

Table of Contents

Preface and Organizing Committee

Chapter 1: Mechatronics, Robotics and Control Systems

Coordination and Robust Tuning PSS for Power Systems Using Multiobjective New Hybridation Technic	
A. Choucha, L. Chaib, S. Arif and L. Mokrani	3
System of Telecontrol by the Mobile Robot with Movable Camera	
A. Katsurin	9
Research on the Control System of the Lower Limb Rehabilitation Robot under the Single Degree of Freedom	
M. Xiong	15
Design of Remote Control Parking Lock Based on KEELOQ Encryption Technology	
H.F. Zhang and C.D. Xu	21
Research on Automatic Driving Control System for Coach Collision Test	
Q. Fang, J.B. Yu, M. Meng and F.Q. Yang	25
Simulation Reach of Permanent Magnet Synchronous Motor System Based on Speed Sensor-Less Direct Torque Control	
M.Y. Chen and Y.D. Chen	32
Study on Stator-Flux Oriented Vector Control System of Doubly-Fed Machines	
X.G. Yang, H.J. Shi and L. Zhang	37
Analysis of Dynamic Characteristics of Automatic Transmission Shifting Control	
Y.X. Fu, L.Y. Cui, X.Y. Xu and P. Dong	42
Fuzzy-Adaptive PID Based Tow Tension Controller for Robotic Automated Fiber Placement	
J. Chen, W.J. Xu, B. Wang, Y.G. Duan and X.H. Zhang	48
A Differential Configuration of Split Drag-Rudders with Variable Bias for Directional Control of Flying-Wing	
J. Rajput, W.G. Zhang and X.B. Qu	54
Hysteresis Compensation Control for a Current-Driven Reluctance Actuator Using the Adaptive MNN	
Y.P. Liu, Z.K. Liu and X.F. Yang	60
Comparative Research Transient Air-Fuel Ratio Control Strategy Based on Fuzzy Control and Neural Network	
L. Wu and J.J. Liu	66
Application and Development of MEMS in the Field of Aerospace	
J.X. Wang and X.M. Qian	72
PSCAD SVG Control Sampling Algorithm Based on C Language Modeling and Simulation	
Y. Du and G.L. Xu	77
Uniform Stability of Discrete-Time Switched Nonlinear Systems	
S.R. Sun, G.R. Zhang and P. Zhao	83
Strict Practical Stability for Discrete Hybrid Systems in Terms of Two Measures	
S.R. Sun, W.S. Chen, Y. Zhao and Z.L. Han	90

Chapter 2: Communication and Information Technologies

Immune-Based Systems on Network Security Situation Awareness and Risk Prediction Model	
J. Yang, Y.J. Li and Q. Li	99
An Algorithm Based on Double-Threshold Energy Detection in Cognitive Radio	
Y. Li, J.Y. Chen, X.F. Liu and M.C. Yang	105
The Channel Capacity of Dual-Polarized MIMO Mobile Satellite System	
J.Y. Chen, Y. Li, M.C. Yang and X.F. Liu	111

Design and Implementation of Multi-Frequency Digital Receiver Based on FPGA Y.P. Liu, C. Du and D.L. Liu	117
On Algebraic Immunity of Weight Symmetric H Boolean Functions J.L. Huang, Z. Wang and J. Li	124
On Analysis and Judgment of Balance for Boolean Functions by E-Derivative J.L. Huang, S.D. Li, Y. Liu and K.Y. Deng	130
Security Control for TVOS X. Wang, D.L. Chen, Y. Sun, X. Wang and S.Y. Yao	136
Application Research of Virtual World Used in Special Education M. Wang, C.M. Sun and M.L. Dai	142
Research on Digital Wu Cultural Corner Construction and its Teaching Application M.L. Dai, M. Wang, C. Liu and H.L. Li	148
Research on the Knowledge Character and Classification of Intangible Cultural Heritage M.L. Dai, C.M. Sun and M. Wang	153
Design of the Walkers' Exercise Information Service System S.W. Liu, Y.W. Wu, Y.C. Tian and K. Jin	159

