

# **2015 34th Chinese Control Conference**

## **(CCC 2015)**

**Hangzhou, China**  
**28-30 July 2015**

**Pages 1-888**



**IEEE Catalog Number: CFP1540A-POD**  
**ISBN: 978-1-4673-7443-9**

# Contents

## Plenary Lectures

|                                                                                       |                                       |    |
|---------------------------------------------------------------------------------------|---------------------------------------|----|
| Fault Detection Problems for Boolean Networks and Boolean Control Networks            | FORNASINI Ettore, VALCHER Maria Elena | 1  |
| The Cutting Edge of Power Electronics for High-Power Applications                     | AKAGI Hirofumi                        | 9  |
| Characteristic Modeling Theory and Its Applications in Rendezvous and Docking Control | XIE Yongchun                          | 18 |
| Challenge of Disaster Robotics                                                        | TADOKORO Satoshi                      | 21 |

## System Theory and Control Theory

|                                                                                                                              |                                                                  |     |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-----|
| Rejection and Tracking Sinusoidal Signals Based on State-derivative Feedback                                                 | CHENG Songsong, WEI Yiheng, LIANG Shu, ZHANG Kaitian, LIANG Qing | 23  |
| Impact on Consensus by Incorporating Equality Constraint                                                                     | WANG Jianan, YAN Peng, SHAN Jiayuan                              | 30  |
| Matrix Method to Search K-Maximum Internally Stable Sets of Graphs                                                           | YUE Jumei, YAN Yongyi                                            | 36  |
| Multiple Routes Planning Based on Particle Swarm Algorithm and Hierarchical Clustering                                       | ZHOU Deyun, LI Xiaoyang, ZHANG Kun, PAN Qian                     | 42  |
| Dynamic State Estimation in Power Systems Using A Distributed MAP Method                                                     | SUN Yibing, FU Minyue, WANG Bingchang, ZHANG Huanshui            | 47  |
| Frequency-domain Characteristics Analysis of Linear Active Disturbance Rejection Control for Second-Order Systems            | ZHANG Dongyang, YAO Xiaolan, WU Qinghe                           | 53  |
| Stabilization and L1-gain Analysis of Switched Positive System Subject to Actuator Saturation by Average Dwell Time Approach | WANG Juan, ZHAO Jun, DIMIROVSKI Georgi M.                        | 59  |
| Research on Slag Grinding Process Control                                                                                    | DUAN Lian, LI Xiaoli, WANG Kang, LI Yang                         | 63  |
| PD Backstepping Controller for Stabilization of Wheeled Inverted Pendulum                                                    | LIU Fuchun, CAO Shengjie, LI Yunze                               | 67  |
| Observer Design for Linear Systems with Commensurate Delays                                                                  | YU Lei, ZHENG Gang, F. J. Bejarano                               | 72  |
| Generalized H2 Performance Analysis of Periodic Piecewise Systems                                                            | LI Panshuo, LAM James, CHEUNG Kie Chung                          | 77  |
| Controllability and Observability of Second-Order Time-Varying Linear Systems                                                | DUAN Guang-Ren, HU Qilin                                         | 83  |
| Gain Scheduled Control Design for Linear Systems with Saturating Actuators and Input-additive Uncertainties                  | WU Wenjuan, DUAN Guang-Ren, HOU Mingzhe, TAN Feng                | 88  |
| Applying Data-driven Techniques to Online Updated PID Controller for Calciner Outlet Temperature                             | ZHANG Qiang, YU Hongliang, XU Dezhi                              | 94  |
| Controllability of Hopfield Impulsive Neural Network Systems with Infinite Delay in Banach Spaces                            | TANG Jinxiang, ZHENG Chuang                                      | 98  |
| A New Order Reduction Approach Based on Elementary Operation for Roesser State-Space Model                                   | ZHAO Dongdong, LI Qiaoqiao, YAN Shi, XU Li                       | 104 |
| Distributed Self-triggered Control for Coupled General Linear Systems via Static Output Feedback                             | ZHAO Jianfeng, XIANG Linying, CHEN Fei, LAN Weiyao               | 115 |

|                                                                                                                                                                     |                                                                          |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-----|
| The Distributed Active Vibration Suppression Program for Great Flexible Spacecraft Based on Aptitude Material .....                                                 | SONG Ting, ZHU Dongfang, TAN Tianle, ZHU Chunyan, WANG Zhaolong, HAN Fei | 126 |
| Optimal FSL Smoothing for Delayed Descriptor Systems .....                                                                                                          | LU Xiao, WANG Linglong, WANG Haixia, PU Qiong, DONG Xin                  | 131 |
| Finite-time $H_\infty$ Fuzzy Control for Discrete-time Stochastic Systems .....                                                                                     | ZHANG Aiqing                                                             | 135 |
| Controllability of Switched Server Systems with Service-time and Queue Constraints on Buffers .....                                                                 | HE Zhonghe, WANG Li, ZHANG Lili                                          | 140 |
| Application of Intelligent Track Guiding Control on Boiler Combustion System .....                                                                                  | WANG Wenbiao, CAI Qi, WANG Siyuan                                        | 146 |
| System Decompositions of Multi-valued Boolean Control Networks .....                                                                                                | ZOU Yunlei, ZHU Jiandong                                                 | 151 |
| A Generalized Controllability Canonical Form of Multi-Input Linear Systems .....                                                                                    | CAI Ning, XUE Lin, DIAO Chen, CHEN Yan                                   | 157 |
| Hybrid Adaptive Control for Gust Load Alleviation .....                                                                                                             | BIAN Qi, LI Ting, QIN Yuemei, PENG Cheng                                 | 161 |
| Periodic Lyapunov Equation Based Approach to Semi-global Almost Disturbance Decoupling of Continuous-time Periodic Linear Systems Subject to Input Saturation ..... | CAI Guang-Bin, LV Lingling, HE Hua-Feng, ZHOU Tao                        | 166 |
| Vertical Movement Control for Variable Vector Propeller of Submarine Based on Pitch Angle Varying .....                                                             | ZHENG Xiuli, LIU Sheng, CHEN Mingjie                                     | 171 |
| A New Design Method of Internal Model Control Based on Butterworth Filter for Non-minimum Phase High-order Systems .....                                            | CHEN Juan, HAN Weisha, GUO Qing                                          | 177 |
| Observability of Probabilistic Boolean Networks .....                                                                                                               | ZHAO Jing, LIU Zhenbin                                                   | 183 |
| Active Disturbance Rejection Control for Fuel Processing System of Fuel Cells .....                                                                                 | SHEN Yali, LI Donghai, TAN Wen                                           | 187 |
| Battle Damage Assessment with Change Detection of SAR Images .....                                                                                                  | ZHOU Deyun, ZENG Lina, ZHANG Kai, ZHANG Kun                              | 193 |
| An Approach to Estimate the Closed-loop Poles Distribution Area of Uncertain System .....                                                                           | GE Qingxian, LIU Lei, WANG Yongji                                        | 198 |
| Stability of Characteristic Model Based Golden-Section Control for a Class of Uncertain Nonlinear Systems .....                                                     | JIANG Tiantian, WU Hongxin                                               | 205 |
| Data Driven Fixed Structure Linear Parameter Varying Controller Design .....                                                                                        | ALI Mukhtar, SAMAR Raza                                                  | 211 |
| Decentralized Load Frequency Control Using DE Optimized Linear Auto Disturbance Rejection Controller for Multi-area Power Systems .....                             | CHENG Pijian, TAN Wen, HAN Yi                                            | 217 |
| Damage Assessment of Airborne Laser Weapon to Anti-missile .....                                                                                                    | ZHOU Deyun, ZHANG Kai, ZENG Lina, ZHANG Kun                              | 223 |
| Synthesis of Self-triggered Receding Horizon Controllers: A Relaxed Dynamic Programming Approach .....                                                              | LU Liang                                                                 | 229 |
| The $L_2$ Gain Analysis for a Class of Dissipative Hamilton Systems subject to Time-varying Delay and Saturation .....                                              | JIA Dandan, WEI Airong, LI Han                                           | 235 |
| Reachability of a Kind of Boolean Control Networks with Delays in Both State and Control .....                                                                      | ZHANG Li, ZHAO Mingming, LIU Xinyun, ZHU Jiandong                        | 241 |
| Data-driven PID Controller Design for Continuous Stirred Tank Reactor .....                                                                                         | XU Dezhi, LIU Fei, ZHOU Hongcheng, ZHANG Qiang                           | 251 |
| Model Matching for LTI Systems by Periodic Control Law .....                                                                                                        | LV Lingling, YUE Jinming                                                 | 255 |

## Output Regulation of Linear Time-varying Delay Systems

|                                                                                                                         |                                                                   |     |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----|
| .....                                                                                                                   | XU Yong, BU Bin, GAO Jinfeng, PAN Haipeng                         | 260 |
| A Design Method of Fractional Order $PI^\lambda D^\mu$ Controller for Higher Order Systems                              |                                                                   |     |
| .....                                                                                                                   | WANG Huifang, HE Qiusheng, ZHAO Zhicheng, ZHANG Jinggang          | 272 |
| Infinite Zero Structure of Polynomial Matrix and Impulsive Modes of Polynomial Matrix Systems                           |                                                                   |     |
| .....                                                                                                                   | YU Peizhao, ZHANG Guoshan                                         | 278 |
| Adaptive Optimization of Ballistic Dispersion for Maneuvering Target Interception                                       |                                                                   |     |
| .....                                                                                                                   | WEI Mei, ZHENG Changyan, LIU Heng                                 | 283 |
| Stability and Passivity Analysis for Singular Systems with Time-varying Delay                                           |                                                                   |     |
| .....                                                                                                                   | ZHAO Jiemei, HU Zhonghui                                          | 294 |
| Based on Observer Designing Controller for Nonlinear Singular Networked Control Systems                                 |                                                                   |     |
| .....                                                                                                                   | LAI Yongbo, LU Guoping                                            | 299 |
| Control Method of Smoothing Wind Power Output Using Battery Energy Storage System Based on Empirical Mode Decomposition |                                                                   |     |
| .....                                                                                                                   | YANG Xiyun, CAO Chao, LI Xiangjun, YANG Tingting                  | 304 |
| Periodic Signal Tracking Based on Zero-Pole Cancelation with Application to Inverter                                    |                                                                   |     |
| .....                                                                                                                   | XU Guofeng, YE Yongqiang, ZHAO Qiangsong                          | 309 |
| $L_2$ - $L_\infty$ Filtering for Neutral Stochastic Systems with Mixed Time-delays                                      |                                                                   |     |
| .....                                                                                                                   | LI Lin, WANG Heyang, ZHANG Shaodan                                | 315 |
| Stabilization Algorithm for Interval Type-2 TSK Fuzzy Logic Control Systems with Bounded Time-Varying Delay             |                                                                   |     |
| .....                                                                                                                   | SUN Xun, ZHANG Huaguang, WANG Yingchun                            | 321 |
| Decentralized Robust Decoupling Control for Looper Tension and Height System                                            |                                                                   |     |
| .....                                                                                                                   | YANG Zhe, LIU Ding, CHAO Xiaoli, WANG Rui, QIAN Fucui, ZHENG Gang | 326 |
| Analyses of a General Multi-Capacity Process Standard Form                                                              |                                                                   |     |
| .....                                                                                                                   | DENG Liang, YANG Ping                                             | 332 |
| Stability Analysis of Three Dimensional Energy Demand-supply Systems                                                    |                                                                   |     |
| .....                                                                                                                   | YANG Kunyi, ZHANG Lingli, ZHANG Jie                               | 338 |
| Revisiting the Necessary Condition for the Existence of Luenberger Observer                                             |                                                                   |     |
| .....                                                                                                                   | YUAN Yanhua, YAN Zhibin                                           | 342 |
| Characteristic Model-based Control of Robotic Manipulators with Dynamic Uncertainties                                   |                                                                   |     |
| .....                                                                                                                   | WANG Lijiao, MENG Bin                                             | 347 |
| Controllability of Non-cooperative Dynamical Games                                                                      |                                                                   |     |
| .....                                                                                                                   | ZHANG Renren, GUO Lei                                             | 353 |
| Autonomous Observability of Multisatellite Systems Using Relative Range Measurements                                    |                                                                   |     |
| .....                                                                                                                   | SU Qiya, HUANG Yi                                                 | 359 |

