Gong An Approach to Boundary Finding of Intersection Group for Traffic Analysis due to	407
Intersection Improvements Y.Y. Ma and Y. Zeng	413
Clustering Daily Metro Origin-Destination Matrix in Shenzhen China C. Yang, F.F. Yan and X.D. Xu	422
A Feasible Speed Profile Model for Automatic Train Protection System G.D. Teng and S.D. Hu	433
Parking Choice Behavior for Shared Parking Based on Parking Purposes P. He, J. Chen, J.H. Zhen and Y.H. Jiang	439
Method for Evaluation of Railway Dynamic Safety Based on 5M Model and Neural Network Algorithm G. Wang, X.Q. Zeng and J. Li	445
Development of Prediction Models for Particle Size Composition on Urban Road Surfaces A. Liu, L. Liu, D.Z. Li and Y.T. Guan	450
2-D DOA Estimation of Quasi-Stationary Signals via Tensor Modeling J. Hu, W. Li and Y.J. Chen	458
Passing Ability Evaluation and Impact Factors Analysis of Articulated Vehicle with 6×4 Tractor	
H.W. Zhang, H. Zhang and J.Q. Yang	463
Passing Ability Impact Factors Simulation of Articulated Vehicle with 6×4 Tractor H. Zhang, H.W. Zhang and J.Q. Yang	467
The Research of DOA Estimation Algorithms in the Conformal Array Antenna C.Z. Sun	471
A Sound Localization Algorithm Based on Helmet-Mounted Microphone Array Using the High-Frequency Intensity Difference	.,,
Y. Zhang and B.B. Shen	474
Research of HRTF Character of Head-Mounted Microphone Array Y. Zhang, B.B. Shen and S.J. Meng	479
A Method for Correction Ranging of Train Based on RSSI S.S. Wei, X.Q. Zeng, T. Shen, Y.J. Chen and W.Y. Wang	484
Optimization Design of Data Collecting and Processing for the Cloud Computing Platform Monitoring System G.Z. Xu	491
Hidden System APIs Based Code Obfuscation F. Xiang, F.L. Liu, B. Lu and D.F. Gong	496
Design Patent Retrieval Based on Gabor Wavelet and LBP Q.Q. Li, C.S. Zhou, X.Q. Lv, H.Y. Yang and K. Zhang	503
Chinese Patent Efficacy Phrase Recognition T. Hou, X.Q. Lv and L.P. Xu	510
Implementation of SVD Parallel Algorithm and its Application in Medical Industry Y. Wu, L.F. Liu, X.L. Zhao and K.H. Zhong	515

Face Recognition Based on a Combination of Increasing Virtual Samples and Kernel Principal Component Analysis	522
H. Zhang and S.F. Wang Analysis of Single-Vehicle Crash Injury Severities in Urban River-Crossing Road Tunnels	522
C.M. Jiang, J.J. Lu and L.J. Lu Volume Measurement of Denosite Passed on Stores Vision and SUDE	526
Volume Measurement of Deposits Based on Stereo Vision and SURF Z.T. Jia and Y.F. Han	533
Boundary Layer Effect on Jet Control Effectiveness A.S. Mitra, A. Manideep and E. Rathakrishnan	537
Correlation Property and Low Bound of Time-Hopping Codes for UWB Communications G. Liu, G.X. Xuan and X. Zhang	545
A Novel QoS Bandwidth Prediction Method for Power Distribution and Utilization Grid X.J. Liu, C. Zhang, Z.Y. Liu and J. Lu	551
The Fault Signal Extraction Research in the Electric Power Metering System J.J. Zhao, W. Liang and H.J. Ge	555
Chapter 5: Information Technology and Computer Science, Networks	
Method and Software Generation Platform	5.62
F. Yang, Z.H. Dong and J. Wang Study on the Relationship between the Traffic Characteristics and Speed at the Access of	563
Urban Tunnels X.D. Xu and L. Lin	568
A New Deadlock Avoidance Policy Based on Petri Nets in Distributed System B.W. Liu	575
An Analysis on Eliminating Bottlenecks in a Production Line Based on Plant Simulaiton Q.Y. Song and J.F. Lu	581
