2015 IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER 2015)

Shenyang, China 8-12 June 2015

Pages 1394-2120



IEEE Catalog Number: ISBN:

CFP15CYB-POD 978-1-4799-8731-3

Table of Contents

TuA1: Award Session - I	
A 3D Sensing Model and Practical Sensor Placement Based on Coverage and Cost Evaluation Junjie Yang, Mitsuhiro Kamezaki, Hiroyasu Iwata, Shigeki Sugano	1
A revisit to MPC of discrete-time nonlinear systems Shuyou Yu, Chengyu Hou, Ting Qu, Hong Chen	7
Multiple Working Mode Approach to Manipulation of Unknown Mechanisms Using a Serial Robot Taras Pankov, Guangjun Jiu	13
Writing Skills Transfer From Human To Robot Using Stiffness Extracted From sEMG Peidong Liang, Chenguang Yang, Zhijun Li, Ruifeng Li	19
Terminal Navigation and Control for Docking an Underactuated Autonomous Underwater Vehicle Bo Li, Yuanxin Xu, Chenzhan Liu, Shuangshuang Fan, Wen Xu	25
A Haptic Shared Control Approach to Teleoperation of Mobile Robots Ningbo Yu, Kui Wang, Yuan Li, Chang Xu, Jingtai Liu	31
TuA2: Industrial Robotics & Applications	
Dynamic Error Modeling and Compensation in High Speed Delta Robot Pick-and-Place Process Hongtai Cheng, Zhifei Zhang, Wei Li	36
Design of in-pipe 3SPR/3RPS parallel manipulator and its kinestatics analysis Yi Lu, Jingjing Yu, Chunping Sui, Jianda Han	42
Industrial Robot Kinematic Calibration Using Virtual Line-based Sphere Surface Constraint Approach Shanshan Du, Jixiang Ding, Yong Liu	48
An Algorithm Of Inverse Kinematics For Robot Manipulator With Redundancy Qingmei Meng, Pengcheng Wang, Jiaming Deng, Huiping Shen, Minzhou Luo	54
Determination of the maximal singularity-free zone in the whole workspace of 3-RRR planar parallel mechanism Qiang Yang, Hongguang Wang, Shujun Li	59
Structural Synthesis of 3T2R Five-Degree-of-Freedom (DoF) Hybrid Mechanism You-lei Qin, Yi Cao, Hai Chen, Hui Zhou	65
TuA3: Sensor Netwoks	
Analysis and Experiments of Vehicle Detection with Magnetic Sensors in Urban Environments Qing Wang, Jianying Zheng, Bin Xu, Yan Huang	71
An Ultra-low-power Medium Access Control Protocol for Body Sensor Network Yongzhao Bian, Min Song, Xiaolin Zhang	76
A Cognitive Network for Reliability Maintenance of Double-Path Routing in IEEE 802.15.4 Networks Fang Zhang, Yang Wang, Fangjun Kuang	82
Adaptive Frequency Hopping in Industrial Wireless Sensor Networks: a Decision-theoretic Framework Meng Zheng, Bo Yang, Wei Liang, Haibin Yu, Lin Chen	88
Sensing Matrix Optimization for Compressed Sensing with Consideration of Sparse Representation Error and Rank Constraint Xiao Li, Jiahui Ye, Gang Li, Xiongxiong He, Huang Bai	93
Mixed Time Synchronization Method for Industrial Wireless Control Networks Zhaowei Wang, Peng Zeng, Meng Zheng, Dong Li	99
TuA4: Intelligent Algorithm	

Some properties of Multiple Time Series Ising Model in Financial Market Simulations

Tetsuya Takaishi

104

	CO2 market data analysis Zeyu Zheng	109
	A Hidden Markov Model based Driver Intention Prediction System Duy Tran, Weihua Sheng, Li Liu, Meiqin Liu	115
	An Bio-inspired Complex System Dynamic Optimization Decision Method Hai Shen, Yunlong Zhu, Hanning Chen, Dingyi Zhang	121
	A Hybrid Artificial Bee Colony Algorithm with Bacterial Foraging Optimization L. Li, F.F. Zhang, C. Liu, B. Niu	127
	An Efficient Clustering Method for Medical Data Applications Shuai Li, Xiaofeng Zhou, Haibo Shi, Zeyu Zheng	133
Tul	P1: Localization, Navigation & Mapping	
	Three-Dimensional Mapping Based On SIFT And RANSAC for Mobile Robot Meiyu Hu, Jianhui Chen, Chengyu Shi	139
	Motion Tracking for an Unmanned Ground Vehicle (UGV) under Delayed and Slow Feedback Huahua Tao, Yong Liu, Yunyi Jia, Yan Jing	145
	Trajectory planning of omnidirectional mobile robots with active casters: Multi-motor coordination and singularity avoidance Peiyao Shen, Yongchun Fang, Xuebo Zhang	151
	Multi-sensor Fusion Robust Localization for Indoor Mobile Robots Based on A Set-membership Estimator Bo Zhou, Kun Qian, Fang Fang, Xudong Ma, Xianzhong Dai	157
	Calibration and Compensation to Large-scale Multi-robot Motion Platform Using Laser Tracker Jianhui Cheng, Shunan Ren, Guolei Wang, Xiangdong Yang, Ken Chen	163
	Subjective Exploration for Simultaneous Localization and Mapping Used in Ruins Nan Wang, Shugen Ma, Bin Li, Minghui Wang, Zhao Shenyang Institute of Automation, CAS, China	169
Tul	P2: Signal & Image Processin - I	
	Efficient Hand Eye Calibration Method for a Delta Robot Pick-and-Place System Hongtai Cheng, Zhifei Zhang, Wei Li	175
	Color Image Segmentation using Multilevel thresholding-Cooperative Bacterial Foraging Algorithm Yang Liu, Kunyuan Hu, Yunlong Zhu, Hanning Chen	181
	A New 2D Motion Measurement Method based on Neighbor Principal Feature Matching Yongjun Liu, Yangjie Wei, Yi Wang	186
	Design for a Semi-Active Preview Suspension system using Fuzzy-logic control and Image Processing techniques. Arvind Desikan, V Kalaichelvi	191
	NSoFMS: A Surveillance Approach for Network Service Module Based on Message Flow and States Zhenjiang Qian, Yongjun Liu, Hao Huang	197
	A Novel Background Image Extraction Algorithm of the Traffic Scene Jianyong Bian, Jianmin Xu	202
Tul	P3: Smart Grid	
	The Study of Battery Energy Storage System Deterioration and Inconsistency Liuyang Fan, Keyou Wang	207
	Failure Analysis of Ship Power System Based on Improved Fuzzy Analytic Hierarchy Process Hang Jiang, Xin Wang, Liming Wang	213
	Design and Manufacturing of Digital MOSFET Based-AVR for Synchronous Generator Irfan A. Khan, Yinliang Xu, Bilal Tahir	217
	An Integrative Study of Home Energy Management for Residential Energy Consumers Dong Zhang, Peng Zeng, Yanyu Zhang, Shuhui Li	223
	Intelligent Eco-Building Management System	229