## Nonlinear Systems and Control

|                                                                                                                         |                                               |     |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----|
| Anti-windup-based Dynamic Output Feedback Stabilization for a Class of Nonlinear Systems with Actuator Saturation       |                                               |     |
| .....                                                                                                                   | WANG Naizhou, PEI Hailong, TANG Yong          | 365 |
| Dynamic Inversion Control with Guaranteed Transient and Steady State Performances for UAV Systems                       |                                               |     |
| .....                                                                                                                   | LU Binwen, MA Jianjun, XIE Yu, ZHENG Zhiqiang | 371 |
| Adaptive Backstepping Control of MEMS Gyroscope Based on Neural State Observer                                          |                                               |     |
| .....                                                                                                                   | LU Cheng, FEI Juntao                          | 377 |
| The Relationship Between Overshoot and Damping Injection for the Port-Hamiltonian System Subject to Actuator Saturation |                                               |     |
| .....                                                                                                                   | CAI Liangcheng                                | 383 |
| Robust Tracking Control of Piezoelectric Fast Steering Mirror with Hysteresis and Disturbances Correction               |                                               |     |
| .....                                                                                                                   | WANG Geng, BAI Fuzhong                        | 389 |

|                                                                                                                                                     |                                                                       |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|
| Adaptive Output Feedback Dynamic Surface Control for a Class of Stochastic Nonlinear Systems                                                        | WANG Ranran, ZHANG Tianping, XIA Xiaonan, LI Shi                      | 395 |
| Solvability of State Feedback Based Output Regulation for Boolean Control Networks                                                                  | LI Haitao, WANG Yuzhen, GUO Peilian                                   | 401 |
| A Secure Communication Scheme Using Chaotic System Array                                                                                            | LI Jinlong, YANG Lun, LI Jia Gen, HE Mengju, ZHANG Qiang, YE MengJiao | 407 |
| Design of the Interfaces Using Approximate Simulation and Feedback Linearization                                                                    | YANG KaiHong, JI Haibo                                                | 413 |
| A Novel Saturated Attitude Controller for Rigid Body Subject to Bounded External Disturbances                                                       | HU Jinchang, ZHANG Honghua                                            | 425 |
| Chaotification of a Simple Linear System via Nonlinear Feedback                                                                                     | LAI Qiang, CHEN Shiming                                               | 431 |
| Fuzzy Adaptive Output Constrained Control for SISO Switched Nonlinear Systems in Pure Feedback Form                                                 | LI Yongming, TONG Shaocheng, SUI Shuai                                | 435 |
| Formulation of a Class of Networked Evolutionary Games with Switched Topologies                                                                     | ZHAO Guodong, WANG Yuzhen, DU Yingxue                                 | 441 |
| Distributed Formation Stabilization for Mobile Agents Using Virtual Tensegrity Structures                                                           | YANG Qingkai, CAO Ming, FANG Hao, CHEN Jie, HUANG Jie                 | 447 |
| Nonlinear Extended State Observer for Path Following Control of Underactuated Marine Surface Vessel                                                 | FU Mingyu, YU Lingling, LI Mingyang, XU Yujie, WANG Yuanhui           | 453 |
| Strong iISS for Neutrally Stable Systems by Saturated Linear State Feedback                                                                         | CHAILLET Antoine, CHITOUR Yacine                                      | 459 |
| Attitude Control for Target Searching of Kinetic Kill Vehicle                                                                                       | LI Guanghua, ZHANG Hongbo, TANG Guojian                               | 464 |
| Output-feedback Tracking Control for a Class of Nonlinear Non-minimumPhase Systems via Backstepping Method                                          | SU Shanwei                                                            | 475 |
| Autonomous Recovery Control of the UAV Spiral Based on Flight State-Cognition                                                                       | ZHOU Huan, ZHAO Hui, HUANG Han Qiao, HAN Tong, WANG Xiaofei           | 481 |
| Quaternion-based Output Feedback Attitude Control for Rigid Spacecraft with Bounded Input Constraint                                                | YU Yanbo, LI Bo, HU Qinglei                                           | 489 |
| Finite-time Attractivity of Manifold Based Immersion and Invariance Control for Inertia-Wheel Pendulum System                                       | ZHANG Xu, HUANG Xianlin, LU Hongqian                                  | 494 |
| Robust Trajectory Control for Unmanned Helicopter with Mismatched Disturbances via Novel Sliding Mode Control                                       | FANG Xing, WU Aiguo, DONG Na                                          | 500 |
| Spot Hover Control of Helicopter and Swing Control of Helicopter Sling Load by Using Zhang-Gradient Method                                          | LIAO Bolin, FANG Ying, ZHANG Yinyan, TAN Hongzhou, ZHANG Yunong       | 506 |
| Global Stabilization for Uncertain Nonholonomic Systems with Partial Inputs Saturation                                                              | GAO Fangzheng, WU Yuqiang, YUAN Fushun                                | 517 |
| Robust Decentralized Control of Interconnected Nonlinear Systems Subject to Uncertainties and Disturbances via Generalized Extended State Observers | ZHANG Chuanlin, YANG Ning, HE Shuaipeng, JIA Ruting                   | 522 |
| Adaptive Backstepping Control for Spacecraft Rendezvous on Elliptical Orbits                                                                        | LI Kun, JI Haibo, LIAO Fei                                            | 528 |
| Synchronization of Impulsive Hybrid Dynamical Networks                                                                                              | JI Yan, LIU Ximei                                                     | 533 |
| Fractional-order Sliding Mode-extremum Seeking Control Design with Fractional-order PI Sliding Surface                                              | YIN Chun, CHENG Yu Hua, ZHONG Shouming, CAO Jiuwen, LI Zhuo           | 539 |

|                                                                                                                         |                                                                  |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| An Improved Backstepping Based Controller with Integrators for the Quadrotor                                            |                                                                  |
| .....                                                                                                                   | LIN Penghong, CHEN Songlin, WANG Xiaochen 545                    |
| On Convergence of Extended State Observers for Discrete-Time Nonlinear Systems                                          |                                                                  |
| .....                                                                                                                   | HUANG Yuan, WANG Junzheng, SHI Dawei 551                         |
| Global Strong Stabilization for a Class of High-order Nonlinear Systems with Unknown Control Directions                 |                                                                  |
| .....                                                                                                                   | GUO Xi, LI Jing 557                                              |
| Synchronization of Two Chaotic Systems with Three or Two Inputs via ZG Method                                           |                                                                  |
| .....                                                                                                                   | ZHANG Yunong, LIU Ming, JIN Long, ZHANG Yinyan, TAN Hongzhou 563 |
| LMI Based Robust LSVF Stabilization of a Class of Nonlinear Systems                                                     |                                                                  |
| .....                                                                                                                   | SARKAR Chaity, SENGUPTA Aparajita 569                            |
| Contributions to Tracking Control for Mechanical Systems on SE(2)                                                       |                                                                  |
| .....                                                                                                                   | TAYEFI Morteza, GENG Zhiyong, SUN Junyong 575                    |
| Water Drops on Generic Lipschitz Continuous Surfaces in the Sense of Differential Inclusion Solutions                   |                                                                  |
| .....                                                                                                                   | HUO Xin, GUO Zhaosheng, ZHENG Kai 581                            |
| Modeling and Analysis of Epidemic Dynamics on an Adaptive Network                                                       |                                                                  |
| .....                                                                                                                   | GUO Peilian, WANG Yuzhen, LI Haitao 587                          |
| Angle Tracking of MEMS Hard-Magnetic Micromirror by PID Control                                                         |                                                                  |
| .....                                                                                                                   | ZUO Peng, LI Guanlin, XIE Wei, John T.W. Yeow 593                |
| Some Remarks on the Controllability of Linear Stochastic Systems                                                        |                                                                  |
| .....                                                                                                                   | SHEN Lijuan, LI Chunxiang, WANG Lei 598                          |
| Finite-dimensional Adaptive Observer Design for Uncertain Nonlinear Systems with Time Delays and Sampled Outputs        |                                                                  |
| .....                                                                                                                   | XIAO Xiao-Shi 602                                                |
| Global Practical Tracking by Output Feedback for Nonlinear Time-Delay Systems with Uncertain Polynomial Growth Rate     |                                                                  |
| .....                                                                                                                   | JIA Xianglei, XU Shengyuan 607                                   |
| Decoupling ARX Time-space Model Based GPC for Distributed Parameter System                                              |                                                                  |
| .....                                                                                                                   | LIU Pengfei, TAO Jili, WANG Xinguang 612                         |
| Uniformly Stability of Delay-dependent Linear Systems with Impulse Time Windows                                         |                                                                  |
| .....                                                                                                                   | FENG Yuming, LI Chuandong, HUANG Tingwen 618                     |
| Energy-Based Controller for Parallel-type Double Inverted Pendulums with Restricted Cart Rail Length                    |                                                                  |
| .....                                                                                                                   | ZHU Chenglong, WU Yuqiang 623                                    |
| T-S Fuzzy Modeling-Based Anti-Disturbance Tracking Control for Systems with Nonlinear Disturbances                      |                                                                  |
| .....                                                                                                                   | FAN XiangXiang, YI Yang, ZHANG Tianping, ZHENG Wei Xing 628      |
| I&I Based Command Filtered Back-stepping of Pure-feedback Systems in Presence of Non-linearly Parameterized Uncertainty |                                                                  |
| .....                                                                                                                   | JI Yuehui, ZONG Qun, NI Weichen, LI Junfang 634                  |
| Finite-time Stabilization for a Class of Fractional-Delay Nonlinear Systems                                             |                                                                  |
| .....                                                                                                                   | YANG Renming, WANG Yuzhen 640                                    |
| Adaptive Generalized Function Projective Synchronization of A Class of New Chaotic Systems                              |                                                                  |
| .....                                                                                                                   | JIA Nuo, WANG Tao, WANG Hui 646                                  |
| Finite-time Stability and Finite-time Boundedness for Switched Systems with Sector Bounded Nonlinearities               |                                                                  |
| .....                                                                                                                   | LIN Xiangze, LV Chengxu, LI Shihua, ZOU Yun 651                  |
| Adaptive Full-order Sliding Mode Control of Rigid Robotic Manipulators                                                  |                                                                  |
| .....                                                                                                                   | ZHAO Dongya, CAO Qianlei, LI Shurong, ZHU Quan-Min 657           |
| Stability and Stabilization of Markovian Jump Singular Systems with Partly Known Transition Probabilities               |                                                                  |
| .....                                                                                                                   | WEI Jumei, ZHANG Jian, MU Xiaowu, LIU Yungang 663                |

