## **Engineering Research and Designing for Industry**

Selected, peer reviewed papers from the 2013 International Conference on Mechatronics and Materials Engineering (ICMME 2013), May 25-27, 2013, Qiqihar, China

von Yoshinori Hayafuji, Xibing Li

1. Auflage

Trans Tech Publications 2014

Verlag C.H. Beck im Internet: www.beck.de ISBN 978 3 03835 222 8

## **Table of Contents**

**Preface, Committees and Sponsors** 

## **Chapter 1: Research and Designing in Mechanical Engineering**

Study on Special Vehicle's Handling Stability by Test Technology Y. Zhao, H.J. Cheng, Y. Liu and Z.J. Wu	3
Material Study of a Short Seismic Link in a Dissipative Structure of a Vertical Industrial	
<b>Boiler</b> J. Protivínský and M. Krejsa	10
Risk-Based Inspection Analysis of Jacket Platform Y.T. Wang, H.L. Ren, J.J. Yu and B.B. Cui	18
Numerical Simulation Research of the Influence Parameter of Impedance Friction Stress on the Anchorage Segment of Flexible Injection Bolt X.L. Zhang and S.N. Zuo	28
Numerical Analysis of the E-Type Diaphragm Based on ANSYS L.N. Song, J. Shao, D.Q. Feng and W. Fan	34
Modal Analysis for the Fuselage of the New Tube Automatically Benchmarked Equipment Based on ANSYS Workbench F.Y. Chen, Y. Wu and Y.A. He	41
Daily Load Forecasting Based on RBF-ARX Model H.L. Hou, J. Chen, M.P. Sun and B.J. Cai	48
Characteristics Analysis of Tire Hydroplaning Flow and Tread Design Influence Study J. Yang, G.L. Wang and H.C. Zhou	57
Study on Finite Element Analysis of the Rolled-Steel Pallet Based on Ansys Z. Fang, M. Han and Y.Y. Li	66
Numerical Simulation of Water Impact of 2D Wedge with Different Density C.J. Li, H.L. Ren and C.F. Li	73
Polynomial Stability for Timoshenko-Type System with Past History Z.Y. Ma	78
Failure Mode Analysis for High-Speed Motorized Spindle of NC Machine Tools Y.A. He and Y.M. He	85
A Finite Element Method to Simulate Ice Based on Multi-Surface Failure Criterion C. Wang, H.L. Ren and H. Li	90
Asymptotically Self-Similar Solution for the Convection-Diffusion Equation X. Yu and Q.S. Zhang	97
Chapter 2: Materials and Processing Technologies in Mechanical Engineering	
Electroless Nickel-Phosphor-Boron Plating and Electroplate Nickel on Surface of Optical Fiber	
J. Peng The Design of NC Spherical Turning and Grinding Machine Tool	103
Y.Q. Wang and X.Z. Li  Deformation Characteristic Analysis on Air Bending in JCO Forming of Large Diameter	108
Welding Pipe L.F. Fan, Y. Gao, J.X. Yan and J.B. Yun	113
Effects of Simulation Parameters on Springback in Air Bending of JCO Forming L.F. Fan, Y. Gao, J.X. Yan and J.B. Yun	117
Finite Element Technique for Predicting Stress Distribution in Milling TC4 Titanium Alloy B. Li and S.L. Zhao	121