Vincent Sutedy, Peng Wang, L.H Koh, Fook Hoong CHOO	
Optimal Energy Management of Grid-connected Photovoltaic Micro-grid Ke Huang, Xin Wang, Liming Wang	234
TuP4: Advanced Control	
The Compensated Active Disturbance Rejection Controller based on Sliding Mode Control for PMSM Hongjun Chen, Hao Xu, Bo Liu, Bo Sun	240
Synthesis Approaches of Dynamic Output Feedback Robust MPC for LPV System with Unmeasurable Polytopic Model Parametric UncertaintyPart III. Reformulation of a Previous Approach Baocang Ding, Yugeng Xi	246
Base station searching for Manipulators with huge objective workpieces Shunan Ren, Ying Xie, Zhi Liu, Guolei Wang, Xiangdong Yang, Ken Chen	252
Energy-Based Control of Double Pendulum Cranes Ning Sun, Yongchun Fang, He Chen, Biao Lu	258
Optimal Control Strategy of a Unified Power Flow Controller Incorporated with an Active Power Source Qi Wang, Jun Yi, Liping Liu	264
Direct Adaptive Fuzzy Backstepping Decentralized Control for Switched Nonlinear Large-Scale Systems Yongming Li, Shaocheng Tong, Shuai Sui	270
TuM1: Flying Robot	
Autonomous Landing Control of Quadrotor UAVs Chong Wang, Wei Li, Wenwen Chen, Yazhen Wang, Ming Liu, Fang Gao	276
Fuzzy Adaptive PD Control for Quadrotor Helicopter Hongwei Gao, Chuanyin Liu, Dongliang Guo, Jinguo Liu	281
Attitude Tracking Control of a Quadrotor Based on Linear Active Disturbance Rejective Control Jingdu Gao, Yan Zhuang, Jizhong Xiao, Yiwen Zhao	287
Blind Image Quality Evaluation Metrics Design for UAV Photographic Application Haoting Liu, Wei Wang, Zhexi He, Qingying Tong, Xuefeng Wang, Wenpeng Yu, Ming Lv	293
Pose Control of Quadrotor Unmanned Aerial Vehicle Based on Double Filters Yunzhou Zhang, Yihan Zhang, Xiang Mu, Yuxi Wang	298
TuM2: Signal & Image Processin - II	
Deep representation and stereo vision based vehicle detection Yingfeng Cai, Xiaobo Chen, Hai Wang, Long Chen	305
Detecting Optic Disk Based on AdaBoost and Active Geometric Shape Model Zhun Fan, Yibiao Rong, Xinye Cai, Fang Li, Wenji Li, Huibiao Lin	311
Research on Image Super-resolution Reconstruction based on Sparse Representation Tong Jia, Haixiu Meng	317
Virtual Keyboard: A human-computer interaction device based on laser and image processing Xiaolin Su, Yunzhou Zhang, Qingyang Zhao, Liang Gao	321
Calibration of Optical Center Displacement for Zooming Image Hongwei Gao, Qiuyang Wei, Yang Yu, Jinguo Liu	326
Automated Indoor Scene Reconstruction with Mobile Robots Based on 3D Laser Data and Monocular Visual Odometry Fei Yan, Sihang Zhang, Yan Zhuang, Guozhen Tan	330
TuM3: Rehabilitation Robot	
Research on SMA Actuated Tendon Driven Hand Exoskeleton with Bidirectional Finger Joint Motion Coupling for Rehabilitation Usage Jianyu Yang, Jiashun Shi, Hualong Xie	336

	Development of an Ankle Motion Detecting Mechanism For Ankle Rehabilitation Training Chunbao Wang, Mengjie Li, Lihong Duan, Zhijiang Lu, Qing Shi, Lin Wang, Massimiliano ZECCA, Atsuo Takanishi, Weiguang Li, Zhengzhi Wu	341
	A Simulation Method for Walking Gait of Human Daily Activity Oriented on Intelligent Artificial Limbs and Exoskeleton Cuilian Sun, Qian Wu, Kuan Zhang, Haoyan Li	347
	Kinematics and workspace analysis of 7-DOF upper-limbed rehabilitation robot Qizhi Yang, Jiajia Fang, Xinpo Ma, Xingang Zhao, Jinhai Zhao, Luyi Qian, Junpeng Song	353
	RBF Neural Network Compensation Based Trajectory Tracking Control for Rehabilitation Training Robot	359
	Gui Yin, Xiaodong Zhang, Jiangcheng Chen, Qiangyong Shi Dynamic Analysis of 7-DOF Exoskeleton Upper-Limbed Rehabilitation Robot Qizhi Yang, Xinpo Ma, Jiajia Fang, Xingang Zhao, Junpeng Song, Jun Gu, Jinhai Zhao	365
Tu	M4: Advanced Process Control	
	Batch Reactor Temperature Control Based on DMC-Optimization PID Jianping Xiao, Cheng Shao, Li Zhu, Tong Song	371
	The Fuzzy Predictive Control for the Mill Load of Cement Taotao Dai, Tao Shen, Qiang Zhang	377
	Exploring Optimal Controller Parameters for Complex Industrial Systems Heping Chen, Jing Xu	383
	Optimization of Coordinated Control System for 600MW Ultra-supercritical Coal Fired Units Li Wang, Hongkai Wang, Yan Xin, Ciyun Zhang, Dezhong Bi	389
	Double EWMA controller for Semiconductor Manufacturing Processes with Time-varying Metrology Delay Li Wan, Tianhong Pan	394
	Research on Control System of Piston Stop-Position Based on Electronic Throttle Nan Xu, Di Zhao, Xiumin Yu, He Chang, Zhen Xu	398
PT	uA1: Poster Session: Robotic Vision	
	The Water Coastline Detection Approaches Based on USV Vision Huiying Dong, Peng Xu, Qian Liu, Hongli Xu	404
	Depth image application in analysis of automatic 3D reconstruction Ping Zhang, Jincong Luo, Guanglong Du	409
	High Precision Size Measurement System of Industrial Profiles Section Yichi Zhang, Yang Wu, Xiaofeng Zhou, Shuai Li	415
	Steel Bars Counting and Splitting Method Based on Machine Vision Yang Wu, Xiaofeng Zhou, Yichi Zhang	420
	A Rough Vehicle Distance Measurement Method using Monocular Vision and License plate Wenfeng Wang, Shujun Yang, Yong Li, Weili Ding	426
	Detection and Fault Diagnosis of Power Transmission Line in Infrared Image Siyuan He, Dawei Yang, Wentao Li, Yong Xia, Yandong Tang	431
	Laser Line Recognition for Autonomous Road Roughness Measurement Zhonghu Yuan, Xuelian Zhang, Liu Sa, Xiaowei Han, Yingkui Du	436
	A miniature force sensor for catheter based on optical micro deformation detection Zhenda Yang, Hao Liu, Yuanyuan Zhou, Anzhu Gao, Hongyi Li	441
	A method for shadow invariant image Xiaoyan Xu, Xiaoming Liu	446
	Automatic Extrinsic Calibration of Display-Camera System Using an Annular Mirror Shengpeng Fu, Jibin Zhao, Renbo Xia, Weijun Liu	451
PT	uA2: Poster Session: Intelligent Computing	
	On the Study of Workpiece Localization with a Cost-Effective Vision Based Method	457

	Weizhi Xing, Yongsheng Ou	
	Target Tracking Based on Non-Linear Kernel Density Estimation and Kalman Filter Yang Wu, Xiaofeng Zhou, Yichi Zhang	462
	Single Hazy Image Restoration Based on Fields of Experts Model and Guided Filtering Pucheng ZHOU, Mogen XUE, Xiaoli ZHAO	467
	Application of RBF neural network based on AP clustering in Engine Fault Diagnosis Shili Wu, Zhenmin Tang, Yong Liu	472
	Label Propagation Classification Based on Semi-supervised Affinity Propagation Algorithm Xiaoyan Zhang	476
	Robotic Ultrasound Scanning for Deep Venous Thrombosis Detection Using RGB-D Sensor Meng Bo, Jingxin Liu	482
	The research of sEMG movement pattern classification based on multiple fused wavelet function Yaping Yu, Licheng Fan, Shaolong Kuang, Liling Sun, Fengfeng Zhang	487
	Collision Jitter Compensation for Mobile Robots Vision Based on Optical Flow Estimation Binrui Wang, Yin Xu, Xiai Chen, Yinglian Jin	492
	Snake-Search Algorithm for Stereo Vision Reconstruction via Monocular System Yang Zhang, Yuquan Leng, Xu He, Keqi Qi	497
	Fault Diagnosis of Suck Rod Pumping System via Extreme Learning Machines Qian Gao, Shaobo Sun, Jianchao Liu	503
	Locality Constrained Low-Rank Sparse Learning for Object Tracking Baojie Fan, Yandong Tang	508
	The Elderly Health Monitoring Platform based on Spark Min Dong, Xinlong Huang, Sheng Bi, Xiao Zeng, Nana Pang, Haoxi Liu, Xue Tang	514
РТ	uA3: Poster Session: Navigation, Planning & Control	
	Hybrid Motion/Force Control of Biped Robots Considering Force Optimization Yongyong Ge, Liyang Wang, Zhijun Li	520
	Study on obstacle avoidance for intelligent robot based on hierarchical fuzzy control Yang-zhi Sun, Shi-de Xiao, Meng-jie HAO, Shao-fei PAN	525
	Reconfiguration Planning for the Wheel-Manipulator Robots Yanan Hu, Shugen Ma, Bin Li, Minghui Wang, Yuechao Wang	529
	Unstructured road detection and path tracking for tracked mobile robot Jing Wang, Shiying Sun, Xiaoguang Zhao	535
	A humanoid robot localization for biped navigation in human-living environments Huang Li, Zeyang Xia, Jing Xiong, Yangzhou Gan, Shaokui Weng, Ying Hu, Jianwei Zhang	540
	Odor sources mapping with D-S inference in time variant airflow environments via a mobile robot Ji-gong Li, Jieyong Zhou, Biao Sun, Jia Liu, Yang Li	545
	Trajectory Identification of Spinning Ball Using Improved Extreme Learning Machine in Table Tennis Robot System Qizhi Wang, Zhiyu Sun	551
	Development of Tractor Automatic Steering System with Manual Priority Function Weiqiang Fu, Guangwei Wu, Yue Cong, You Li, Zhijun Meng	555
	Kinematics and Time Optimal Trajectory Planning of a 10-DOF Redundant Manipulator Yinping Lai, Hesheng Wang, Weidong Chen	560
	Slip Ratio Estimation and Control of Wheeled Mobile Robot on Different Terrains Partovibakhsh Maral, Guangjun Liu	566
	Autonomous Navigation Experiment for Mobile Robot Based on IHDR Algorithm Weiling Li, Huaiyu Wu, Yang Chen, Lei Cheng	572
	Indoor Human Localization Using PIR Sensors and Accessibility Map	577