|                                                                                                                                               |                                                                       |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----|
| Diving Integrated Guidance and Control for Hypersonic Vehicle with Impact Angle Constraints                                                   | WANG Jianhua, LIU Luhua, TANG Guojian                                 | 669 |
| Hybrid Control of Linear Continuous Systems with Actuator Saturation                                                                          | JING Li, SHEN Fan Jie                                                 | 677 |
| Distributed Finite-time Consensus Tracking Control for Second-order Nonlinear Multi-agent Systems                                             | HE Xiaoyan, WANG Qingyun                                              | 681 |
| Indirect Adaptive Neural Network Dynamic Surface Control for Uncertain Time-delay Electrostatic Micro-actuator with State Constraint          | WU Xiaojing, WU Xueli, LUO Xiaoyuan                                   | 687 |
| A Novel Backstepping Control for Attitude of Fixed-wing UAVs with Input Disturbance                                                           | ZHAO Shulong, WANG Xiangke, KONG Weiwei, ZHANG Daibing, SHEN Lincheng | 693 |
| Global Output Regulation for a Class of Singular Nonlinear Systems                                                                            | HUANG Bomin, LAN Weiyao, LIN Dongyun, CAO Langcai                     | 698 |
| Robust Adaptive Attitude Control of Reentry Vehicle with Input Constraint and Uncertainty                                                     | WANG Fang, ZONG Qun, DONG Qi                                          | 704 |
| Asymptotic Attenuation and Rejection for Systems with General Periodic Disturbances via Nonlinear Disturbance Observer and $H_\infty$ Control | SUN Haibin, HOU Linlin, ZONG Guangdeng                                | 710 |
| Adaptive Non-Singular Terminal Sliding Mode Control for Structural Damaged Aircraft                                                           | JIA Peng, ZHANG Jing, YANG Lingyu                                     | 716 |
| Anti-windup Control for a Supercavitating Vehicle with Actuator Saturation Based on LPV                                                       | HAN Yuntao, QIANG Baochen, SUN Yao, BAI Tao                           | 721 |
| Multi-objective Optimization for Decentralized PI Control of the ALSTOM Benchmark Problem                                                     | HUANG Chun E, LI Donghai, LIU Zhongli, XUE Yali                       | 727 |
| Robust Stabilization of Discrete-time Systems with State Saturation                                                                           | JING Li, LEE Lisa                                                     | 733 |
| Adaptive Backstepping Trajectory Tracking Controller for a Small-Scaled Helicopter                                                            | ZOU Yao, HUO Wei                                                      | 737 |
| Disturbance Observer Based Active Synchronization of Energy Resource Chaotic System                                                           | WEI Wei, WANG Meng, LI Donghai                                        | 743 |
| A Nonlinear Control Method of Multi-input Multi-output Nonlinear Non-minimum Phase System                                                     | XU Jiao, QIAN Yanping, WANG Wancheng, JIN Xiaoxiao                    | 748 |
| Design and Analysis of Time-varying Extended State Observer                                                                                   | PU Zhiqiang, YUAN Ruyi, TAN Xiangmin, YI Jian-qiang                   | 753 |
| Canonical Forms for Stochastic Nonlinear Affine Systems with Unknown Parameters                                                               | LIU Haijun, DONG Yanyan, MU Xiaowu                                    | 759 |
| Terminal Sliding Mode Control with Disturbance Observer for Autonomous Mobile Robots                                                          | XU Kun, CHEN Mou                                                      | 765 |
| Backstepping-Based Attitude Control for a Quadrotor UAV Using Nonlinear Disturbance Observer                                                  | WEI Qingtong, WANG Honglin, WU Qingxian, CHEN Mou                     | 771 |
| Multivariable Fuzzy Genetic Controller for Stabilized Platform                                                                                | ZHANG Lanyong, CAO An, DU Yixuan, LI Bing                             | 783 |
| Estimation of Unknown Multi-Sinusoidal Disturbance Using Delay-Dependent Observer                                                             | WEN Xinyu, MA Jinmeng, GUO Lei, YAN Peng                              | 789 |
| Output Feedback Controller Design for a Class of Uncertain Feedforward Nonlinear Systems                                                      | SHANG Fang, LIU Yungang, ZHANG Guiqing, LI Chengdong                  | 795 |
| On the Ellipsoidal Invariant Set of Fractional Order Systems Subject to Actuator Saturation                                                   | LI Chuang, LU Jun-Guo                                                 | 800 |
| Stabilization for Singular Bilinear Systems                                                                                                   | LI Ping, XU Shengyuan                                                 | 806 |

|                                                                                                                                                                          |                                                                 |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----|
| Adaptive Hybrid Projective Synchronization Between Different Fractional-order Chaotic Systems with Parameter Uncertainty and Unknown Bounded External Disturbances ..... | XI Quan, MA Tiedong, GUO Dong, CUI Bing                         | 811 |
| Integral Terminal Sliding Mode Control for Uncertain Nonlinear Systems .....                                                                                             | LI Peng, MA Jianjun, GENG Lina, ZHENG Zhiqiang                  | 824 |
| Neural-observer-based Adaptive Control for Stochastic Nonlinear Time-delay Systems with Unknown Control Directions .....                                                 | YU Zhaoxu, LI Sugang, LI Fangfei                                | 829 |
| Group Consensus in Uncertain Networked Euler-Lagrange Systems with Acyclic Interaction Topology .....                                                                    | LIU Jun, XIANG Lan, ZHAO Liyun, ZHOU Jin                        | 835 |
| Positioning Control of a One-DOF Manipulator Driven by Pneumatic Artificial Muscles Based on Active Disturbance Rejection Control .....                                  | ZHAO Ling, LI Qi, YANG Hongjiu, LI HongBo                       | 841 |
| Back-stepping Control of Two-link Flexible Manipulator Based on Extended State Observer .....                                                                            | YU Yang, YUAN Yuan, FAN Xiaozhao, YANG Hongjiu                  | 846 |
| Parametrized Controller for Non-Canonical Form Nonlinear Systems Using Neural Networks .....                                                                             | ZHANG Yanjun, TAO Gang, CHEN Mou                                | 850 |
| Parallel Simultaneous Stabilization of a Class of Nonlinear Descriptor Systems with Actuator Saturation .....                                                            | SUN Liying                                                      | 856 |
| State Feedback Stabilization for a Class of Switched Feedforward Nonlinear Systems with Time-delay .....                                                                 | LIU Guopin, HUA Changchun                                       | 861 |
| Active Disturbance Rejection Control of Air-Breathing Hypersonic Vehicles Based on Backstepping Method .....                                                             | ZHANG Sai, WANG Qing, DONG Chao Yang, RAN Mao Peng              | 866 |
| Moment Error Minimized Direct Control Allocation for Redundant Reaction Wheel Configurations .....                                                                       | XU Kang, CHEN Xiao, GUO Yanning, MA Guangfu                     | 871 |
| A Decomposition Approach to Design Attitude Controller for Underactuated Reentry Vehicle .....                                                                           | NIE Wenming, WANG Zhi, LI Huifeng                               | 877 |
| Global Stabilization Control of Underactuated Ships with Input Saturation .....                                                                                          | HUANG Jiangshuai, WEN Changyun, WANG Wei, SONG Yongduan         | 883 |
| Anti-sway Control of an Overhead Crane with Persistent Disturbances by Lyapunov Method .....                                                                             | HE Bo, FANG Yongchun, SUN Ning                                  | 889 |
| Global Asymptotic Regulation Control by Output Feedback for A Class of Nonlinear Systems .....                                                                           | YU Jiangbo, SHI Alian, YAO Jianli                               | 895 |
| Gain-Scheduled $\mathcal{H}_2$ Tracking Control of Flexible Air-Breathing Hypersonic Vehicles with an LPV Model .....                                                    | CAI Guang-Bin, HE Hua-Feng, HAN Xiao-Jun, ZHOU Tao, HU Changhua | 901 |
| Non-singular Terminal Sliding Mode Controller for Spacecraft Attitude Stabilization .....                                                                                | LI Chuanjiang, JIANG Boyan, ZHU Qinghua, YU Chentao             | 907 |
| Delay-dependent Quantized Feedback Control for Nonlinear Systems with Time-varying Delay .....                                                                           | SONG Gongfei, LI Tao, MIAO Guoying                              | 913 |
| Design of Fuzzy Self-adaptive Controller Based on Anti-windup Supervisory Control .....                                                                                  | XU Wenwei, HE Hanlin, YAN Lu                                    | 918 |
| Position Control Method for a Planar Acrobot Based on Fuzzy Control .....                                                                                                | CAO Junqing, LAI Xuzhi, WU Min                                  | 923 |
| An Active Disturbance Rejection Controller Design for Ball and Plate System .....                                                                                        | DONG Zhenye, ZHANG Jie                                          | 928 |
| Passivity-Based Control of Tower Vibration of Offshore Wind Turbines .....                                                                                               | REN Lina, YANG Huanhuan, LIU Shuangshuang, LIU Fucui            | 934 |

|                                                                                                                                                         |                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| The First Stage Studies of U-State Space Control System Design                                                                                          |                                                                               |
| .....                                                                                                                                                   | LIU Xin, ZHU Quan-Min, NARAYAN Pritesh, YANG Ye 946                           |
| Robust Finite-time Synchronization of Chaotic Parametrically Excited Pendulums with Multiple Uncertainties                                              | ..... CHEN Yun, YE Qing, ZHOU Dawei, CHEN Lu 952                              |
| Global Stabilization via Sampled-Data Output Feedback Control for a Class of Nonlinear Systems Subject to Time-Delays                                   | ..... CHU Hongyan, QIAN Chunjiang, YANG Jiquan, XU Shengyuan, ZHA Wenting 957 |
| Attitude Stability Control of Quad-rotor Aerial Robot Base on Controlled Lagrangian Method                                                              | ..... GONG Xun, XU Dongfu 963                                                 |
| Disturbance and Plant Uncertainties Attenuation for a Class of Nonlinear Systems Using GPI Technique                                                    | ..... SUN Jiankun, YANG Jun, LI Shihua 967                                    |
| Fuzzy Graph Coloring via Semi-tensor Product Method                                                                                                     | ..... XU Meirong, WANG Yuzhen, JIANG Ping 973                                 |
| Parameter-Dependent H <sub>2</sub> State Estimation for Nonlinear Systems                                                                               | ..... YU Yin, LI Zhen, LIU Xiangdong, LIU Bing 979                            |
| Robust H-infinity Filtering for Nonlinear Discrete-Time Singular Markov Jump Systems with Time-Varying Delay                                            | ..... KULAN Zhumahan, WANG Jimin, MA Shuping 985                              |
| Adaptive Control for a Non-minimum Phase Hypersonic Vehicle Model                                                                                       | ..... YE Linqi, ZONG Qun, ZHANG Xiuyun 991                                    |
| Adaptive Control for Bilateral Teleoperation System under Input and Multi-state Constraints                                                             | ..... WANG Chen, YANG Yana, LI Yafeng, HUA Changchun, GUAN Xinping 997        |
| A Note on Observers Design for One-sided Lipschitz Nonlinear Systems.                                                                                   | ..... PAN Jinfeng, MENG Min, FENG Jun-e 1003                                  |
| Dynamic Matrix Control for Dynamic Positioning System of Ships                                                                                          | ..... HU Xin, WANG Rui, LIU Yongchao, DU Jialu 1008                           |
| A Study of Supercavitating Vehicles with Unconstant Cavitation Number Based on LPV                                                                      | ..... BAI Tao, ZHOU Xiaomao, HAN Yuntao, SUN Yao 1019                         |
| Semiglobal Stabilization via Output-Feedback for Non-Triangular Nonlinear Systems                                                                       | ..... LIU Mengliang, LIU Yungang, LI Fengzhong 1025                           |
| Near Minimum-Time Feedback Attitude Control with Multiple Saturation Constraints for Satellites                                                         | ..... XIN Xing, LI Zhen, LIU Xiangdong, CHEN Zhen 1031                        |
| Robust Adaptive Dynamic Surface Control for Nonlinear Systems with Output Unmodeled Dynamics                                                            | ..... SONG Mingchao, CAI Biao, HUANG Ran 1037                                 |
| Extended State Observer Based Nonsingular Terminal Sliding-mode Control for Non-sinusoidal Oscillation of Continuous Casting Mold Driven by Servo Motor | ..... LI Qiang, FANG Yi Ming, KANG Kesong, ZHENG Huicheng 1043                |
| Stability and Hopf Bifurcation Analysis in a Delay Swarms Model                                                                                         | ..... LIU Feng, YIN Xiang, LING Guang, GUAN Zhi-Hong, WANG Hua O. 1049        |
| Impact Angle Constrained Terminal Guidance Based on Continuous Nonsmooth Control Method                                                                 | ..... SUN Xiangyu, CHAO Tao, WANG Songyan, YANG Ming 1054                     |
| Study on Two Feedback Linearization Control Methods for the Magnetic Suspension System                                                                  | ..... CUI Peng, GUO Zhaoyu, LI Jie 1059                                       |
| Active Disturbance Rejection Control Design for Atomic Force Microscopy in Z-axis                                                                       | ..... WU Yinan, FANG Yongchun, REN Xiao, ZHANG Xuebo 1064                     |
| Mass Adaptive Controller Design for High Temperature Superconducting Levitation System Based on Feedback Linearization                                  | ..... LI Yajian, LI Jie, WANG LianChun 1070                                   |