1.E. Fan, Y. Gao, J.K. Yan and J.B. Yun  Effects of Mould on Crimping of Large Diameter Welding Pipe  J.X. Yan, J.B. Yun and L.F. Fan  Effects of Technical Parameters on Mechanical Expanding of Large Diameter Welding Pipe  J.X. Yan, J.B. Yun and I.F. Fan  Sensitivity Analysis of Technical Parameters on Springback in Air Bending of JCO  Forming  J.X. Yan, J.B. Yun and I.F. Fan  Chapter 3: Processing of Signal and Data  The Research on Fault Diagnosis of Diesel Engine Based on EMD  B.L. Song  Research on the Bus Passenger Motion Vector Algorithm Based on Video Image  H.K. Xiang and I.Q. Cheng  Mean Shift-Based Target Tracking for Moving Spherical Object in Video  B.Z. Li  Soise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle  L. Chen, S.H. Fan and S.N. Zhang  An Improved Algorithm on Frequent Subgraph Query  Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network  B. Wang  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network  B. Wang  Chapter 4: Mechatronics Manipulator Control System Based on DMC  Q. Zhu, Y. Wu and Y.A. He  Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique  S. Zhang, W. Su, Y. K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control  L.G. Zhang and J. Gao  Saland Medization and Diagnosis for Sensor in Complex Control System Based on KPCA  P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation  L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology  D. J. Qi and HY. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System  J. J. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Lanalysis of Adaptive Learning Knowledge Model Based on Cloud Computing  W.	Deformation Characteristic Analysis on Mechanical Expanding of Large Diameter Welding Pipe	
J.X. Yan, J.B. Yun and L.F. Fan  Effects of Technical Parameters on Mechanical Expanding of Large Diameter Welding Pipe J.X. Yan, J.B. Yun and L.F. Fan  Ensistivity Analysis of Technical Parameters on Springback in Air Bending of JCO Forming J.X. Yan, J.B. Yun and L.F. Fan  Chapter 3: Processing of Signal and Data  The Research on Fault Diagnosis of Diesel Engine Based on EMD B.L. Song Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng Mean Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li Sonise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Rosarch and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y. K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Evainey Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and HY. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li		125
J.X. Yan, J.B. Yun and L.F. Fan  Sensitivity Analysis of Technical Parameters on Springback in Air Bending of JCO Forming J.X. Yan, J.B. Yun and L.F. Fan  Chapter 3: Processing of Signal and Data  The Research on Fault Diagnosis of Diesel Engine Based on EMD B.L. Song Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng Mean Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y. A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y. K. Qiao, D. D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and Hy. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J. J. Li, W. Wang, Y. K. Zhen and X.Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System	Effects of Mould on Crimping of Large Diameter Welding Pipe J.X. Yan, J.B. Yun and L.F. Fan	129
Chapter 3: Processing of Signal and Data  The Research on Fault Diagnosis of Diesel Engine Based on EMD B.L. Song Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng Mean Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Chapter 5: Information Technologies  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y. K. Zhen and X. Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		133
Chapter 3: Processing of Signal and Data  The Research on Fault Diagnosis of Diesel Engine Based on EMD B.L. Song Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng Research and Enget Tracking for Moving Spherical Object in Video B.Z. Li Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y. A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y. K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y. C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y. K. Zhen and X. Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		
The Research on Fault Diagnosis of Diesel Engine Based on EMD B.L. Song  Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng  H.K. Xiang and L.Q. Cheng  Research Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li  Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y. A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y. C. Wang, K. Wang and Q. Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y. K. Zhen and X. Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		137
Research on the Bus Passenger Motion Vector Algorithm Based on Video Image H.K. Xiang and L.Q. Cheng Mean Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y. K. Zhen and X.Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System	Chapter 3: Processing of Signal and Data	
H.K. Xiang and L.Q. Cheng  Mean Shift-Based Target Tracking for Moving Spherical Object in Video B.Z. Li  Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  2.2  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		143
B.Z. Li Noise-Reducing and Effect-Enhancing System for Communication Equipment Mounted on Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao Comprehensive Review on Main Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		149
Vehicle L. Chen, S.H. Fan and S.N. Zhang An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang  Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  2.  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		156
An Improved Algorithm on Frequent Subgraph Query Y.J. Chu and X. Jia  Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang  Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y. K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System	Vehicle	
Chapter 4: Mechatronics, Robotics and Control  A New Design of Embedded Wireless Sensor Network B. Wang  Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He  Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	,	161
A New Design of Embedded Wireless Sensor Network B. Wang Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  19 Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y. C. Wang, K. Wang and Q.Y. Wang Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y. K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li The Construction and Practice of Private College Campus Portal System		169
B. Wang  Research and Develop of Tube Catching Manipulator Control System Based on DMC Q. Zhu, Y. Wu and Y.A. He  Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	Chapter 4: Mechatronics, Robotics and Control	
Q. Zhu, Y. Wu and Y.A. He  Simulation Study on Single-Phase Parallel Type of APF Double Loop Control Technique S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		177
S. Zhang, W. Su, Y.K. Qiao, D.D. Wang and J. Luo  Switch Module Designed to Meet the EPS Reliability Intelligent Control L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  2.  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		182
L.G. Zhang and J. Gao  Fault Detection and Diagnosis for Sensor in Complex Control System Based on KPCA P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		187
P. Xu, Y.C. Wang, K. Wang and Q.Y. Wang  Comprehensive Example Analysis on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation  M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation  L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology  D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing  W.Y. Li  The Construction and Practice of Private College Campus Portal System		195
Upper Limb Rehabilitation M.S. Chen and L. Zhao  Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		202
Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb Rehabilitation L. Zhao  Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	Upper Limb Rehabilitation	211
Chapter 5: Information Technologies  Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  22  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	Comprehensive Review on Main Technology of Exoskeletal Robot System for Upper Limb	211
Design and Realization on the Financial Early-Warning Analysis System of Colleges and Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		219
Universities Based on Data Mining Technology D.J. Qi and H.Y. Hu  Based on the User-Centered Design and Development of Fiber Sensor Monitoring System J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	Chapter 5: Information Technologies	
J.N. Li, W. Wang, Y.K. Zhen and X.Q. Liu  Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System	Universities Based on Data Mining Technology	229
Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing W.Y. Li  The Construction and Practice of Private College Campus Portal System		234
	Analysis of Adaptive Learning Knowledge Model Based on Cloud Computing	241
1. reng	The Construction and Practice of Private College Campus Portal System T. Feng	245