	A Robot System for Transferring SPINE Standard Pins Between EMBL/ESRF Pucks and ACTOR Baskets ShuGuo Gui, Daqing Wang, Yuan Liu, Lifu Gao	582
	An Automatic Rebar Splitting System Based on Two-level of The Chain Transmission Yichi Zhang, Min Jiang, Yang Wu, Xiaofeng Zhou	587
	An Entanglement-Clearing Robot for Power Transmission Line with Composite Clearing Tool Yanjun Cao, Hongguang Wang, Chang Yong, Liaoyuan Zhang	591
	A Unified Modelling and Solution of planar Manipulators Based on Multi-body Systems Dynamics Method Chen Wei, Xizheng Zhang, Yajun Liu, Hao Li, Xinhua Zhao	597
	Researches on Robot System Architecture in CPS Wen-lin CHEN, Ruimin Cao, Lina Hao	603
	Mandibular Movement Experiment of a Masticatory Robot Haiying Wen, Ming Cong, Guifei Wang, Weiliang Xu	608
	System Design For Orthognathic Aided Robot Xing Wang, Song Rui, Xiaojing Liu, Qianqian Li, Cheng Teng, Yuan Xue	612
	Structural Synthesis of LEMs Based on Planar Kinematic Chains Yi Cao, Qiang Wang, Gui-lan Chen, You-lei Qin	618
	Deployed Profile Synthesis of Deployable Bricard Mechanism Hailin Huang, Zhiyuan Yan	624
	Vibration Analysis of a Bio-inspired Flexible Parallel Mechanism Siyao Lu, Bingtuan Gao, Zhenyu Zhu, Yi Tang	630
	Optimization of driving force and lateral force for the polar wind-driven vehicle Shaorong Xie, Kai Zhang, Kai Feng, Jiqing Chen, Yi Yang, Hengyu Li, Jun Luo	636
	The Structure Design of Small Satellite Full-Physical Simulation System Zhigang Xu, Yajun Wang, Yun He, Xinlin Bai	642
PT	uB1: Poster Session: Internet of Things	
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao	649
PT	Study on the Ultralin NAT-PT Performance	649 654
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks	
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System	654
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan	654 661
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN	654 661 666
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN Xinggang Fan, Jingjing Yang, Chao Wang Multi-innovation Observer Based Fault Detection for Pitch System of Wind Turbines	654 661 666 671
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN Xinggang Fan, Jingjing Yang, Chao Wang Multi-innovation Observer Based Fault Detection for Pitch System of Wind Turbines Dinghui Wu, Yanjie Zhan, Wenzhong Gao, Yanxia Shen, Zhicheng Ji Improved Chicken Swarm Optimization	654 661 666 671 677
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN Xinggang Fan, Jingjing Yang, Chao Wang Multi-innovation Observer Based Fault Detection for Pitch System of Wind Turbines Dinghui Wu, Yanjie Zhan, Wenzhong Gao, Yanxia Shen, Zhicheng Ji Improved Chicken Swarm Optimization Dinghui Wu, Fei Kong, Wenzhong Gao, Yanxia Shen, Zhicheng Ji An Optical Fiber Communication System Supporting Multi-topology for Profibus	654 661 666 671 677 681
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN Xinggang Fan, Jingjing Yang, Chao Wang Multi-innovation Observer Based Fault Detection for Pitch System of Wind Turbines Dinghui Wu, Yanjie Zhan, Wenzhong Gao, Yanxia Shen, Zhicheng Ji Improved Chicken Swarm Optimization Dinghui Wu, Fei Kong, Wenzhong Gao, Yanxia Shen, Zhicheng Ji An Optical Fiber Communication System Supporting Multi-topology for Profibus Sheng Liu, Hu Lin, Zhenyu Yin, Meiling Han Research of Bus Station Architecture based on Smart Space	654 661 666 671 677 681
PT	Study on the Ultralin NAT-PT Performance Genlin Zhao, Yan Gao Adaptive Sampling and Sensing Approach with Mobile Sensor Networks Hao Zhang, Yunlong Zhu, Jindong Tan Research of Internet of Things Applied to Manufacturing Execution System Qiang Gao, Fei Li, Chong Chen Study on Distributed Complex Event Processing in Internet of Things based on Query Plan Lingyun Yuan, Dongdong Xu, Guili Ge, Mingli Zhu An effective construction scheme of probabilistic k-barrier coverage in WSN Xinggang Fan, Jingjing Yang, Chao Wang Multi-innovation Observer Based Fault Detection for Pitch System of Wind Turbines Dinghui Wu, Yanjie Zhan, Wenzhong Gao, Yanxia Shen, Zhicheng Ji Improved Chicken Swarm Optimization Dinghui Wu, Fei Kong, Wenzhong Gao, Yanxia Shen, Zhicheng Ji An Optical Fiber Communication System Supporting Multi-topology for Profibus Sheng Liu, Hu Lin, Zhenyu Yin, Meiling Han Research of Bus Station Architecture based on Smart Space Ying Liu, Jingyang Wang, Yongmin Li, Qiumei Cong Design and Test of Automatic Toward-target Sprayer used in orchard	654 661 666 671 677 681 687

PTuB2: Poster Session: Smart Grid

	A Vision-Based method for the broken spacer detection Yifeng Song, Lin Wang, Yong Jiang, Hongguang Wang, Wendong Jiang, Cancan Wang, Jinliang Chu, Dongfeng Han	715
	An Analysis of Polling Access Control Protocol for Wireless Sensor Networking Min He, Zheng Guan, Liyong Bao	720
	Individual Pitch Control Strategy on Alleviating Periodic Load Fluctuations Haoming LIU, Qiaoqiao TANG, Yao Wang, Xiaoling Yuan	725
	MPPT of PV System under Partial Shading Condition based on Adaptive Inertia Weight Particle Swarm Optimization Algorithm Xiaoling Yuan, Dianfei Yang, Haoming Liu	729
	Optimization Algorithm for Home Energy Management System Based on Artificial Bee Colony in Smart Grid Yanyu Zhang, Peng Zeng, Chuanzhi Zang	734
	Design of domestic photovoltaic cell tracking device and electric heating system Li-Di Wang, Xiao-han Ji, Xiao-fang Meng, Zai-Lin Piao	741
	Statistical Estimation for Single Linkage Hierarchical Clustering Dekang Zhu, Guralnik Dan, Xuezhi Wang, Xiang Li, Bill Moral	745
	Analysis and Application of Passive Damping LLCL Filter in Active Power Filter Lin Li, Yuanbo Guo, Xiaohua Zhao	751
	A Multipath Relay Transport Control Method for Real-time Video Service Guangye Li, Weimin Lei, Shaowei Liu, Wei Zhang	756
	Evaluation of Investment Projects on Distribution Network based on Fuzzy Algorithms Fuguang Liang, Xianmin Lv, Jinhua Liu, Wenhu Zhang, Xiaofeng Liu, Bingtuan Gao	761
	Frequency Control Strategy for Wind-thermal-bundled Power System with HVDC Line Yi Tang, Mengchen Song, Qi Wang, Dazhi Li	767
РТ	uB3: Poster Session: Data Analysis	
	Application of adaptive Chinese segmentation in chat robot Lv Zhang	773
	Day-ahead Hourly Photovoltaic Generation Forecasting using Extreme Learning Machine Zhongwen Li, Chuanzhi Zang, Peng Zeng, Haibin Yu, Hepeng Li	779
	A New Method for Noise Data Detection Based on DBSCAN and SVDD Shengxuan Hao, Xiaofeng Zhou, Hong Song	784
	An optimized initialization center k-means clustering algorithm based on density Qilong Yuan, Haibo Shi, Xiaofeng Zhou	790
	Greenhouse Environment Monitoring System Design Based on WSN and GPRS Networks Ying Liang, Yun-feng Guo, Wei Zhao	795
	The Approach of Hybrid Data on Tag in Decentralized Control system Chuang Wang, Pingyu Jiang	799
	A Collaborative Filtering Recommendation Algorithm Based on Biclustering Jiasheng Wang, Hong Song, Xiaofeng Zhou	803
	Fault-tolerant Strategy of Dual PWM Converter in Wind Power System Yanxia Shen, Juan Wu, Wenjing Zhou, Zhipu Zhao	808
	Autonomous Ocean Turbulence Measurements on a Moored Instrument in the South China Sea Xin Luan, Shuxin Wang, Xiuyan Liu, Dalei Song	814
	Managing Data Lakes in Big Data Er Huang Fang	820
	Fast Adaboost algorithm based on weight constraints Shuang Yuan, Cixing Lv	825