|                                                                                                                                    |                                                              |      |
|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------|
| A General Observer Based Data-Driven Control for Nonlinear Discrete System .....                                                   | ZHAO Shulong                                                 | 1075 |
| A Nonlinear Formation Control of Wheeled Mobile Robots with Virtual Structure Approach .....                                       | LEI Chen, MA Baoli                                           | 1080 |
| Mobile Base Control for Motion Reconstruction of Orbiting Vehicles .....                                                           | GU Wanli, HU Yunfeng, GAO Bingzhao, CHEN Hong                | 1086 |
| Design of Active Disturbance Rejection Controller for Biarticular Legged Robot .....                                               | HE Xiao Long, SHI Ying Jing, LI Rui                          | 1092 |
| An ADRC Based Multiple Activated Anti-windup Design .....                                                                          | WU Xiongjun, CAI Kun                                         | 1097 |
| What is 1/0 in the General Sense of Physics, Applied Computation, And/or Electronics? .....                                        | ZHANG Yunong, QIU Binbin, LING Yingbiao, YANG Zhi, PENG Chen | 1105 |
| The Improved Method of Circuit Implement and Impulsive Synchronization for a New Chaotic System .....                              | ZHAO Peng, SHAN Liang, MIN Fuhong                            | 1111 |
| Freeway Traffic Density Control Based on Improved Particle Swarm Optimization Algorithm .....                                      | LU Qi, LIANG Xinrong                                         | 1117 |
| Robust Nonlinear Control for Hypersonic Vehicles Subject to Parameter Uncertainties and External Disturbances .....                | LI Kuo, DUAN Weijia, LIU Hao, YU Lingyi                      | 1122 |
| Adaptive Identification of Nonlinear Structure Uncertain Perturbation System via Different Time Scales Neural Networks .....       | FU Zhijun                                                    | 1128 |
| Global Finite-Time Tracking Control for Rigid Manipulators Based on Adding a Power Integrator .....                                | SAHABI MOHAMED, WANG Xiang-Yu, LI Shihua                     | 1134 |
| Global Output Feedback Stabilization for a Class of Uncertain Stochastic Nonlinear Retarded Systems with Markovian Switching ..... | ZHAO Guihua                                                  | 1140 |
| Adaptive Non-fragile Synchronization of the Lur'e Differential Inclusion System .....                                              | SHI Min Jie, HUANG Jun                                       | 1146 |
| Finite-Time Posture Control of a Unicycle Robot .....                                                                              | WANG Ping, LU Qiang, ZHAO Xiaodan, ZHANG Haojie              | 1151 |
| A Class of Non-affine Nonlinear Systems Adaptive Neural Networks Backstepping Control with Pure-feedback Prototype .....           | LI Yang, ZHANG Jianhua, WU Xueli                             | 1157 |
| Stabilization of Feedforward Systems with Both Discrete Delays and Distributed Delays .....                                        | LIU Qingrong, LIANG Zhishan, TAN Cheng, ZHANG Xianfu         | 1163 |
| Simulation and Analysis of Voltage Regulator Based on Fuzzy PID Control for Doubly Salient Electromagnetic Generator .....         | DAI Weili, MA Guanglian, DING Jun                            | 1168 |
| Force Synchronization of Multiple Robot Manipulators with Uncertain Contact Stiffness .....                                        | LIU Chao, ZHAO Dongya, XIANG Xianbo                          | 1173 |
| A Robust Invariant Observer Design for Invariant Vector Field System .....                                                         | LI Yunling, WANG Changhong, ZENG Ming                        | 1179 |
| Coal Washing Plant Cyclone Module Control with A Pump-Storage System .....                                                         | ZHANG Lijun, XIA Xiaohua                                     | 1185 |
| Attitude Control of Spherical Unmanned Aerial Vehicle Based on Active Disturbance Rejection Control .....                          | HU Gui, CHAI Senchun, CUI Lingguo, SUN Guangxiong            | 1191 |
| Tracking Error Constrained Adaptive Dynamic Surface Control for a Class of Uncertain Nonlinear Systems .....                       | DUAN Guangren, ZHANG Zhi-Kai, HOU Mingzhe                    | 1196 |
| On Small-controllability of a Discrete-time Nonlinear System .....                                                                 | TIE Lin                                                      | 1202 |
| A Sector Bound Approach to Event-based Control with State Quantization .....                                                       | ZHANG Pengpeng, LIU Tengfei, JIANG Zhong-Ping                | 1206 |

|                                                                                                   |                                                                      |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Disturbance-Observer-based Nonlinear Stabilization Control of Flexible Spacecraft Attitude System |                                                                      |
| .....                                                                                             | FU Rong, ZHOU Yanru, ZENG Jianping 1212                              |
| A Nonlinear Full Order Observer for Oscillator Tracking                                           |                                                                      |
| .....                                                                                             | HAUG Joshua, GOGURI Sairam, MUDUMBAI Raghuraman, DASGUPTA Soura 1217 |
| Design of Single Leg Foot Force Controller for Hydraulic Actuated Quadraped Robot Based on ADRC   |                                                                      |
| .....                                                                                             | XU Ke, LANG Lin, WEI Qing, MA Hongxu 1228                            |
| Distributed Event-Triggered Control for Constrained Multi-Agent Systems: Output Feedback Case     |                                                                      |
| .....                                                                                             | WU Xiongjun, MENG Ziyang 1234                                        |
| Finite-time Consensus Control of Nonlinear Mechanical Systems with Input Saturation               |                                                                      |
| .....                                                                                             | ZHOU Yong, HUANG Jiangshuai, GAO Tingting 1240                       |

### Complexity and Complex System Theory

|                                                                                                |                                                           |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Community Discovery Algorithm Based on Potential Energy in Complex Network                     |                                                           |
| .....                                                                                          | LIU Shuangshuang, WANG Hong 1246                          |
| Epidemic Spreading on Dualistic Social Networks                                                | ZHOU Yinzuo, WANG Xiaofan 1252                            |
| Lag Synchronization of Complex Dynamical Networks with Noise Coupling                          |                                                           |
| .....                                                                                          | SHI Hongjun, LI Wang, MIAO Lianying, SUN Yongzheng 1256   |
| Decentralized Event-Triggered Control for Rigid Formation Tracking                             |                                                           |
| .....                                                                                          | BAI Lu, CHEN Fei, LAN Weiyao 1262                         |
| Distributed Event-triggered Control for Coupled Nonholonomic Mobile Robots                     |                                                           |
| .....                                                                                          | QIU Yilong, CHEN Fei, XIANG Linying 1268                  |
| Effects of Migration in the Spatial Ultimatum Game                                             |                                                           |
| .....                                                                                          | WANG Baokui, CHEN Xiaojie, YU Junyan, WANG Long 1274      |
| Performance Analysis for Multi-valued Logical Networks                                         | MENG Min, FENG Jun-e 1280                                 |
| Control Design for Nonlinear Differential Inclusions Based on CLFs                             | LIN Yuhang, CAI Xiushan 1286                              |
| Intervention of DeGroot Model by Soft Control                                                  |                                                           |
| .....                                                                                          | HAN Huawei, QIANG Chengcang, WANG Caiyun, HAN Jing 1291   |
| A Cooperative Inverse Optimal Problem for Multi-Agent Systems with Output Feedback             |                                                           |
| .....                                                                                          | ZHENG Erli, CHEN Fei, XIANG Linying 1297                  |
| Event-triggered Coverage Control for Continuous-time Multi-agent Systems                       |                                                           |
| .....                                                                                          | XIE Jing, CHEN Fei, XIANG Linying 1303                    |
| Introducing Robustness in Controllability of Neuronal Networks                                 | TANG Yang, DU Wei 1309                                    |
| Evolution of the Internet at the Autonomous System Level                                       | YANG Dan, RONG Zhihai 1313                                |
| An Adaptive Dynamic Protocol for Distributed Convex Optimization                               |                                                           |
| .....                                                                                          | HUANG Aozhe, CHEN Fei, LAN Weiyao 1318                    |
| Guaranteed Cost State Estimation for Output-Coupling Complex Networks with Time-Varying Delays |                                                           |
| .....                                                                                          | PU Zhiping, WAN Youhong 1329                              |
| Small Noise May Diversify Collective Motion                                                    | CHEN Ge 1334                                              |
| Competition Between Two Sets of Agents on Complex Networks                                     |                                                           |
| .....                                                                                          | ZHAO Jiuhua, LIU Qipeng, WANG Lin, WANG Xiaofan 1340      |
| Modelling Temporal Patterns of News Report                                                     |                                                           |
| .....                                                                                          | YOU Zhiqiang, ZHU Yanyan, HAN Xiao-Pu, LU Linyuan 1345    |
| Complex Network Sampling Based on Particle Swarm Optimization                                  |                                                           |
| .....                                                                                          | HU Yang, GAO Qi, PAN Feng, LI Weixing, ZHANG Jinghai 1356 |

|                                                                                                     |                                                   |      |
|-----------------------------------------------------------------------------------------------------|---------------------------------------------------|------|
| Stability Analysis of A Class of Social Foraging Swarms with General Nonlinear Structure .....      | PAN Weiyun                                        | 1362 |
| Optimal Harvesting for a Kind of Fisheries with Interval Biological Parameters .....                | ZHANG Yi, ZHANG Qiaoling, LI Yuan, ZHANG Qingling | 1368 |
| The Characteristics Analysis of Two Phase Flow Based on Fuzzy Entropy .....                         | FAN Chunling, FAN Lichao, LI Haojie               | 1374 |
| Stability Analysis of Multi-agent System with Leaders and Time Delays under Gaussian Profiles ..... | PAN Weiyun, ZHENG Yufan                           | 1378 |

### Distributed Parameter Systems

|                                                                                                                          |                                        |      |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------|
| Solvability Problem of Nonlinear Singular Distributed Parameter Systems .....                                            | GE Zhaoqiang                           | 1384 |
| Boundary Control Design and Stability Analysis of an Euler-Bernoulli Beam with Input Backlash .....                      | HE Xiuyu, HE Wei, QIN Hui, LIU Chang   | 1389 |
| Exact Controllability of the Euler-Bernoulli Plate with Variable Coefficients and Mixed Boundary Conditions .....        | YANG Fengyan, YAO Pengfei              | 1395 |
| Suboptimal Guaranteed Cost Fuzzy Control Design for Nonlinear ODE Coupled with Semi-Linear Parabolic PDE System .....    | ZHU Huanyu, WU Huai-Ning, WANG Jun-Wei | 1401 |
| Periodically Intermittent Sampled-data Control of a Class of Diffusion Neural Networks .....                             | LUO Shixian, CHEN Wu-Hua, LU Xiaomei   | 1407 |
| Adaptive Stabilization to A Class of Coupled PDE - ODE Systems .....                                                     | LI Jian, LIU Yungang                   | 1413 |
| Stabilization of Hybrid PDE-ODE Systems with Harmonic Disturbances .....                                                 | XU Zaihua, LIU Yungang                 | 1419 |
| The Exponential Stability of an Unstable ODE with Compensation of a Heat Equation Through Neumann Interconnections ..... | ZHAO Dong-Xia, WANG Jun                | 1425 |
| Reliability Analysis for Dust Removing Repairable System of Scraper Settling Chamber .....                               | ZHAO Zhixin, TANG Hui, DONG Yanqin     | 1431 |