Design and Realization of Virtual Campus on Mobile Platform R. Zheng, D. Zhang and G.S. Yang	585
Knowledge Management for Emergence H.T. Bai, J. Zhu, W. Chen and H. Chen	590
Conception of Traditional Knowledge Database Based on Climate Change Y.H. Du, C. Wang, L. Yin, D.Y. Xue and Z.M. Caiji	594
Analysis and Design of Highway Transmission System Based on .NET Framework T. Xu, Q.H. Li, H.J. Ding and N.S. Li	598
The Paradoxes of Big Data X.X. Liu, X. Wu and S.J. Dai	603
Discovering Academic Communities and their Research Interests H.Q. Han, L.J. Zhu, Y. Fu, S. Xu, Z.F. Zhang and C.D. Shi	607
Prediction of Top-Coal Caving and Drawing Characteristics Using Artificial Neural Networks in Extremely Thick Coal Seam	
J.H. Yu and D.B. Mao Reliability Analysis for AEDV Network Resed on Dynamic Foult Tree	612
Reliability Analysis for AFDX Network Based on Dynamic Fault Tree L.N. Sun, N. Huang and Z. Zhao	617
Automotive Remote Fault Diagnosis Using the Technology of Artificial Intelligent Neural Network	
R.Q. Chen, J. Ding and F.M. Tang	623
Research on the Coding Problem of Andriod Network Communication Based on the MINA S.L. Yang and J.P. Hu	629
Research and Safety Design on the Scientific Research Project Management System Based on J2EE	(22
S.J. Yang, S.T. Shi and J. Meng The Realization of the O2O Model in Mobile E-Commerce Based on the Technology of the	633
Wechat Platform A.Y. Mao, Y.Y. Song and J.X. Yu	641
An Improved General Regression Neural Network for Prediction Based on Small Samples Data	
P. Zou, B.Z. Li and S.Y. Liang	646

Design and Implementation of Information Management System for Training Institutions L. Zhang and Y.Z. Tang	652
Design of Physiological Parameters Transmission System Based on the Android System S.R. Hu, S.D. Liu, K. Liang and M. Bao	656
Mechanism Research of Bus Dynamic Information Impact on the Commuter Travel Behavior	6.66
E.H. Liu, S. Tian and Q. Chen Development of Management Information System Based on Web GIS for Monitoring of Pipe-Jacking Engineering	660
Y.F. Sun and M. Ding	667
Evaluation of Transit Service Quality for Urban Railway on the Basis of AHP – A Sample of ZHUHAI Station in Beginning Stage Q. Li	673
Research of 3D Pipeline Model Based on Telecom Operators J.Q. Zhang, T. Yu, P. Wu and F. Xiong	679
Research of the Platform Architecture of Mobile E-Commerce Based on Pipeline Entity of Telecom Operators J.Q. Zhang, P. Wu, T. Yu, G.Q. Qu and F. Xiong	683
Research on Modeling User's Preference in the Steel E-Trading Platform P. Wu, T. Yu, J.B. Du, G.Q. Qu and F. Xiong	687
Application of Geographic Information System (GIS) in Urban Rail Transit Construction Safety and Operation Monitoring L. Bai, F.Z. Wang and M. Zhang	692
Design and Realization of RSA Digital Signature System Based on Digital Certificate Y.N. Wei, Y.T. Jin and J.W. Zhou	698
Research for Framework of BIM-Based Platform on Facility Maintenance Management on the Operating Stage in Metro Station X.Y. Xie and T.C. Xie	702
The Detection of Similar Instance Based on Fingerprint Y.H. Cai and D. Xu	711
Intelligent Traffic System Design Research of Urban Complex Underground Garage M. Xu, X.D. Pan, L.X. Sun, G. Yan and F. Chen	715
The Research of MDAS System Based on Intelligent Pipeline J.Q. Zhang, P. Wu, S.L. Kan and T. Yu	724