Optimization setting control method based on BFO and CBR for laminar cooling water Jinxiang Pian, Yunlong Zhu, Jinxin Liu, Hanning Chen	829
PTuB4: Poster Session: Human Robot Interaction	
An Adaptive Human-robot System Using CMAC and Over Damping Ping Zhang, Bei Li, Guanglong Du	835
Study on Brain-Computer Interface Based on Mental Tasks Hui Wang, Quanjun Song, Tingting Ma, Huibin Cao, Yuxiang Sun	841
Human-robot Interface Based on WSSS IMU Sensors Qingwen Yu, Zhiguo Lu, Chong Liu, Hong Wang, Wei Tang	846
An investigation of the use of robots in public spaces Guangda Zhang, Haining Liang, Yong Yue	850
Synchronization between Master and Slave Sites in Telerobotic Systems: An Internet OWTD Jitter Prediction Approach Jianning Hua, Qi Wang, Yujie Cui, Fangping Yang, Xuezhu Wang, Hongyi Li	856
Design and Implementation of a Human-Machine Interaction Platform for Analysis on Human Cognitive Behaviors Yujie Cui, Jianning Hua, Xuezhu Wang, Hongyi Li	864
PTuB5: Poster Session: Underwater Robot	
A multi-AUV hunting algorithm with ocean current effect Ruofan Lv, Wenyang Gan, Bing Sun, Daqi Zhu	869
Identification State feedback Control for the Depth Control of the Studied Underwater Semi-Submersible Vehicle Huanyin Zhou, Yiping Li, Zhiqiang Hu, Wei Li	875
Research and Development of Visualized Collaborative Design Platform for AUV Zhenzhen Xu, Zongwei Yang, Jie Dai, Zhiqiang Hu, Ruiwen Yi, Yiping Li	881
A New Concept spherical underwater robot with high mobility Lingbo Geng, Zhiqiang Hu, Yang Lin, Ruiwen Yi, Chao Wang	887
Path Planning in Stronger Ocean Current for Underwater Glider Xinke Zhu, Xianglong Jin, Jiancheng Yu, Yiping Li	891
PTuB6: Poster Session: Actuation & Calibration	
Online Robot Auto-calibration Using IMU With CMAC and EKF Ping Zhang, Xin Liu, Guanglong Du	896
Modelling and Control for Simultaneous Laser Beam Alignment of a Dual-PSD Industrial Robot Calibration System Chengzhi Su, Lei Zhong, Yunyi Jia, Yu Cheng, Ning Xi	902
Design and Research on SMA Actuator for the SDOF Rotational Joint Hui Yang, Lina Hao, Yuan Peng, Liangliang Zhao	908
Kinematics Calibration Research Based on the Positioning Error of the 6-DOF Industrial Robot Xiaolei Yang, Dong Liu, Yunfei Bai, Ming Cong, Zhongqing Liao	913
A piezoelectret-based approach for touching and slipping detection in robotic hands Qifang Zhuo, Tian Lan, Peng Fang, Guanglin Li, Xiaoqing Zhang	918
Development of a Waterproof Servo Unit for Amphibious Robots Yi Sun, Siyu Huang, Shugen Ma, Qiquan Quan	923
Parameter Design of an Underactuated Robotic Hand Considering Permissible Initial Object Pose Error Yanyu Su, Xiang Zhang, Wei Dong, Zhijiang Du	929
WeA1: Award Session - II	
Finite Horizon Distributed Optimal Tracking Control of Multi-agent Systems in presence of Completely Unknown Dynamics Hao Xu, Wenxin Liu	935

	Campus Trajectory Forecast Based on Human Activity Cycle and Markov Method Chengjue Yuan, Dewei Li, Yugeng Xi	941
	Fast Depth Reconstruction with a Defocus Model on Micro Scale Yangjie Wei, Chengdong Wu	947
	A 6D-pose estimation method for UAV using known lines Wenxin Liu, Shuo Yang, Ming Liu	953
	Controller Design for a Fish Robot to Follow an Oscillating Source Wei-Kuo Yen, Daniel Martinez S., Jenhwa Guo	959
	A High-Accuracy 3D Projection System for Fastener Assembly Rui Chen, Heping Chen, Jing Xu, Ken Chen	965
We	A2: Field & Space Robot	
	Robust Model Predictive Control Based on Polytopic LPV Model for Hypersonic Vehicles Chaofang Hu, Qianqian Xie, Shaokang Zhang, Tao Zou	972
	Robust Adaptive Sliding Mode Control of Near Space Vehicle Based on Disturbance Observer Qiang Zhang, Meijuan Yu, Tao Shen	977
	Proactive MDP-based Collision Avoidance Algorithm for Autonomous Cars Denis Osipychev, Duy Tran, Weihua Sheng, Girish Chowdhary, Ruili Zeng	983
	A dense matching algorithm for complex street scenes reconstruction Guofeng Tong, Xiaoping Sun, Xiangnan Meng	989
	Bio-inspired Design of an Inflatable Deployable Structure Jinguo Liu, Shufeng Sun, Sihang Bai	994
	Position Estimation for an Unmanned Ground Car (UGC) by Multi-Sensor Fusion under Random Loss of GPS Signals Chengwei Huang, Yong Liu, Yunyi Jia, Heping Chen	1000
We	A3: Internet of Things	
	Prediction of Trust Relationship based on Subjective Logic Jonghwan Ri, Hongwei Lu, Zaobin Gan, Gwangmin Choe, Songhyok Ri	1006
	The Assessment of Passengers Awareness on the Use of Mobile Application Supporting CRM serving taxi service in Bangkok Patnipa Adissaranggoon	1012
	A Transmitting Algorithm Based On Traffic Redirecting In Industrial Energy-efficient Multi-hop Wireless Networks Jindi Liu, Peng Zeng, Dong Li	1017
	Design of a Multichannel Biomedical Signal Acquisition System Based on Cortex-M4 Processor Zefeng Yu, Fang Li, Yibiao Rong, Yaowen Chen, Zhun Fan	1023
	Controlling The Hidden Layers' Output To Optimizing The Training Process in The Deep Neural Network Algorithm Zefeng Yu, Fang Li, Yibiao Rong, Yaowen Chen, Zhun FanMauridhi Hery Purnomo, Mochamad Hariadi	1028
	Frame Length Control for Sparse Signal Transmission over Lossy Wireless Link Liantao Wu, Zhi Wang, Wei He	1033
WeA4: Intelligent Control		
	Robust fault tolerant controller design using indirect adaptive sliding mode control strategy Hui Li, Liying Hao, Xianggui Guo	1039
	A Robotic Spraying Path Generation Algorithm for Free-form Surface Based on Constant Coating Overlapping Width Qiankun Yu, Guolei Wang, Ken Chen	1045
	Modeling for Cement Combined Grinding System with Closed Grinding Process Based on LS-SVM in Typical Working Condition Zhugang Yuan, Xianlei Zhang, Qiang Zhang, Zhe Su	1050
	The Postprocessor for Feed-rate Optimization of Six-Axis CNC Machine Tools	1056