### Stability and Stabilization

|                                                                                                                                      |                                                              |      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------|
| Refined Stability of a Class of CDFE with Distributed Delays .....                                                                   | LI Hongfei                                                   | 1435 |
| Delay-dependent Local Stabilization of Uncertain Input-delayed Systems with Actuator Saturation and Bounded Disturbances .....       | FAN Jinhua                                                   | 1441 |
| Partial Stabilization for Boolean Network with State Feedback Control .....                                                          | LI Fangfei, ZHAO Shouwei, LI Chunxiang, YU Zhaoxu            | 1447 |
| Novel Delay-dependent $H_\infty$ State Estimation for Static Neural Networks with Time-varying Delay .....                           | SHI Kaibo, ZHU Hong, ZHONG Shouming, ZENG Yong, ZHANG Yuping | 1451 |
| Lyapunov Function Method for Linear Fractional Order Systems .....                                                                   | ZHAO Yige, WANG Yuzhen, LIU Zhi                              | 1457 |
| Finite-time Stability for Positive Switched Linear Systems with Multi-equilibrium .....                                              | LIU Zhi, WANG Yuzhen, ZHAO Yige                              | 1462 |
| Absolute Global Exponential Stability in Lagrange Sense of Genetic Regulatory Networks with Hybrid Regulatory Mechanism .....        | ZHEN Fangxiong, TIAN Senping, ZHOU Guopeng                   | 1467 |
| On Strong Stabilization for Linear Time-varying Systems .....                                                                        | XU Xiaoping, SUN Minhui                                      | 1473 |
| Delay Distribution Dependent Output Feedback Stabilization Criteria for Discrete-time Systems with Interval Time-varying Delay ..... | XIAO Nan, MA Yuan                                            | 1478 |

|                                                                                                                |                                                                             |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Interval Stabilization of Stochastic Markov Jump Systems                                                       |                                                                             |
| .....                                                                                                          | ZHU Meijun, SHENG Li, WANG Yuhong 1483                                      |
| New Result on Delay-range-dependent Stability Analysis for Linear System with Interval Time-varying Delay      |                                                                             |
| .....                                                                                                          | ZHANG Yan, GE Yuan, LOU Ke, JIANG Ming 1489                                 |
| Lyapunov Uniform Stability and Stabilization of Fractional Order Positive Time Delay Systems                   |                                                                             |
| .....                                                                                                          | ZHANG Junfeng, CHEN Yun, ZHOU Shaosheng, LU Renquan 1493                    |
| Stability of the Time Varying Singular Distributed Parameter Systems in Hilbert Spaces                         |                                                                             |
| .....                                                                                                          | GE Zhaoqiang 1499                                                           |
| Synchronization of Fractional Order Lorenz Systems Based on Passive Control                                    |                                                                             |
| .....                                                                                                          | DAI Zhuxiang, LI Tao, YU Wenwen, WU Qingqing 1505                           |
| Simultaneous $H_\infty$ Stabilization for Uncertain Systems                                                    |                                                                             |
| .....                                                                                                          | LIN Hai, WANG Jingcheng 1511                                                |
| Stability Analysis for Sampled-Data Control Systems Using the Input Delay Method                               |                                                                             |
| .....                                                                                                          | QIU Fang, CAO Jinde, CHEN Xiangyong 1517                                    |
| Simultaneous Stabilization for a Collection of Multi-input Nonlinear Time-delay Systems                        |                                                                             |
| .....                                                                                                          | ZHANG Jialing, BAO Jundong 1522                                             |
| Pseudo-Predictor Feedback Control of Discrete-Time Linear Systems with a Single Input Delay                    |                                                                             |
| .....                                                                                                          | ZHOU Bin, YANG Xuefei, LAM James 1527                                       |
| Stabilization of Switched Boolean Control Networks by State Feedback                                           |                                                                             |
| .....                                                                                                          | DING Yong, GUO Yuqian, XIE Yongfang, YANG Chunhua, GUI Weihua 1533          |
| Exponential Stability for Switched Discrete-time Nonlinear Cascade Systems with Time-varying Delays            |                                                                             |
| .....                                                                                                          | GUO Kai, ZHANG Xiaoli 1539                                                  |
| Further Improvement of Wirtinger-based Integral Inequality for Systems with Time-varying Delay                 |                                                                             |
| .....                                                                                                          | ZHANG Xian, GONG Cheng 1545                                                 |
| Exponential Stability of Switched Nonlinear Cascade Systems with Time-delay                                    |                                                                             |
| .....                                                                                                          | ZHENG Wei, ZHANG Xiaoli 1550                                                |
| Control of Singular Markovian Jump Systems with Time-Delay                                                     |                                                                             |
| .....                                                                                                          | YAN QiuLin, SU Xiaojie, SONG Yongduan, CAO Meiling 1555                     |
| Global Finite-time Stabilization via Output-feedback for a Class of Stochastic Nonlinear Systems               |                                                                             |
| .....                                                                                                          | WANG Huan, LI Jianchao, LIU Shujun 1559                                     |
| Stabilization of a Class of Takagi-Sugeno Fuzzy Control Systems via Piecewise Fuzzy Lyapunov Function Approach |                                                                             |
| .....                                                                                                          | LIU Xiao-Lu, YANG Wu, XIAO Jiang-Wen, WANG Yan-Wu 1565                      |
| On the Absolute Stability of Nonlinear ADRC for SISO Systems                                                   |                                                                             |
| .....                                                                                                          | LI Jie, QI Xiaohui, XIA Yuanqing, MA Dailiang, LI Shengfei, XU Yingwei 1571 |
| State Estimation of Recurrent Neural Networks with Two Markovian Jumping Parameters and Mixed Delays           |                                                                             |
| .....                                                                                                          | REN Jiaojiao, ZHU Hong, ZHONG Shouming, ZENG Yong, ZHANG Yuping 1577        |
| First-order Consensus Problem for Multi-agent Systems with Communication Delay                                 |                                                                             |
| .....                                                                                                          | WANG Zhenhua, LIU Limei, ZHANG Huanshui 1583                                |
| Stability Analysis for Discrete-Time Two-Dimensional Switched Systems                                          |                                                                             |
| .....                                                                                                          | YANG Rongni, WU Ligang, SHI Peng 1588                                       |
| Novel Stability Result of Discrete-time Systems with Time-varying Delay                                        |                                                                             |
| .....                                                                                                          | FENG Zhiguang, ZHENG Wei Xing 1594                                          |
| Set Invariance Analysis for Lipschitz Discrete-time Singular Systems with Actuator Saturation                  |                                                                             |
| .....                                                                                                          | ZHOU Lei, LIU Shuijing, XIAO Xiaoqing, LU Guoping 1600                      |
| Feedback Stabilization of MIMO Systems in the Presence of Stochastic Network Uncertainties and Delays          |                                                                             |
| .....                                                                                                          | QI Tian, CHEN Jie, SU Weizhou, FU Minyue 1605                               |

|                                                                                                                                    |                                                            |      |
|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------|
| Robustness of the Characteristic Model-based Golden-Section Adaptive Control .....                                                 | HUANG Huang                                                | 1613 |
| Control Limitation of a Three-loop Acceleration Autopilot .....                                                                    | FAN Jun-fang, CHEN Ying, DONG Si-yu                        | 1619 |
| Global Exponential Stability of Impulsive Delayed Reaction-Diffusion Cohen-Grossberg Neural Networks via Poincaré Inequality ..... | ZHANG Yutian, XUE Yan-Mei                                  | 1624 |
| Stability for Impulsive Interconnected Large Scale Systems with Time-delay .....                                                   | LIU Yunlong, WANG Juan, LIU Lijun, GU Shanmao, GAO Cunchen | 1630 |
| Further Results on Mixed-delay-dependent Robust Stability for Uncertain Linear Neutral Systems .....                               | CHEN Yonggang, KONG Linlin, GU Zhou                        | 1635 |
| Exponential Stability of Linear Switched Positive Systems with Distributed Delays .....                                            | ZHENG Yan, WANG Yaonan                                     | 1639 |

### Stochastic Systems

|                                                                                                                                  |                                                    |      |
|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------|
| Relationship Between MP and DPP for Stochastic Differential Games with $g$ -Expectation .....                                    | SHI Jingtao                                        | 1644 |
| Estimation for Drift Parameters of CIR Model from Discrete Observations .....                                                    | WEI Chao, SHU Huisheng                             | 1650 |
| Almost Sure and Moment Exponential Stability of Euler-Maruyama Method for Non-autonomous Stochastic Differential Equations ..... | MO Haoyi, DENG Feiqi, REN Hongwei                  | 1655 |
| Non-fragile Guaranteed Cost Control for Stochastic Systems with Delay-range-dependent .....                                      | SU Yakun, YE Fengtong                              | 1660 |
| Inferring Topologies of Complex Dynamical Networks with Stochastic Perturbations and Coupling Delay .....                        | WANG Yingfei, WU Xiaoqun, LU Jinhu                 | 1666 |
| Observation-based Performance Sensitivity Analysis for POMDPs .....                                                              | JI Zhe, JIANG Xiaofeng, XI Hongsheng               | 1671 |
| Sliding Mode Control for Markovian Jump Systems with External Disturbance .....                                                  | YAO Deyin, ZHOU Qi, GAO Yabin, WU Chengwei         | 1677 |
| An Indefinite Stochastic Linear Quadratic Optimal Control Problem for the FBSDE System with Jumps .....                          | LI Na, WU Zhen, YU Zhiyong                         | 1682 |
| State-feedback Stabilization for Stochastic High-order Nonholonomic Systems with Markovian Switching .....                       | DU Qinghui, WANG Chaoli, XU Weidong, ZHANG Dongkai | 1687 |
| A Non-Zero Sum Differential Game of BSDE with Time-Delayed Generator .....                                                       | SHI Jingtao, WANG Guangchen                        | 1693 |
| Global Stabilizing Control for A Class of Stochastic High-order Nonlinear Systems with Unknown Control Direction .....           | ZHANG Jian, MU Xiaowu, WEI Jumei, LIU Yungang      | 1699 |
| Finite-time Synchronization of Coupled Stochastic Partial Differential Systems .....                                             | WANG Jian, WU Kai-Ning, PAN Pei-Liang              | 1705 |
| $l_2 - l_\infty$ filtering for 2-D Markov jump systems in FM model under asynchronous switching .....                            | WANG Xinwei, ZHANG Ying, ZHANG Rui                 | 1710 |
| Application of Hidden Markov Model to Locate Soccer Robots .....                                                                 | QIU Ji, ZHU Quan-Min, ZHAO Dongya                  | 1716 |
| Stabilization of High Order Stochastic Nonholonomic Systems .....                                                                | ZHU Quanxin, WANG Hui                              | 1722 |
| Existence, Uniqueness and Stability of Stochastic Neutral Functional Differential Equations of Sobolev-type .....                | ZHU Quanxin, YANG Xuetao                           | 1728 |