The Mobile Internet-Based Explosion-Proof LED Lamp Intelligent Lighting System J.B. Du, F. Xiong, T. Yu and J.S. Li	728
Autonomous Virtual Hand Behavior Construction in Virtual Manufacturing Environment X.J. Cai, C. Cheng and U. Marine	734
The Business Process and Function Design of Dispatching Management System on Coal Mining Enterprises	726
Z.L. Tan and Q. Han Context Awareness on Mobile Devices	738
Z.A. Pan and J.X. Zhu	742
An Improved LEACH Protocol in Wireless Sensor Networks L.F. Liu, P. Guo, J. Zhao and N. Li	748
Vehicle Networking Technology Promote the Development of Intelligent Transportation Y. Hu and Y.H. Xiao	753
Research of Digital Nervous System Based on the Game Mechanism T. Yu, F. Xiong, J.B. Du and G.Q. Qu	758
Adaptive Spectrum Management of Cognitive Radio in Intelligent Transportation System C. Wu, Y.M. Wang, X. Qiang and Z.Y. Zhang	765
Studies on the Technology and Application of Transit Signal Priority on Exclusive Line Q.L. Wang	774
Chapter 6: Instrumentation, Measurement, Monitoring Technologies	
3-D Measurement and Reconstruction of Workpieces in Robotic Stereovision System H.X. Li and J.J. Zhang	783

Research and Application of WSN in Enterprise Safety Manufacture Real-Time Monitoring and Accident Pre-Warning System D.H. Mei and Z.Y. Song	787
Coherent Distributed Detection Using Inhomogeneous Sensors Under Local Power Constraint Z.H. Xu, J.Y. Li and J. Wang	792
Hexangular In-Phase Coherently Coupled Arrays of Vertical Cavity Surface-Emitting Lasers Based on Proton Implantation J. Wang, C. Xu, M. Xun and J. Liu	796
Design and Analysis of Flat-Top Beam Produced by Diffractive Optical Element S.Z. Nie, J. Yu, Y. Liu and Z.W. Fan	800
The Mode Analysis of Coherently Coupled Array Based on Proton Implantation G.Q. Jiang, C. Xu, M. Xun and J. Wang	808
The Simulation of Strong Electromagnetic Field Experimental Environment around On- Line Monitoring System for UHV Transmission Tower S.R. Hu, X.F. Yang, L. Gu and L. She	812
Design and Implementation of a Portable TT&C Test Equipment for Small Satellite L.J. Cao, H. Zeng and X. Chen	816
Deflection Sensors Fault Time Locating Based on Kalman Filtering and Data Fusion S.R. Hu, J.K. Zhang, K. Liang and M. Bao	820
Fiber Laser Mode-Locked by Carbon Nanotubes as Saturable Absorber in Fiber End S.Y. Liu, B. Li, Z.Y. Wang and L.T. Wang	824
Simulation of Golf Realtime Tracking Based on Doppler Radar B. Li, B. Sun, C.F. Chen, X.J. Jiao, S.Y. Zhang and Y. Wang	828
Design of Fault Diagnosis Instrument of a Certain Type Laser Range Finder Z.Y. Wang, W.F. Zeng, S.Y. Liu and L.T. Wang	836
Calibration a Magnetometer Based on Multiple Population Genetic Algorithm X.L. Pang and C.S. Lin	840
A New Ray Tracing Method Based on Linear Travel-Time Interpolation L.J. Liu, Z.H. Xie and C. Yang	845
Inversion Algorithm and Precision Analysis for AMCW DIAL Measurements of CO ₂ Y. Ge, Y.H. Hu, R. Shu, L. Zheng, H. Liu and G.L. Hong	852
A Method of 3D Braided Composites Damage Monitoring H. Zhang, Y.C. Xiao, M. Li, G.Q. Liu and J. Zhang	861
Development of a Three-Dimensional Modeling Method for Monitoring Overall Foundation Pit Deformation Based on Terrestrial Laser Scanning X.Y. Xie and K.W. Zhu	866
The Design of the Elevator Remote Monitoring System Based on GSM W.F. Li, S.L. Zhang and H.R. Yuan	876
Design and Implementation of Netted Radar Training Simulator J.G. Yin, C. Zhang, D. Li, Y. An and F.Q. Zhu	882