Pengxiang Zhang, Kai Zhou	
An Optimal Control Strategy of VSC-HVDC Under Unbalanced Grid Voltage Conditions Lixia Sun, Pengfei Zhu, Zhe Wang, Yu Chen	1062
A Multiple Vectors Voltage Waveform Modulation Method for Microgrid Inverter Shijie Yan, Hui Huang, Yu Wang, Wenzhong Gao	1068
WeP1: Robotical Sensing & Perception - I	
A New Algorithm for Greenhouse Corridor Edge Detection with RGB-D Data Quan Qiu, Zhijun Meng	1074
Design of a microforce sensor based on fixed-simply supported beam: towards realtime cell microinjection Yunlei Zhou, Shuang Liu, Chongjun Yang, Chong Liu, Yu Xie	1080
An Anthropomorphic Tactile Sensor System with its Applications in Dexterous Manipulations Damith Suresh Chathuranga, Zhongkui Wang, Shinichi Hirai	1085
Cylindrical Panoramic Image Stitching Method Based On Multi-cameras Mingxiu Lin, Gang Xu, Xingning Ren, Ke Xu	1091
A Sliding Window Approach to Exploration for 3D Map Building Using a Biologically Inspired Bridge Inspection Robot Gavin Paul, Phillip Quin, Andrew Wing Keung To, Dikai Liu	1097
Threshold File-based Adaptive Calibration of Field Information for the Middle Size League Soccer Robot Shujun Liu, Wen Wang, Yuhuan Pu, Mengqiu Zhuang, Jiang Chang, Zhenli Lu, Bin Li	1103
WeP2: Underwater Robot - I	
Ocean Observing With Underwater Glider In South China Seas Shaowei Zhang, Aiqun Zhang, Jiancheng Yu	1109
An Adaptive Scheme of Sharing Compressed Flow Information Among Networked Underwater Gliders Shijie Liu, Jiancheng Yu, Aiqun Zhang, Fumin Zhang	1115
Heuristic Path planning for underwater glider in ocean current environment Wenliang Zhang, Zhesong Ma, Yanhui Wang, Wendong Niu	ÞÐŒ
Virtual Platform of a Manned Submersible Vehicle Carrying with an Underwater Manipulator Jin Zhang, Wei Li, Jiancheng Yu, Yan Li, Shuo Li, Liangqing Huo, Kaizhou Liu, Zhier Chen	1126
Nodes Localization Method based on the Improved PSO Algorithm without Time Synchronization Ying Zhang, Jixing Liang, Jiancheng Yu	1132
WeP3: Nanorobot & Nanoassembly	
3D Cell Assembly via Anode Electrode Manipulation Yajing Shen, Chin To Wong, Wenfeng Wan, Masahiro Nakajima, Toshio Fukuda	1138
Electric field induced fabrication of nano dots, lines and pits with AFM Deng-Hui Li, Zeng-Lei Liu, Ying Zhang, Nian-Dong Jiao, Lian-Qing Liu	1143
Alginate Gel Electro-Writing for 3D Cell Printing Yaqiong Wang, Zhan Yang, Tao Chen, Lining Sun	1149
PZT driven triple-finger end effectors for micro-manipulation Jinyong Liu, Tao Chen, Huicong Liu, Xiujian Chou, Lining Sun	1156
Development of a remote workstation for the operation of autonomous navigation mobile robot Yong Heng Chuah, Michael M. Tavengwa, Man Fat Chow, Kai Siang Chin, King W.C. Lai	1162
Hysteresis Compensation of Piezoelectric Actuator Using Direct Inverse Modeling Approach and Adaptive Projection Algorithm Yanding Qin, Xin Zhao	1168
WeP4: Advanced Manufacturing and Automation	

	Tangwen Yang, Jaclyn Lautz, Georgy Sankin, Pei Zhong	
	A Ball Vector Machine Based on Improved Enclosing Ball Iterative Solution Strategies Qingyu Yang, Lihua Zhang, Dou An	1180
	Study on Time and Frequency-Domain Harmonic Models of Single-Phase Full Bridge Rectifiers Donghao Lv, Jianxun Zhang, Yu Dai	1186
	Modeling and Design of a frictionless pneumatic cylinder system with air bearings Xiaocong Zhu, Xin Jin, Bin Yao, Jian Cao	1192
	Inverse Kinematics of Modular Manipulator Robot with Shoulder Offset Based on Geometric Method Mixed with Analytical Method Algorithm Yunhan Lin, Huasong Min	1198
	Influence of Metal Chips on Drilling Quality of Carbon Fiber Reinforced Plastic and Titanium Stacks Chenggen Nan, Dan Wu, Yuhao Gao, Xinguo Ma, Ken Chen	1204
147		
VV	eM1: Robotical Sensing & Perception - II	
	Robotic Episodes Learning for Building Cognitive Experience Map Dong Liu, Ming Cong, Xiaodong Han, Yu Du	1210
	A Comparative Study of Unscented and Extended Kalman Filter for Position and Velocity Estimation of Stewart Platform Manipulator Shady. A. Maged, A. A. Abouelsoud, Ahmed M. R. Fath El Bab Bab	1216
	Echo State Network Based Dual Adaptive Control for Trajectory Tracking of Wheeled Mobile Robot Suping Cao, Xizhen Hu	1223
	Automated micro-assembly of hydrogel modules based on Defocus feature Shaoqi Chen, Qiang Huang, Qing Shi, Huaping Wang, Tao Sun, Xiaoming Liu, Toshio Fukuda	1229
	A Novel Visual Servoing Feedback Control of Nonholonomic Wheeled Mobile Robots Zhenxing Li, Chaoli Wang	1235
	Fast RGBD-ICP with Bionic Vision Depth Perception Model Xia Shen, Huasong Min, Yunhan Lin	1241
We	eM2: Underwater Robot - II	
	Eulerian Two-phase Modeling of Cavitation for High-Speed UUV using Different Turbulence Models	1247
	Linmin LI, Qingquan JIA, Zhongqiu LIU, Baokuan LI, Zhiqiang HU, Yang LIN	
	Lagrangian Dynamic Modeling of Wave-driven Unmanned Surface Vehicle in Three Dimensions Based on the D-H Approach Baoqiang Tian, Jiancheng Yu, Aiqun Zhang	1253
	Study on Mission Reachability Problem for Multiple AUVs Based on Object-oriented Petri Net Changlong Lin, Yiping Li	1259
	Non-line-of-sight Scattering Channel Modeling for Underwater Optical Wireless Communication Weihao Liu, Difan Zou, Zhengyuan Xu, Jiancheng Yu	1265
	Navigation Positioning Algorithm for Underwater Gliders in Three-Dimensional Space Jie Sun, Jiancheng Yu, Aiqun Zhang, Fumin Zhang	1269
	LT-MAC:A Location-based TDMA MAC Protocol for Small-scale Underwater Sensor Networks Jia Mao, Shumin Chen, Yangxi Liu, Juntao Yu, Yuanxin Xu	1275
WeM3: Cyber Physical Systems		
	Event-triggered Model Predictive Control for Wireless Networked Control Systems with Packet Losses Quan Wang, Yuanyuan Zou, Yugang Niu	1281
		1287
	RS-CPS: A Distributed Architecture of Robotic Surveillance Cyber-Physical System in the Nature Environment Hongpeng Wang, Jingtai Liu, Jianda Han	1207