|                                                                                                                                                                                 |                                                   |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------|
| Event-based Filtering with Individual Triggering Thresholds in Wireless Sensor Network: Distributed Detectability Analysis .....                                                | LIU Qinyuan, WANG Zidong, HE Xiao, ZHOU Donghua   | 1734 |
| State Estimation for a Class of Nonlinear Discrete-Time Complex Networks Subject to False Data Injection Attacks .....                                                          | ZOU Lei, WANG Zidong, DONG Hongli, DING Derui     | 1740 |
| Fault Diagnosis and Model Reference Tracking Fault-tolerant Control for the Non-Gaussian Nonlinear Stochastic Distribution Control System Using Takagi-Sugeno Fuzzy Model ..... | LEI Chunhui, CHEN Shuli, YAO Lina                 | 1746 |
| the Applied Research of Hydrofoil Catamaran Attitude Estimation Based on the Fusion Filtering .....                                                                             | CHEN Hongli, SONG Jinghui, CHEN Yuwei             | 1758 |
| Stabilization of Continuous-time Randomly Switched Systems via the LMI Approach .....                                                                                           | WANG Guoliang                                     | 1764 |
| Synchronization of Delayed Multi-Agent Systems over Uncertain Networks .....                                                                                                    | WANG Fan, LIANG Jinling, GONG Weiqiang, MA Lifeng | 1769 |
| Input-to-state Stability Analysis of Impulsive Stochastic Neural Networks Based on Average Impulsive Interval .....                                                             | YAO Fengqi, CAO Jinde, QIU Li, CHENG Pei          | 1775 |
| On Periodically Intermittent Stabilization of Stochastic Delayed Neural Networks .....                                                                                          | JIANG Yan, CHEN Wu-Hua, LUO Shixian               | 1781 |
| Exponential Stability of Markovian Jumping Stochastic Cohen-Grossberg Neural Networks with Mixed Time Delays and Impulses .....                                                 | CHENG Pei, SHANG Lei, YAO Fengqi                  | 1793 |
| Input-to-state Stability for Discrete-time Stochastic Nonlinear Systems .....                                                                                                   | ZHAO Ping, ZHAO Yan, GUO Rongwei                  | 1799 |
| Event-Based State Estimation for A Class of Nonlinear Discrete-Time Complex Networks with Stochastic Noises .....                                                               | WANG Licheng, WANG Zidong, WEI Guoliang, SONG Yan | 1804 |
| Delay-dependent Stochastic Stability for Markov-type Genetic Regulatory Network with Partial Information on Transition Probabilities .....                                      | ZHANG Yan, LOU Ke, LI Yaoyiran                    | 1810 |
| Constrained Model Predictive Control for Markov Jump System with Disturbances .....                                                                                             | ZHANG Yueyuan, YIN Yanyan, LIU Fei                | 1816 |
| An Improved Algorithm for Convex Optimal Uncertainty Quantification with Polytopic Canonical Form .....                                                                         | LI Ming, WEN Chenglin                             | 1822 |
| Output Feedback Stabilization of Stochastic Linear Systems with Markovian Switching and Uncertain Transition Jump Rates .....                                                   | XIAO Dawei, ZHAI Junyong, ZHA Wenting, AI Weiqing | 1827 |
| Observer-based Finite-time Controller for Markov Jump Systems with Deterministic Switches .....                                                                                 | ZHOU Chaojie, LUAN Xiaoli, LIU Fei                | 1833 |
| Adaptive Output-Feedback Control for Stochastic Robot System Based on Neural Network .....                                                                                      | MIN Huifang, DUAN Na, ZHANG Zhaojun               | 1839 |
| Mean Field Team Decision Problems for Markov Jump Multiagent Systems .....                                                                                                      | WANG Bingchang                                    | 1845 |
| Finite-time Control of Linear Stochastic Delay Switched Systems .....                                                                                                           | CHEN Yun, LIU Qinwen, LU Renquan, ZOU Hongbo      | 1851 |

### System Modeling and Identification

|                                                                                                                          |                             |      |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------|------|
| Dual Optimization Design in Formation Keeping Trajectory of Multi UAV .....                                              | WANG Jianhong, ZHU Yonghong | 1862 |
| Combining Deterministic Generalized Orthonormal Basis Filters with Stochastic ARMA Filters: A State Space Approach ..... | SEBAN LALU, ROY B. K.       | 1867 |

|                                                                                                                     |                                                                                          |      |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------|
| Identification of Wiener Nonlinear Systems Using the Key-term Separation Principle and the Filtering Approach ..... | SHI Zhenwei, JI Zhi-cheng                                                                | 1878 |
| Observer-based Unknown Input and Measurement Noise Estimations for a Class of Nonlinear Systems .....               | CHEN Yantao, HAI Linpeng, YANG Junqi                                                     | 1886 |
| An Adaptive Soft Sensor Based on Multi-State Partial Least Squares Regression .....                                 | GUO Wei, PAN Tian-Hong                                                                   | 1892 |
| A New Optimization Method for Linear Parameter Varying Modeling of Wind Turbines .....                              | WU Dinghui, SONG Jin, JI Zhi-cheng, PAN Tinglong, SHEN Yanxia                            | 1897 |
| The Prediction Method for Battery Open Circuit Voltage Based on GM (1, 1) Grey Model .....                          | LI Zeyuan, SHANG Yunlong, CUI Naxin, ZHANG Chenghui                                      | 1902 |
| Flexible Model of a Hypersonic Vehicle Based on the Influence of Velocity Field and Axial Forces .....              | CHEN Yao, WEI Yiyin, DUAN Guangren                                                       | 1913 |
| Temperature Control Strategy Based on a Heat and Mass Transports Model in Microwave Drying .....                    | YUAN Yupeng, LIANG Shan, ZHONG Jiaqi, XIONG Qing Yu, GAO Min                             | 1924 |
| The Physical Modeling and Simulation of Soft Tissue Deformation Based on LSSVM .....                                | WANG Tian, ZHAO Fang, LI Zhuqiang, WANG Yutong, HAN Jinliang                             | 1929 |
| C2 Entity Agent Modeling Based on OOFPN Approach .....                                                              | WU Chenghai, LI Xiong, PU Wei                                                            | 1935 |
| An Excitation Signal Design for Identification with the Amplitude Constraints .....                                 | WANG Di, SHEN Jiong, LI Yiguo, WU Xiao                                                   | 1941 |
| Online Prediction of Unburned Carbon Content in Fly Ash with Clustering LS-SVM Models .....                         | SHI Weijing, WANG Jingcheng, SHI Yuanhao, ZHAO Guanglei                                  | 1947 |
| Bias Compensation Based Hierarchical Parameter Estimation for Dual-rate Sampled Systems with Colored Noises .....   | DING Jie, DONG Chunrong, YANG Yang                                                       | 1953 |
| Mechanism Analysis of Pneumatic Damping Prostheses Knee .....                                                       | YANG Peng, ZHENG Letao, CHEN Lingling                                                    | 1958 |
| Model Reduction of T-S Fuzzy Systems with Time-Varying Delays .....                                                 | ZHOU Hongying, SU Xiaojie, SONG Yongduan, LIU Xinxin                                     | 1963 |
| An Online Parameter Estimation Method for a Class of Nonlinear Systems Based on Particle Filter .....               | XIE Guo, ZHANG Dan, HEI Xinhong, QIAN Fucui                                              | 1967 |
| Modeling of Nonlinear Dynamical Systems Based on Deterministic Learning and Structural Stability .....              | CHEN Danfeng, WANG Cong                                                                  | 1973 |
| Natural Gradient Learning Algorithms for Nonlinear Systems .....                                                    | ZHAO Junsheng, XIA Jianwei, ZHUANG Guangming, ZHANG Huasheng                             | 1979 |
| A Simulation Platform for Characteristic Model-Based Adaptive Control Systems .....                                 | SHI Liangren, LIN Zongli, LI Yuanlong                                                    | 1984 |
| A New Procedure for Analysis and Modelling of Male Urine Flow Rate .....                                            | RUI Li, ANDREW Gammie, ZHU Quan-Min, MOKHTAR Nibouche, JANICE Kiely                      | 1996 |
| Simplified State-space Model and Validation of Irrigation Canal Systems .....                                       | ZOU Yanggui, CEN Lihui, LI Dewei, HE Xingyao                                             | 2002 |
| Modeling and Simulation of a Vector-driven Stratospheric Satellite .....                                            | ZHENG Zewei, XU Ming                                                                     | 2008 |
| Optimal FOLPD Approximation by GAs and an Assessment Method ....                                                    | ZHAO Xiu-wei, YI Zhongbo                                                                 | 2013 |
| A Reinforcement Learning Approach for QoS/QoE Model Identification .....                                            | CANALE Silvia, DELLI PRISCOLI Francesco, MONACO Salvatore, PALAGI Laura, SURACI Vincenzo | 2019 |
| State Estimation for a Class of Non-uniform Sampling Systems .....                                                  | LIN Honglei, SUN Shuli                                                                   | 2024 |

|                                                                                                                                |                                                                |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Research on PEMFC Fractional Model Based on an Improved Genetic Algorithm                                                      |                                                                |
| ..... BIAN Huijuan, QI Zhidong, XU Shengyuan, LENG Boyang, SHAN Liang                                                          | 2028                                                           |
| Latest Estimation Based Recursive Stochastic Gradient Identification Algorithms for ARX Models                                 |                                                                |
| ..... WU Ai-Guo, FU Fang-Zhou, TENG Yu                                                                                         | 2033                                                           |
| Research on Electrical Characteristics of State Space Modeling and Parameter Identifying of PEMFC                              |                                                                |
| ..... LENG Boyang, QI Zhidong, XU Shengyuan, BIAN Huijuan, SHAN Liang                                                          | 2039                                                           |
| A Community Evolution Model Based on Visibility Graph                                                                          | ..... WANG Hong, SUN Yanshen                                   |
|                                                                                                                                | 2045                                                           |
| The Application of Design of Experiments Method in Modeling for Complex System                                                 |                                                                |
| ..... JIANG Wenping, XU Yiwen, SANG Jian , ZHAO Yongping, TANG Xueqi                                                           | 2050                                                           |
| Adaptive Uncertainty Identification with Neural Network                                                                        |                                                                |
| ..... ZHANG Yumin, TENG Fei, LIANG Guiqin, WANG Zhiqiang                                                                       | 2055                                                           |
| An Inerter-based Electromagnetic Device and Its Application in Vehicle Suspensions                                             |                                                                |
| ..... HU Yinlong, DU Hao, CHEN Michael Z. Q.                                                                                   | 2060                                                           |
| Application of Inerter to Aircraft Landing Gear Suspension                                                                     |                                                                |
| ..... DONG Xin, LIU Yuance, CHEN Michael Z. Q.                                                                                 | 2066                                                           |
| Neural Network Based Load Prediction Model for an Ultra-Supercritical Turbine Power Unit                                       |                                                                |
| ..... MA Liangyu, CHENG Lei                                                                                                    | 2072                                                           |
| Research on the Compensation in MEMS Gyroscope Random Drift Based on Time- Series Analysis and Kalman Filtering                | ..... SHANGGUAN Yong, CHEN Jiabin, SONG Chunlei, HAN Yongqiang |
|                                                                                                                                | 2078                                                           |
| Recursive Nonparametric Regression with Errors in Variables                                                                    | ..... CHEN Xing-Min, GAO Chao                                  |
|                                                                                                                                | 2088                                                           |
| Dynamic Modeling and Validation of the Boiler-side Whole Process of Subcritical Coal-fired Power Plants                        |                                                                |
| ..... XU Liang, YUAN Jingqi                                                                                                    | 2093                                                           |
| Online Identification of Time-variant Parameters Using the Frequency Transform Regressive Method                               |                                                                |
| ..... LU Xingju, GUO Hongwu, ZHENG Zhiqiang                                                                                    | 2099                                                           |
| Additive Cascaded Model Identification of Linear and Nonlinear Dynamics of Piezoelectric Actuator                              |                                                                |
| ..... QI Chenkun, GAO Feng, ZHAO Xianchao, YUE Yi, DONG Yi                                                                     | 2112                                                           |
| Online Performance Monitoring and Diagnosis Based on RTSID and KPLS                                                            |                                                                |
| .. WANG Jian-Guo, WANG Jialong, ZHAO Jinghui, MA Shiwei, RAO Wen-Tao, ZHANG Yong-Jie                                           | 2118                                                           |
| Network Reconstruction Based on Compressive Sensing                                                                            | ..... YANG Jiajun, YANG Guanxue                                |
|                                                                                                                                | 2123                                                           |
| Research on Hierarchical Modular ESN and Its Application                                                                       | ..... LI Dingyuan, LIU Fu, QIAO Jun Fei                        |
|                                                                                                                                | 2129                                                           |
| An Asynchronous Tracking Systems Modeling and Its Application in Tracking Performance Analysis for Hypersonic Aircraft Vehicle | ..... LIU Weifeng, WEN Chenglin, CUI Hailong                   |
|                                                                                                                                | 2134                                                           |
| Integration of the Real-time Simulation Systems into the Enterprise Information System                                         |                                                                |
| ..... AKSYONOV Konstantin, BYKOV Eugene, AKSYONOVA Olga                                                                        | 2140                                                           |
| Prospects for Simulation in Industrial Engineering                                                                             |                                                                |
| ..... AKSYONOV Konstantin, BYKOV Eugene, AKSYONOVA Olga                                                                        | 2146                                                           |
| Track Correlation Based on the Quasi-consistent Extended Kalman Filter                                                         |                                                                |
| ..... HE Xingkang, JIANG Yanguang, XUE Wenchao, FANG Hai-Tao, HUANG Yi                                                         | 2150                                                           |
| An Extension on the Quantized Input Condition for FIR Systems Identification with Quantized Observations                       | ..... HE Yanyu, GUO Jin, ZHAO Yanlong                          |
|                                                                                                                                | 2156                                                           |