A Design of Information Security Curriculum Based on Social Networks and Edutainment P. Ruan and Z. Wei	251
Integration of Network Resources Based on Unified Identity Authentication P.Y. Fan and Y. Qiu	258
"Public Relations" Course Design and Implement Based on Google Cloud L. Yu	262
A Chinese Small Vocabulary Offline Speech Recognition System Based on Pocketsphinx in Android Platform X.F. Liu and H. Zhou	267
Research on Decoding Scheme of S6a Interface Diameter Protocol in LTE Network Monitoring System	
Y.Y. Han, B. Xi and Z.Z. Zhang  Implementation of Remote Monitoring System Based on S3C2440	274
W.S. Cheng, Z.H. Fu and S.X. Leng	278
Chapter 6: Engineering Management	
The Urban Competitiveness Analysis and Research of Urbanization of Hebei Province Z. Hao	285
Study on the Impacts of Salinized Soils on the Quality of Upper Water during Seawater Intrusion Y.M. Che, H.X. Hu and X.Q. Wan	290
The Analysis and Research of Northeast Route Network Optimization W.W. Song and C. Huang	295
Based on Grey Correlation Theory of the Eastern Region Industrial Economic Efficiency Evaluation and Analysis R.P. Li, W. Gao and Y.J. Li	300
The Impact of Free Cash Flow and Capital Structure on the Performance of the Company G.Z. Wang, Z.Y. Wang and Y.J. Li	305
Study on the Relationship between the Energy Carbon Emission and Economic Growth in Hebei Province Y. Zhang and C. Wang	310
Developing Situation and Tendency of Tire Industries in Developed Countries Z.J. Wang and S. Liu	317
Study on Cognitive Dissonance of Passive Safety Investment Based on Cultural Psychology Y.F. Hong and H.B. Song	323