	Xiaozhe Wang, Shu Liu, Cao Qin, Jiaxing Yuan, Mingxiu Lin	
	Theoretical Calculation And Evaluation of the Line Losses on UHV AC Demonstration Project Liping Liu, Jian Zhang, Qi Wang, Zhao Yang, Yizhe Wang, Ying Liu	1299
	Clustered Routing Protocol Based on Improved K-means Algorithm for Underwater Wireless Sensor Networks Ying Zhang, Hongliang Sun, Jiancheng Yu	1304
	An Evaluation Paradigm of Thermal Energy Saving Potential for the Cement Clinker Manufacturing Process Zhao Liu, Zhuo Wang, Mingzhe Yuan, Haibin Yu	1310
۱۸/ح	eM4: Intelligent Robot	
V V C	Implementation and Application of a 2-DoF Dielectric Elastomer Actuator Huaming Wang, Yang Wang, Weidong Yang, Yinlong Zhu	1316
	Optimal turning gait for a three-link underwater robot Xian Guo, Shugen Ma, Bin Li, Minghui Wang, Yuechao Wang	1321
	Study on Ability of a Mobile Tracked Robot for Stair-climbing based on Static Analysis Pengwen Xiong, Aiguo Song, Peng Ji, Xinjing Huang	1327
	An Intelligent Cane Walker Robot Based on Force Control Haiyang Wang, Baiqing Sun, Xuetang Wu, Hao Wang, Zhuoyang Tang	1333
	Automatic Obstacle Avoidance using Redundancy for Shared Controlled Telerobot Manipulator Xinyu Wang, Chenguang Yang, Hongbin Ma	1338
	Structure Parameter Optimization of a Variable Geometry Tracked Robot for Structured Yan Zhu, Minghui Wang, Bin Li, Cong Wang	1344
PW	/eA1: Poster Session: Intelligent Control	
	Improvement of On-line Monitoring Method for Insulation of Substation DC System Xing LEI, Nan XU, Wei SHEN, Chunyi DAI, Zhaode XU	1350
	Monitoring and Fault Diagnosis for Industrial Process Shuai Li, Xiaofeng Zhou, Haibo Shi, Zeyu Zheng	1356
	Finite-time H-infinity fuzzy control for Markovian jump stochastic systems Aiqing Zhang	1362
	Fault-Tolerant Control and Optimal Fault Hiding for Discrete-Time Linear Systems Juntong Qi, Zhenhua Wang, Yi Shen	1368
	Application of MVVM Design Pattern in MES XiaoLong Li, DaLiang Chang, Hui Pen, XiaoYu Zhang, YuanXin Liu, YaXian Yao	1374
	Adaptive Twisting Sliding Mode Control for Overhead Cranes Weimin Xu, Yue Xu, Xiang Zheng	1379
	Nonlinear vibration analysis of composite laminated plates using the FEM Guoqing Jiang, Fengming Li, Wei Zhang	ÞÐŒ
	The effects of subsonic airflow on the nonlinear vibration properties of a composite laminated plate Ling-Chang Meng, Feng-Ming Li	ÞÐŒ
	The design of Power Amplifier Switch Mode Power Supply for handset applications Wei Yan, Yuchen Wang, Zhenyu Wang, Yufeng Jin, Guangyi Shi	1394
	Investigation of Configuration and Control Strategy for Range Extended Electric Vehicle Nan Xu, Zicheng Fu, Shaogang Niu, Liang Chu	1399
	Eccentricity Harmonics Detection-based Speed Estimation Approach in a Sensorless Induction Motors Xiangjin Song, Jingtao Hu, Hao Huang, Jilong Zhang	1405
	Research on Control Software Design Platform for CNC System Zhenkun Zhai, Di Li, Nan Zhou	1411
PW	/eA2: Poster Session: Sensing & Information Processing	
	A New Approach For Noise Data Detection Based on Cluster and Information Entropy	1416

	Xiaofeng Zhou, Yonglai Zhang, Shengxuan Hao, Shuai Li	
	A Method of Two-Dimensional Otsu Image Threshold Segmentation Based on Improved Firefly Algorithm Chenhang Zhou, Liwei Tian, Hongwei Zhao, Kai Zhao	1420
	Research on the Method of ECG Denoising Based on Improved Wavelet Packet Gang Shi, Liang Rong, Yuhan Gao	1425
	A Vision-Based Recognition Method for Transformer Based on AdaBoost and Multi-Template Matching	1429
	Yang Wu, Hongkai Chen, Xiaoguang Zhao, Yongjie Zhai A Method of Aircraft Fuel Consumption Performance Evaluation Based on RELAX Signal Separation Jiaxue Liu, Tao Ma	1433
	A Natural measure of High Resolution Radar Target Recognition Shaoqing Yang, Jintao Huang, Jilei Deng, Cheng Fen	1438
	Design and performance test of a test rig for grain flow sensor He Wang, Jingtao Hu, Lei Gao	1442
	Height Information Acquisition Method of Seedling with Machine Vision Wenqiang Zhang, Wei Li, Zhenyu Yang, Jianda Han	1446
	Research on Aircraft Longitudinal Flight Control Law Identification Based on QAR Data Jing-jie Chen, Guan-ping Xiao	1450
	A Study on Color Model Selection for Underwater Color Image Preprocessing Guojia Hou, Xin Luan, Dalei Song	1456
	Collision Probability Computation Based on Vehicle to Vehicle Communication Ruili Zeng, Weihua Sheng, Dan Yang	1462
	Indoor Human Tracking and State Estimation by Fusing Environmental Sensors and Wearable Sensors Yanfei Li, Meiqin Liu, Weihua Sheng	1468
P۷	VeA3: Poster Session: Algorithm & Optimization	
	A Genetic Algorithm-based Hybrid Optimization Approach for Microgrid Energy Management Hepeng Li, Chuanzhi Zang, Zeng Peng, Haibin Yu, Zhongwen Li	1474
	Particle Swarm Optimization Algorithm For Test Case Automatic Generation Based On Clustering Thought YueMing Dai, Yiting Wu, Dinghui Wu	1479
	The Application of BP Neural Net Real-time Data Forecasting Model Used in Home Environment Yong Cao, Liwei Tian, Hongwei Zhao	1486
	Application of Self-Adaptive Evolution Strategy DE Algorithm Based on Optimal Objective of Due Date in HFSP Miao Yu, Xisheng Lv, Zhe Chen, Daquan Guo	1491
	Solving Multi-Objective Semiconductor Assembly and Test Manufacturing Scheduling Problem Based on Estimation of Distribution Algorithm Xincheng Zhong, Chang Liu, Jun Zhu, Dongbin Han, Zhiling Yuan	1496
	Robust Active Power Dispatch Model of Wind Integrated Power System Feng Ji, Zhang Wei, Xingguo Cai	1502
	Cuckoo Search Algorithm for Solving Numerical Integration Zexi Deng, Feidan Huang	1508
	Static analysis of an umbilical under axial and bending loadings by FEM Yuguang Cao, Yaya He, Ying Zhen, Jiancheng Yu	1513
	Dual Three-phase Induction Motor Power Loss Analysis with its Modeling and Simulation of Vector-controlled System Yue Zhang, Wenping Cao, John Morrow	1517
	A Dynamic Reactive Power Reserve Optimization Method to Enhance Transient Voltage Stability Qi Wang, Jian Zhang, Liping Liu, Baiqing Li, Mingsong Liu, Weifang Lin, Yao Shao	1523

	A Modified Artificial Bee Colony Optimizer by comprehensive learning and Powell' search Boyang Liu, Weiping Shao, Qiuyan Liu, Lianbo Ma	1529
PWeA4: Poster Session: Algorithm & Application		
	Vibration Analysis Approach for Corrosion Pitting Detection Based on SVDD and PCA Yonglai Zhang, Haibo Shi, Xiaofeng Zhou, Zeyu Zheng	1534
	Self-adaptive Cuckoo Search Algorithm for Hybrid Flowshop Makespan Problem Zhonghua Han, Xiaoting Dong, Xisheng Lv	1539
	Multi-Scale Wavelet Kernel Extreme Learning Machine for EEG Feature Classification Qi Liu, Xiao-guang Zhao, Zeng-guang Hou, Hong-guang Liu	1546
	Study on a Method of Dispensing Calibration for Photoresist Pump Based on Support Vector Machine Jilong Zhang, Jingtao Hu, Yunxia Cao, Haodong Chi	1552
	The Method of Integrated Scheduling for Steelmaking and Hot Rolling Shop based on Hot Chain Logistics Chao Sun, Xisheng Lv, Shixin Liu	1557
	Research on Scheduling Problem of Single-Arm Cluster Tools with Residency Time Constraints Rui Lu	1563
	Model Predictive Engine Control Using Support Vector Machine Jun Lu, Weifeng Ma, Yongjun Han, Yuke Gao, Zhaoyuan Guo, Xin Li, Honglei Niu	1569
	Scheduling Method for Single-arm Multi-Cluster Tools with Residency Time Constraints Jingtao Hu, Linying Li	1574
	Manifold Mapping Learning by Regression Tree Boosting Xi'ai Chen, Zhi Han, Yandong Tang	1579
	Li-ion Battery SOC Estimation Based on EKF Algorithm Bo Li, Xueqing Yuan, Lin Zhao	1584
	A Real-Time Tracking and Registration Algorithm of Augmented Reality on a Wide Area of Known Scenarios Based on Improved Random Fern Yue Zhao, Jingjiao Li, Aixia Wang, Dan Yang	ÞÐŒ
	The City Taxi Quantity Prediction via GM-BP model Xuewu Zhang, Yongjun Liu	1594
PW	/eB1: Poster Session: Control & Application	
	Frequency-adaptive Autobalancing Control for Magnetically Suspended Rotor with Imprecise Rotational Speed Tong Wei, Lishuang Zhao	1599
	A Polytopic System Theory Approach to Wide-Area Decentralized Coordinated Control of HVDC System Shiyun Xu, Ying Yang, Jun Yi, Bing Zhao, Chunxia Dou, Zhanming Chen	1605
	Application of the Wastewater Toxicity Diagnosing Technology Based DO Curve Characteristics in Treatment of Dyeing Wastewater Jian Liu, Wang-jin He, Guang-ping Yu, Ming-zhe Yuan	1611
	Research on Online Trend Omen Extraction Algorithm of Sludge Bulking Guang-ping Yu, Jing-yang Wang, Ming-zhe Yuan, Yang Yu	1617
	Research on Prediction Method of Sludge Bulking Based on ANN and Grey Markov Model Guang-ping Yu, Jing-yang Wang, Ming-zhe Yuan, Yang Yu	1622
	On-line hybrid soft sensor for water quality COD based on synchronous clustering Qiumei Cong, Guangping Yu, Mingzhe Yuan, Jingyang Wang	1628
	A Design Method of Optimal PI Controller with Saturation Characteristic for Second-order Xianhong Li, Haibin Yu, Peng Zeng, Chuanzhi Zang, Lanxiang Sun, Mingzhe Yuan	1634
	Experiment Validation of Vertical Axis Wind Turbine Control System based on Wind Energy Utilization Coefficient Characteristics Chongyang Zhao, Jun Luo, Shaorong Xie, Hengyu Li	1640