## Hybrid Systems and DEDS

|                                                            |      |
|------------------------------------------------------------|------|
| Switching Control of Two Three-dimensional Chaotic Systems |      |
| ..... SUN Changchun, XU Qicheng, AI Ying                   | 2161 |

|                                                                                                                             |                                                                |      |
|-----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------|
| $H^\infty$ Performance Realization and Switching Controller Design .....                                                    | XIE Wei, Kone Penantcha                                        | 2166 |
| Event-e-ISS for Discrete-time Impulsive Dynamical Networks .....                                                            | LIU Bin, SUN Zhijie, LIU Dongnan, LIAO Xiang Ping              | 2172 |
| Globally Stabilizing Feedback Control of Nonlinear Switched Systems With Time Delays .....                                  | XU Honglei, ZHANG Yi                                           | 2178 |
| Robust Stochastic Stability Analysis for Positive Discrete-time Markov Jump Delay Systems with Delayed Impulses .....       | LI Shuo, XIANG Zhengrong                                       | 2182 |
| Optimal Control Strategy for Discrete-time MJLS with Controllable Markov Chain and Gaussian White Noise .....               | WANG Yewen, ZHU Jin, XIE Wanqing                               | 2188 |
| Controller Performance Assessment for Switched Linear Systems via Applying Non-Negative Tensor Factorization .....          | JIANG Dengyin, HU Lisheng                                      | 2194 |
| Tensor-based Performance Assessment of Switched Control Systems with Time-varying Disturbance Dynamics .....                | JIANG Dengyin, HU Lisheng                                      | 2200 |
| $H_\infty$ Reliable Control for Markovian Jump Systems with Actuator Failures and a Turbofan-engine Application .....       | YANG Dong, ZHAO Jun, DIMIROVSKI Georgi                         | 2206 |
| Composite Nonlinear Impulsive Control for Switched Singular Systems .....                                                   | LI Can, LIAN Jie                                               | 2212 |
| Iterative Learning Control of Perfect Tracking for the Variable Trajectory Driven by DFSM .....                             | LI Junmin, YAO Lihong                                          | 2218 |
| State Feedback Control for Switched LPV Systems with Actuator Saturation and Its Application to Aero-engines .....          | ZHU Kongwei, ZHAO Jun, DIMIROVSKI Georgi                       | 2224 |
| Finite-time Stability of Interconnected Impulsive Switched Systems .....                                                    | REN Hangli, HOU Linlin, ZONG Guangdeng                         | 2229 |
| Modeling and Predictive Control of Greenhouse Temperature-Humidity System Based on MLD and Time-Series .....                | MA Guoqi, QIN Linlin, LIU Xinghua, WU Gang                     | 2234 |
| Adaptive Control of Stochastic Switched Nonlinear Systems .....                                                             | JIANG Jingxiang, NIU Ben, LIU Lina Liu, HAN Zhaoyu             | 2245 |
| Almost Sure Stabilization for Linear Switching Stochastic Systems Against Time-Delay in Detection of Switching Signal ..... | CONG Shen, LV Dongfang, DUAN Guanquan, WANG Shigang, BI Yongli | 2251 |
| Stability and Stabilization of Discrete-time Linear Systems with Nearly-periodic Impulses .....                             | WEI Linna, CHEN Wu-Hua, LU Xiaomei, HUANG Ganji                | 2257 |
| Online Computation of Supremal Relatively Observable Sublanguage of Discrete-Event Systems .....                            | ZHANG Renyuan, CAI Kai                                         | 2263 |
| Optimal Control of Discrete-time Bilinear Systems with Applications to Switched Linear Stochastic Systems .....             | HUANG Ran, ZHANG Jinhui, LIN Zhongwei                          | 2268 |
| On $\mathcal{KL}_*$ -Stability via Hybrid-event-time for Hybrid Dynamical Systems .....                                     | LIU Bin, HILL David J., LIAO Xiang Ping, LIU Dongnan           | 2274 |
| The Finite-time Stability of Nonlinear Impulsive Delay Systems .....                                                        | CAI Yingying, GAO Lijun                                        | 2279 |
| Interval State Observer for Nonlinear Switched Systems with Average Dwell Time .....                                        | HE Zhongwei, XIE Wei                                           | 2285 |
| Regulation/protection Switching Control for an Aeroengine by Using the $L_2$ Bumpless Transfer Approach .....               | QI Yiwen, BAO Wen, HU Jiaming, CHANG Juntao, CUI Jianguo       | 2289 |
| An Improved Command Switching Controller Design for Turbofan Aero-engine .....                                              | ZHAO Chunhao, SUN Xi-Ming, CHEN Chao, ZHAO Jun                 | 2294 |
| Stabilization of Discrete-Time Switched Systems with All Unstable Modes .....                                               | WANG Yijing, ZOU Yanchao, LI Shulan, ZUO Zhiqiang              | 2299 |

|                                                                                                        |                                          |      |
|--------------------------------------------------------------------------------------------------------|------------------------------------------|------|
| Explicit Model Predictive Control of CSTR System Based on PWA Model .....                              | YANG Pu, WANG Yuhong                     | 2304 |
| Sampled-data Group Synchronization of Coupled Harmonic Oscillators Subject to Controller Failure ..... | ZHAO Liyun, XIANG Lan, LIU Jun, ZHOU Jin | 2309 |
| Stabilization of Discrete-Time Switched Linear Systems Based on Average Passivity .....                | MA Dan                                   | 2315 |
| Dynamics of Discrete-Time Homogeneous Switched Systems with Delays and Perturbations .....             | LIU Xingwen, YANG Jinxiang               | 2321 |

## Optimal Control

|                                                                                                                        |                                                                   |      |
|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------|
| Research on Response Characteristics and Parameters Optimization of High-speed Solenoid Valve .....                    | LI Shoutao, GUO Pengcheng, JIANG Wei, DING Hui, YU Dingli         | 2327 |
| Optimal Robust Control for Attitude of Quad-rotor Aircraft Based on SDRE .....                                         | SUN Jing-liang, LIU Chunsheng, LU Ke, SHI Hao-ming                | 2333 |
| Based on Petri Net Area of the Surface Ship Air Defense Combat Process Optimization .....                              | MA Liang, ZHANG Lin                                               | 2338 |
| Long-time Average Cost Control of Stochastic Systems Using Sum of Squares of Polynomials .....                         | HUANG Deqing, CHERNYSHENKO Sergei                                 | 2344 |
| Multi-Objective Longitudinal Trajectory Optimization for Hypersonic Reentry Glide Vehicle Based on PSO Algorithm ..... | ZHANG Weidong, HUANG Xianlin, GAO Xiaozhi, PANG Hongjun           | 2350 |
| Study on Thrust Allocation Based on IAFSA for Dynamic Positioning System .....                                         | DING Fuguang, HUANG Wei, ZHANG Lin, MA Yanqin                     | 2362 |
| Optimal Guidance Law Design Based on Extended Quadratic Performance Index .....                                        | FANG Yangwang, YANG Pengfei, WANG Hongke, WU Youli, MAO Donghui   | 2367 |
| Rudder Roll Stabilization Based on Sliding Mode Variable Structure Control Research .....                              | PENG Xiuyan, HU Jincai, SUN Tao                                   | 2373 |
| Three Dimensional Unmanned Aerial Vehicle Path Planning by a Continuous Optimization Method .....                      | WANG Yin, ZENG Xingxing                                           | 2379 |
| Sequential Filtering for Linear Discrete-Time Systems with Delayed Measurements .....                                  | ZHAO Hongguo                                                      | 2384 |
| Multi-Agent Chaos Particle Swarm Optimization Algorithm of Thrust Allocation for Dynamic Positioning Vessels .....     | XU Guangchi, ZHAO Dawei, ZHANG Kaiwei, GE Jinghua                 | 2389 |
| Optimization Impulsive Control of the Fold Catastrophe Model for the Aphid Population Ecosystem .....                  | ZHAO Lichun, LIU Jingna, ZHENG Zhuo, HU Gang                      | 2397 |
| Hierarchical Policy Iteration for Large-scale POMDP Systems .....                                                      | JIANG Xiaofeng, JI Zhe, XI Hongsheng                              | 2401 |
| Numerical and Experimental Study on Optimal Control for Active Vibration Suppression of the Antenna Structure .....    | LV Liangliang, WANG Yinghong, SHI Hang, XIAN Kuicheng, PENG Fujun | 2407 |
| Optimization of Control System for Nitrifying Process in Two Nitro Chlorobenzene Production .....                      | NA Wenbo, LIU Wei, HONG Xin, FAN Lidong                           | 2413 |
| Sufficient Optimality Conditions for Impulsive and Switching Optimal Control Problems .....                            | LI Lihua, GAO Yan                                                 | 2418 |
| On Combining Neighbouring Extremals with Control Parameterization .....                                                | LIU Chongyang, LIN Qun, LOXTON Ryan, TEO Kok Lay                  | 2422 |
| Dynamic Optimization of Tokamak Plasmas via Control Parameterization and the Time-scaling Transformation .....         | REN Zhigang, XU Chao, LIN Qun, LOXTON Ryan                        | 2428 |