Chapter 3: Measurements, Sensors, Data and Signal Processing

Influence Analysis of Fluid-Solid Coupling to Sensor of Microwave Resonant Cavity System for Wetness Measurement J.K. Zhang, T. Ge, J.Y. Liu, M. Li and X.Z. Yan	169
The Uncertainty Analysis of Microwave Resonant Cavity System for Wetness Measurement J.K. Zhang, T. Ge, J.Y. Liu, M. Li and X.Z. Yan	176
Infant Pain Detection with Homomorphic Filter and Fuzzy k-NN Classifier M.N. Mansor, A.K. Junoh, A. Ahmed, H. Kamarudin and A. Idris	183
Signal Characteristic Study and Amplifier Design of Magnetic Sensor Based on Proton Zeeman Effect T. Chao, C. Su, L. Fang and B.H. Jiang	190
The Design of Intelligent Measurement System Based on Time-Triggered Embedded System F. Huang, X. Bian and G.R. Cao	196
Study on the Process of 3D Gesture Recognition Technology Based on Computer Vision G.L. Zhuang, J.L. Tang, S.F. Chen, X.Y. Li and B.H. Su	201
A Novel Flow Regime Identification Based on PCA Feature Extraction and ELM Networks in ERT System Y.J. Zhang	208
A Novel Identification Method of Two Phase Flow Based on ERT Measurements Y.J. Zhang	213
Single Scale Retinex for Infant Pain Recognition M.N. Mansor, A.K. Junoh, A. Ahmed, H. Kamarudin and A. Idris	218
Infrasonic Signal Observation through the Monitoring Network J. Zhao, G.C. Hao and Z.X. Zeng	224
Multi-Visual Features Based Ship Detection in Remote Sensing Images X.G. Hu, C.Q. Cheng and D.R. Li	228
HP3 Automatic Measurement System J.B. Xu, J.S. Zhang and H.T. Yu	233
Computing the Medical Image Registration Using Meta-Heuristics T.A. El Karim, B. Abdeslam and A.A. Samy	237
BIST-Based Method for Diagnosing Multiple Faulty CLBs in FPGAs G.H. Wang and J.L. Sun	243
Application of Gevers-Wouters Algorithm to Intelligent Dew Point Measurer Control Scheme G.S. Zhang and Y. Xu	249
Research and Implementation of Moving Object Contour Extraction Algorithm Based on GPU K.M. Zhao, Y.T. Chen, J. Li, H. Yang and L.Y. Chen	253

The Detection of Marine Ship Target Based on GNSS-R of Stratosphere L.F. Liu, Q.S. Zhang and J.K. Gu	258
Application of Computer System Based on Artificial Neural Network and Artificial Intelligence in Diagnosing Child Attention Deficit/Hyperactivity Disorder (AD/HD) A.M. Zhao, Y.H. Wang, N. Wang, L. Kang and S.Y. Zhu	263
Weld Parameters Information Access Based on Laser Line Projected Image Q.L. Bi and Y.M. Quan	267
Multi-Plate Shift Clutch Morbidity Index Forecasting Method Study M. Chen and B. Ma	273
Application Research of 3D Imaging Sonar System in Salvage Process X.B. Luo, D.M. Xu, J.J. Hu and X.M. Hu	279
The E-Derivative and Completeness on Circuit Error-Detection System of Differential Equations J.L. Huang, Z. Wang and J. Li	283

Chapter 4: Researches and Design in Mechanical Engineering

The Research and Development of CNC Diamond Faceting Machine X.P. Yang, Y.J. Gu, Z.M. Zhou, J.R. Qi and L.X. Guo	291
Simulation on Injury to Driver under Car Front Crash Condition Z.Y. Jiao and J.J. Li	295
A Low-Impact Deployment Hinge Based on a Novel Intermittent Mechanism H.W. Guo, Z.J. Li, Z.Q. Deng, C. Shi and R.Q. Liu	302
Optimal Robust Design of Multiple Response Problems of Compliant Mechanism Based on the Response Surface Methodology J.J. Wu, S.L. Wu and X.X. You	310
Effect Investigation of the Circumferential Grooves on the Static Characteristics of Hydrodynamic Journal Bearing Using CFD Method Q.Z. Meng, L. Cai and M. He	316
Research on the Utilization of Exhaust Gas Heat for Boilers H.B. Zhang, B. Li and Y.Q. Jia	322
Research on Industrial Design Materials with Effect of Symbol on Product Interface Design Z.Y. Hu, Z.H. Cao and J.F. Shi	328

Chapter 5: Materials and Chemical Engineering

Effect of pH on Four Defluoridation Adsorbents under Natural High Fluoride Groundwater L.X. Li, D. Xu, X.J. Cheng, R.G. Sun and X.Q. Li	335
Research on Undercooling Grain Refinement Technology W.R. Zhang, G.H. Geng and W.Y. Chen	342
Analysis and Research on the Current Quality of Automotive Interior Materials J.X. Cao, H.X. Yu and S.S. Wang	349
Analysis on Application of New Technology and Material in Package Design W.Q. Jiang, K. Zhang, D.K. Shen and J. Zhang	352
Orthogonal Experimental Research in Milling Force of Damage-Tolerant Titanium Alloy TC21 L.F. Qin and X.N. Gong	356

Chapter 6: Engineering Management in Industry

Health Condition Assessment of Servomechanism Based on Grey Target Theory Y.H. Zheng and Z.C. Ning	363
Applications of the Optimal Configuration of Section Switches in the Digital System of the Distribution Network Wiring Diagram C.K. Xia, P.F. Yang and S.Q. Liu	368

A Heuristic Algorithm for Flow Shop Scheduling Problem H.W. Yuan, Y.W. Jing and T. Ren	374
Internal Control Quality Evaluation Model for Information System Based on QFD and Risk Analysis D.L. Zhang, X.Z. Zhu and J.Q. Hua	380
A Novel Neural Network Based Modeling for Control of NO_x Emission in Power Plant P.K. Li, R. Pan and C. Chen	385