	Robust Control of Morphing Aircraft Based on Switched Polytopic System Yong He, Weiguo Zhang, Ying Zhang, Chunjuan Li	1645
	Development and Experiments on the injection system of the self-propelled liquid fertilizer Chunfeng Zhang, Jinpeng Li, Wang Xiu, Su Shuai	1650
	Self-propelled paddy variable boom sprayer Songlin Wang, Xiu Wang, Wei Zou, Guoyuan Zhang	1655
	A Safety Analysis Method of Process Control System based on Statechart Diagram Deming Zhong, Nan Wu, Rui Sun, Qianpeng Wang	1661
PW	/eB2: Poster Session: Control & Automation	
	Design and Comparative Study of ABS Control Strategies Based on Co-Simulation Xiongwen Lu, Zhengfei Zhou, Yunfei Wang	1665
	Robust filtering design for nonlinear impulsive switched systems Jian Li, Xingze Dai, Dan Ye	1671
	BP Neural Network MRAC Applied to Slip Gain Adjusting Qing KU, Gengguo CHENG, Yun WANG	1676
	Filtering for polynomial fuzzy systems using polynomial approximated membership functions Ziran Chen, Baoyong Zhang, Qi Zhou	1681
	Stabilization for Delayed Positive Nonlinear Systems via T-S fuzzy Modeling Yunfei Yin, Xiaolong Zheng, Haijiao Yang, Xudong Zhao	1687
	Controller design for a quadrotor based on high gain observer Yujun Ma, Weiping Liu, Teng Jun, Zaiqiang Wu, Zhen Wang	1693
	A Robust Predictive Current Control for PMSM Based on Extended State Observer Hongjun Chen, Jialong Qu, Bo Liu, Hao Xu	1698
	Intelligent Control System for Cement Raw Meal Quality Based on Online Analysis Hongliang Yu, Guodong Lian, Xin Wan, Duo Wang	1704
	Application of Generalized Predictive Control for Charging Super Capacitors in Microgrid Power Systems under Input Constraints Yusheng Luo, Cheng Wang, Liang Tan, Genyu Liao, Meng'en Zhou, David Cartes, Wenxin Liu	1708
	Heterogeneous Semantic System for IEC61499 Based on Model of Computation Di Li, Zhenkun Zhai, Nan Zhou	1714
	An improved deadbeat control strategy for D-STATCOM based on frequency-adaptive repetitive predictor Hongjun Chen, Bo Sun, Jialong Qu, Kai Fu	1720
	Modeling and controlling of the Piezoelectric Smart Cantilever Beam of Artificial muscles Zhen Chen, Yanmei Liu	1726
PW	/eB3: Poster Session: Cyber Physical System	
	Study of Attribute Word Extraction in Chinese Product Reviews Rui Ma, Fucheng Pan, Xiaofeng Zhou	1730
	A HIGH-PERFORMANCE CHIP WITH DATAFLOW ARCHITECTURE FOR ATTITUDE AND HEADING REFERENCE SYSTEM ACCELERATING Guangyi Shi, Hanhui Zhang, Zhenyu Wang, Peng Han, Wei Yan, Yufeng Jin, Jack Wang	1735
	Towards Ultra Low-Power MCU Implementation through Physical Design based on Improved Multibit SRPG Wei Yan, Zhencong Wan, Peng Han, Jack Wang, Yufeng Jin, Guangyi Shi	1740
	Velocity and Position Calculation ASIC Design Based on Strapdown Inertial Navigation Algorithm Guangyi Shi, Shaomin Hou, Wei Yang, Jack Wang, Yufeng Jin, Zhenyu Wang	1746
	Information Collecting of PHM and Task-based Test Modeling of Warship Product Hong Liang, Xiaobai Liu, Xingxing Zhang	1752
	Person Re-identification Based on Color and Spatial Features of Dominant Color Regions Gwangmin Choe, Tianjiang Wang, Gwangchol Jang, Jonghwan Ri, Hun Kim	ÞÐŒ
	Accelerating the Finite Element Method Using FPGA for Electromagnetic Field Computation	1763

	Jinzhu Zhang, Hua He, Minglu Zhang, Qingzeng Song	
	Development and Experiment of Soil Disinfection Injection System shuai Su, xiu Wang, wei Zou, chunfeng Zhang, jinpeng Li	1769
	Always On Buffer Clustering Implementation in Low Power Physical Design of 28nm Process Wei Yan, Quanbiao Chen, Zhibo Zhang, Jack Wang, Yufeng Jin, Guangyi Shi	1775
	Improvement of Chinese Sign Language Translation System based on Multi-Node Micro Inertial Measurement Unit Keke Tu, Chong Pan, Jiye Zhang, Yufeng Jin, Jack Wang, Guangyi Shi	1781
PV	VeB4: Poster Session: Network Control	
	Research on coordinated control measures to enhance the stability and transmission capacity of electromagnetic loop network Yi Tang, Mingming Cai, Feng Li, Jun Yi, Qi Wang, Liping Liu	1787
	Entanglement control over a quantum CDMA network Changlong Zhu, Nan Yang, Jing Zhang	1792
	A survey of packet disordering existing in networked control systems Jinna Li, Haibin Yu, Wei Liang, Peng Zeng, Mingzhe Yuan	1797
	Synchronous Control Strategy for Three-servo Networked Control System Hongjun Chen, Qihui Yang, Sun Bo, Bo Yu	1802
	Implement of Variable Sampling in Multi-loop NCS Hui Zhang, Fang He, Chunyan Han	1808
P۷	VeB5: Poster Session: Cyber Security	
	Research on the Mobile Security Encryption Algorithm for Manufacturing Execution System Fucheng Pan, Guoliang Hu	1814
	Analysis of the Influence to Fault Detecting of DC System from Distributed Capacitance Zhiyun DONG, Xing LEI, Gaoyuan LIU, Hongnin DING, Zhaode XU	1818
	A method research of image encryption based on chaotic and secret sharing Boyu Zhu, Aiping Jiang, Xue Bai, Dongdong Bai	1823
	Penetration Testing Automation Assessment Method Based on Rule Tree Jianming Zhao, Wenli Shang, Ming Wan, Peng Zeng	1829
	FALL DETECTION SYSTEM BASED ON INERTIAL MEMS SENSORS:ANALYSIS DESIGN AND REALIZATION Guangyi Shi, Jiye Zhang, Chao Dong, Peng Han, Yufeng Jin, Jack Wang	1834
	Online Detection of Spoof fingers for Fingerprint Authentication on Smartphone Hiroaki Kunieda, Dongju Li, Shota Araki, Tsuyoshi Isshiki	ÞÐŒ
	Research on the Technical Risk of Mobile Finance Innovation Xingfeng Li, Jin Chen, Huan Wang, Yanli Xie	1846
	Current and Future Threats Framework in Smart Grid Domain Andria Procopiou, Nikos Komninos	1852
Th	A1: Human-Machine Interaction	
	Laser and Force Sensors Based Human Motion Intent Estimation Algorithm for Walking-aid Robot Qingyang Yan, Wenxia Xu, Jian Huang, Suping Cao	1858
	Motion Capture Data Reveal the Important Role of Waist Flexibility in Human Gait Daoxiong Gong, Long Fu, Guoyu Zuo, Yuqian Du	1864
	Design of Kinect-based Human Robot Interaction Systems for a RoboCup Middle Size League Soccer Robot Zhenli Lu, Kai Tian, Huigang Xu, Jun Liu, Limin Mao, Shujun Liu, Changkao Shan, Bin Li	1869
	Design on Portable Brain Control System and its Application Chang Liu, Xiaodong Zhang, Rui Li, Weiguang Ma	1875
	Form design of Home Service Robot based on Kansei Engineering Yan Zhu, Tingjun Wang, Huanhuan Zhang	1879

	Estimate Spatial-Temporal Parameters of Human Gait Using Inertial Sensors Zhelong Wang, Ran Ji	1883
ThA2: Bio-feedback Control of Robot		
	Change in Human Brain Functional Network Based on Granger Causality Analysis Chuan Li, Haiyan Zhou, Jun Zhou, Jie Xiang, Yulin Qin, Ning Zhong	1889
	Prediction of lower limb joint angle using sEMG based on GA-GRNN Fei Wang, Tenglong Yin, Chenxi Lei, Yuanke Zhang, Yifan Wang, Jian Liu	1894
	Research on Surface EMG Based Accurate Perception Method for Exoskeleton Robot Control Hailian Wang, Tong Mu, Huacong Li, Xiaodong Zhang	1900
	EEG-based mental fatigue assessment during driving by using sample entropy and rhythm energy Fei Wang, Ji Lin, Wenzhe Wang, Haiming Wang	1906
	EMG-Based Estimation of Shoulder and Elbow Joint Angles for Intuitive Myoelectric Control Qin Zhang, Chengfei Zheng, Caihua Xiong	1912
	Discrimination of EEG Related to motor imagery by combined wavelet energy feature with phase synchronization feature Chuanwei Liu, Yunfa Fu, Huiwen Sun, Xiabing Zhang	1917
Th	A3: Tele-Robotics	
	Gesture-Based Telemanipulation of A Humanoid Robot for Home Service Tasks Ningbo Yu, Chang Xu, Kui Wang, Zhuo Yang, Jingtai Liu	1923
	Effect of Training on the Quality of Teleoperator (QoT) Shuang Liu, Yu Xie, Yunyi Jia, Ning Xi, Yaonan Li	1928
	Design and Analysis of a Double Seal Door for the Tokamak Equipment CAsk(TECA) Weibin Guo, Lifu Gao, Zengfu Wang, Baoyuan Wu, Li Chang, Daqing Wang, Qingquan Yan, Yi Liu, Yong Chen, Cen Yu, Bicheng Dong	1934
	Time-Varying Environment Coverage Control by Multi-Robot Systems Xiao Liang, Yongchun Fang	1940
	The Development Status and Trends of Unmanned Ground Vehicle Control System Jian Yang, Ruina Dang, Tao Luo, Jin Liu	1946
Th	A4: Adaptive Control	
	A Direct Adaptive Fuzzy Sliding Mode Controller and Its Application SongHyok Ri, Jian Huang, MyongHo Kim, JiYong Kim, Gwangmin Choe, CholJun Rim	1953
	Synchronization of uncertain Chaos system with time delay via hybrid feedback control Jie Fang, Weimin Gao, Wei Deng	1959
	PID control of the mechanical legs based on fuzzy adaptive Pengfei Shi, Chenxi Lei, Yuanke Zhang, Yifan Wang, Fei Wang	1965
	Discrete-time Adaptive Control of Robot Manipulator with Payload Uncertainties Jiangping Li, Hongbin Ma, Chenguang Yang, Mengyin Fu	1971
	Control Strategy of Cement Mill Based on Bang-bang and Fuzzy PID Self-tuning Qingjin Meng, Fei Xu, Yaqiong Wang, Xianhong Shi	1977
	Stability and nonlinear vibration of an axially moving isotropic beam Guo Yao, Fengming Li	1982
Thl	P1: Integrated Sensing, Communication, Computational System	
	Illumination system design and implementation in zebrafish behavior observation system Mingzhu Sun, Baolei Wang, Yanding Qin, Xin Zhao	1986
	A Prognostic Framework Based on Factorial Hidden Markov Model Zhang Wei, Shigang Zhang, Lijun Song, Zheng Hu	1992
	The Design of Air-space Integrative Calamity Information Analysis and Rescue System Haoting Liu, Wei Wang, Zhexi He, Qingying Tong, Xuefeng Wang, Wenpeng Yu, Ming Lv	1997
	Control Kernel in Smart Factory environments: Smart Resources integration	2002

	Eduardo Munera, Poza-Luján Jose-Luis, Posadas-Yagüe Juan-Luis, Jose Simó, J. Francisco	
	Real-Time Vehicle Detection in Highway Based On Improved Adaboost and Image Segmentation Yunzhou Zhang, Pengfei Sun, Jifan Li, Lei Meng	2006
	A New Approach to Estimate Real-time Traveling Speed With Accelerometer Xiaojie Zong, Xiangji Wen, Zhi Wang	2012
Thl	P2: Modeling & Simulation	
	Modeling and Verification for a Four-Rope Crane Biao Lu, Yongchun Fang, Ning Sun	2018
	Research on Intelligent Hybrid Injection Active Power Filter Xin Li, Zhen Yang	2024
	Bounding Sphere CAD Model Simplification for Efficient Collision Detection in Offline Alex Visser, Zengxi Pan, Stephen van Duin	2029
	Closest Distance Searching by GPU-Based Massive Parallel Computation Yunfeng Fei, Yinhao Song, Guangyi Sun	2036
	The Mathematical Modeling of the Mobile Recharging Facility Vehicles' Scheduling and its Genetic Algorithm Solution Jin Zhou, Guanqun Yang, Guochun Tang	2040
	A New Weighting Iterative Solution for Laser Tracker Registration An Wan, Heping Chen, Jing Xu, Ken Chen	2044
Thl	P3: Biomimetics	
	Design of a MNSM-based Controller for the Swimming Motion of a Snake-like Robot Zhenli Lu, Yafei Xie, Huigang Xu, Jun Liu, Limin Mao, Changkao Shan, Bin Li	2050
	A Load-adaptive Controller for Humanoid Robots Mingliang Zhou, Fei Meng, Zhaoyang Cai, Tongtong Zhang, Daojian Li, Zhangguo Yu	2056
	Biped Walking on Rough Terrain Using Reinforcement Learning Yuheng Zhang, Quanyong Huang, Sheng Bi, Huaqing Min, Quanwei Zheng, Yi Luo	2061
	Design and Analysis of an Obstacle-crossing Wall-climbing Robot Mechanism Junke Shen, Yong Liu	2067
	Multi-objective PSO-PS Application to Humanoid Path Following Optimization Prince Jain, Yinliang Xu	2073
	A Bio-Inspired Structure for Vibration Isolation Zhijing Wu, Xingjian Jing	2079
Thl	P4: Medical Robotics	
	Motion Analisis and Experimental Study of A Cable-driven Soft Surgical Robot Runxi Zhang, Hesheng Wang, Weidong Chen, Xiaozhou Wang, Rolf Pfeifer	2085
	Development of a Novel Ankle Rehabilitation Robot with Three Freedoms for Ankle Rehabilitation Training Zhijiang Lu, Chunbao Wang, Lihong Duan, Mengjie Li, Qing Shi, Lin Wang, Atsuo Takanishi, Massimiliano ZECCA, Weiguang Li	2091
	Bionic Artificial Leg Design and Control Simulation Based on Fuzzy PID Control Algorithm Hualong Xie, Keli Chen, Fei Li	2097
	Output Feedback Control of a Robotic Exoskeleton with Input Deadzone via Neural Networks Ziting Chen, Wei He, Yiting Dong, Zhijun Li	2103
	Experimental Research on the Adaptive Fuzzy Control in Slave-hand of Surgical Robot Zhang Yu, Xiaofeng He, Huifang Liu	2109
	Developing a Self-Powered and Directly Digitized Piezoelectric Micro Sensor for Monitoring Blood Pressure Change inside Brain Aneurysm after Endovascular Treatment: A Feasibility Study Nithya Mohan, Yudong Luo, Yantao Shen	2115