|                                                                                                                                   |                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Neural Network Based Constrained Optimal Guidance for Mars Entry Vehicles                                                         |                                                                       |
| .....                                                                                                                             | QIU Tenghai, LUO Biao, WU Huai-Ning, GUO Lei 2440                     |
| Recursive Mean-Variance Portfolio Choice Problems with Constrained Portfolios                                                     |                                                                       |
| .....                                                                                                                             | LV Siyu, WU Zhen, ZHUANG Yi 2446                                      |
| The Optimal Contracts in Continuous Time under Knightian Uncertainty                                                              |                                                                       |
| .....                                                                                                                             | WEI Qingmeng, SHI Xiaomin 2450                                        |
| Two-dimensional Trajectory Optimization of Stratospheric Airship                                                                  | LI He, LIN Xianwu 2456                                                |
| Robust Adaptive Dynamic Programming for a Zero-sum Differential Game                                                              |                                                                       |
| .....                                                                                                                             | YUAN Binbin, LU Pingli, LIU Xiangdong, BIAN Tao 2468                  |
| Low-order State-feedback Controller Design for Long-time Average Cost Control of Fluid Flow Systems:<br>A Sum-of-squares Approach | HUANG Deqing, CHERNYSHENKO Sergei 2479                                |
| Robust Optimal Control Design for Spacecraft Orbit Rendezvous                                                                     |                                                                       |
| .....                                                                                                                             | GAO Xiangyu, TAN Julong, DENG Songtao 2485                            |
| Double Generating Functions Method for Finite Time LQ Optimal Trajectory Generation Problems                                      |                                                                       |
| .....                                                                                                                             | HAO Zhiwei, ZHANG Qiuhua, FUJIMOTO Kenji 2490                         |
| Potential Based Policy Gradient Optimization Algorithm for a Class of Stochastic Nonlinear Systems                                |                                                                       |
| .....                                                                                                                             | CHENG Kang, ZHANG Kanjian, FEI Shumin, WEI Haikun 2496                |
| Exact Controllability of Forward-backward Stochastic Control System                                                               |                                                                       |
| .....                                                                                                                             | WANG Xiangrong, HUANG Hong 2501                                       |
| Optimal Tracking with Finite Control Energy for Sampled-Data Systems                                                              |                                                                       |
| .....                                                                                                                             | WANG Baoxian, CHI Ming, GUAN Zhi-Hong, SHEN Yanjun, HUANG Yuehua 2505 |
| Model Predictive Control of Eco-Driving for Transit Using V2I Communication                                                       |                                                                       |
| .....                                                                                                                             | ZHENG Xiuzheng, ZHANG Ligu, KHOLODOV Yaroslav 2511                    |
| Switching Control for Renewable Hybrid Systems                                                                                    |                                                                       |
| .....                                                                                                                             | WU Zhou, XIA Xiaohua, TAZVINGA Henerica, ZHU Bing 2517                |
| Quantum Genetic Algorithm Based Homing Trajectory Planning of Parafoil System                                                     |                                                                       |
| .....                                                                                                                             | TAO Jin, SUN Qinglin, ZHU Erlin, CHEN Zengqiang 2523                  |
| Risk Control for Reverse Supply Chain: Collecting or Not                                                                          | GU Qiaolun, GAO Tiegang 2529                                          |
| The Optimal Control Based on High-Order Flexible Rectilinear Plant                                                                | WANG Yipin, FU Xingjian 2535                                          |
| Integrated Design of Aerodynamics, Structures, Propulsion, and Control Based on the Multidisciplinary<br>Optimization Method      | WEI Xiaoqian, YANG Jianying 2540                                      |
| A DE Based PID Controller for Two Dimensional Overhead Crane                                                                      |                                                                       |
| .....                                                                                                                             | SUN Zhe, WANG Ning, BI Yunrui, ZHAO Jin-Hui 2546                      |

### Optimization and Scheduling

|                                                                                                                   |                                                                          |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Efficiently Solving Multi-objective Dynamic Weapon-target Assignment Problems by NSGA-II                          |                                                                          |
| .....                                                                                                             | LI Juan, CHEN Jie, XIN Bin 2556                                          |
| City Group Optimization                                                                                           | YANG Yijun, DUAN Haibin 2568                                             |
| Optimization of Recall in Food Supply Chain Using Modified Artificial Bee Colony Algorithm                        |                                                                          |
| .....                                                                                                             | LU Xin, SHEN Yanxia, WU Dinghui 2581                                     |
| Design of Feedback Controller of the DC Grid Containing New Energy                                                |                                                                          |
| .....                                                                                                             | ZHANG Qiang, WANG Xingcheng, LIU Xianzheng, ZHENG Kai, WEN Jialiang 2592 |
| An Novel Image Segmentation Framework by Cooperative Learning and Evolutionary Two-objective<br>Kernel Clustering | YANG Dongdong, LEI Zhang, FEI Rong, HUI YANG 2599                        |

|                                                                                                                       |                                                                 |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Data Mining Based Dynamic Scheduling Approach for Semiconductor Manufacturing System                                  |                                                                 |
| .....                                                                                                                 | WU Wenjing, MA Yumin, QIAO Fei, GU Xiang 2603                   |
| A Knowledge-based Fruit Fly Optimization Algorithm for Multi-skill Resource-constrained Project Scheduling Problem    |                                                                 |
| .....                                                                                                                 | ZHENG Xiao-long, WANG Ling, ZHENG Huanyu 2615                   |
| Multi-agent Coordination in High Velocity UAVs Conflict Detection and Resolution                                      |                                                                 |
| .....                                                                                                                 | YANG Jian, YIN Dong, ZHANG Yu, JIAN Lixuan 2621                 |
| Energy Consumption Management for Multistage Production Systems Considering Real Time Pricing                         |                                                                 |
| .....                                                                                                                 | TANG Zhe, WU Jiang 2627                                         |
| An Improved NSGA2 Algorithm with the Adaptive Differential Mutation Operator                                          |                                                                 |
| .....                                                                                                                 | WEI Jing, QIAO Junfei, MENG Qinchao 2633                        |
| Improved Teaching-Learning Based Optimization for Global Optimization Problems                                        |                                                                 |
| .....                                                                                                                 | ZHAO Xiu-hong 2639                                              |
| An Artificial Bee Colony Based Hyper-heuristic Approach for Inter-cell Scheduling Considering Transportation Capacity |                                                                 |
| .....                                                                                                                 | LI Zhi, TIAN Yunna, ZHENG Dan, LIU Zhaohe, LI Dongni 2645       |
| Stand-alone Micro-grid Distributed Generator Optimization with Different Battery Technologies                         |                                                                 |
| .....                                                                                                                 | TAN Ying, LYU Zhi-lin, LI Suchuan 2651                          |
| A Multi-threshold Image Segmentation Approach Using State Transition Algorithm                                        |                                                                 |
| .....                                                                                                                 | HAN Jie, ZHOU Xiaojun, YANG Chunhua, GUI Weihua 2662            |
| Fitness Feedback Based Particles Swarm Optimization                                                                   |                                                                 |
| .....                                                                                                                 | REN Huifeng, XIE Jun, HU Guyu 2673                              |
| A Mixed-integer Quadratic Programming Solver Based on GPU                                                             |                                                                 |
| .....                                                                                                                 | WANG Xi, LI Dewei, XI Yugeng 2686                               |
| A Discrete State Transition Algorithm for the Task Assignment Problem                                                 |                                                                 |
| .....                                                                                                                 | DONG Tian Xue, ZHOU Xiaojun, YANG Chunhua, GUI Weihua 2692      |
| The Design and Analysis of the Hierarchical Decision-making for Manned/Unmanned Cooperative Engagement                |                                                                 |
| .....                                                                                                                 | HU Xiao, YANG Lingyu, ZHANG Jing 2698                           |
| A Finite-time Distributed Algorithm for Economic Dispatch Problem                                                     |                                                                 |
| .....                                                                                                                 | LEI Yunjiao, CHEN Gang 2704                                     |
| Modeling and Optimization of Cooperative Interception and Guidance Allocation in Multi-Platform Air Defense           |                                                                 |
| .....                                                                                                                 | JIA Jian, PENG Zhihong 2710                                     |
| Anti-windup Weighted Pseudo-inverse Control Allocation Method Based on Stealthy Characteristic                        |                                                                 |
| .....                                                                                                                 | ZHI Jianhui, CHEN Yong, DONG Xinmin, XUE Jianping, YI Jian 2715 |
| Efficient Distributed Resource Allocation under Synchronous Auction-based Algorithm                                   |                                                                 |
| .....                                                                                                                 | ZOU Suli, MA Zhongjing, LIU Xiangdong 2720                      |
| An Adaptive Method with Local Search for Nurse Rostering Problem                                                      |                                                                 |
| .....                                                                                                                 | NIE Yabing, WANG Bing, HAN Xingbao 2726                         |
| Predictive Scheduling for Permutation Flow Shop Subject to New Arrival Job                                            |                                                                 |
| .....                                                                                                                 | HAN Xingbao, WANG Bing, NIE Yabing 2732                         |
| Sensor-Weapon Joint Management Based on Improved Genetic Algorithm                                                    |                                                                 |
| .....                                                                                                                 | WANG Jian, CHEN Chen 2738                                       |
| Coke Oven Pushing Plan Optimization Scheduling Research Based on Improved Ant Colony Algorithm                        |                                                                 |
| .....                                                                                                                 | TAO Wenhua, GAO Xianwen, SUN Ao 2743                            |
| An Improved Ant Colony Algorithm Based on Vehicle Routing Problem                                                     |                                                                 |
| .....                                                                                                                 | PAN Tinglei, PAN Haipeng, GAO Jinfeng 2747                      |
| Study and Application of Optimization Algorithm About Sinusoidal Steady-State Circuit                                 |                                                                 |
| .....                                                                                                                 | HOU Xiang Lin, LI Qi, CHEN Cong, SUN Hong 2753                  |
| Osteogenesis Effect of Biomaterials Analyzed Using Topology Optimization                                              |                                                                 |
| .....                                                                                                                 | WANG Lan, ZHANG Wen, YANG Hui-Lin, LUO Zong-Ping 2765           |

Path Planning Method for Dual Cranes Considering the Changes of Load Ratio

..... AN Jianqi, ZHU Lusha, XIONG Yonghua, WU Min 2774  
Integration of Gradient Adaptation and Quadratic Approximation in Real-Time Optimization

..... GAO Weihua, WENZEL Simon, ENGELL Sebastian 2780

Modeling of Point Search Area and Rescue Path for Maritime Air Crash

..... YU Ping, WANG Jing, LIU Zhen-Tao, BIAN Hao-Ran 2786

Multi-objective Optimization Scheduling of Combined Cold Heat and Power System with Multi-renewable Energy WANG Luhao, LI Qiqiang, SUN Mingshun, SUN Wenjian, WANG Guirong, GUO Qingqiang 2792

AC-constrained Optimal Power Flow Considering Wind Power Generation Uncertainty in Radial Power Networks ..... LIU Bin, LIU Feng, MEI Shengwei 2797

Least Travel Time Paths in Deterministic and Time-Varying Transportation Networks Considering the Attribute of Nodes ..... JIANG Rui, FENG Meiling, SUN Bin, SUN Junqing 2802

### Robust Control

Tuning of Fractional Order  $PI^\lambda D^\mu$  Controllers with Five Parameter under Strong Robustness

..... WANG Chunyang, LIU Huan, CAI Nianchun, LIU XueLian 2808  
Robust Global Disturbance Rejection of Spacecraft Rendezvous System via Gain Scheduling

..... WANG Qian, XUE Anke, LU Renquan 2814

Discrete-time Domain Two-degree-of-freedom Control Design for Industrial Stable Processes with Input Time Delay ..... WANG Dong, LIU Tao 2820

A Hybrid Optimization Approach for Discrete-Time  $H_\infty$  Static-Output-Feedback Control Problem

..... FENG Zhi-Yong, XU Li, LIU Zhen-Tao, LI Dan-Yun 2826

Direct Parametric Control Approach to Robust Integrated Relative Position and Attitude Control for Non-cooperative Rendezvous ..... DUAN Guangren, XU Gang 2830

Cooperative Output Regulation for Linear Uncertain Multi-agent Systems with Nonidentical Relative Degrees ..... SU Youfeng 2836

Robust Nonlinear Velocity and Height Controller Design for Uncertain Hypersonic Vehicles

..... YU Lingyi, DUAN Weijia, LIU Hao, LI Kuo 2842

A Nash Game Approach to Stochastic  $H_2/H_\infty$  Control: Overview and Further Research Topics

..... ZHANG Tianliang, WANG Yuhong, JIANG Xiushan, ZHANG Weihai 2848

Nonlinear Robust Control Design of a Small-scale Helicopter

..... TANG Shuai, ZHANG Li, WANG Liping, JIANG Min 2854

Disturbance Observer-Based Anti-Disturbance Control for Aclass of Stochastic Systems

..... WEI Xinjiang, GUO Zhenkai, TANG Meiqin, LIU Xiaohua 2860

The Robust Roll Control Using Only Synthetic Jet Actuators in High-Angle-of-Attack Flight

..... LI Chunzhi, YANG Jianying, LIU Yifan 2865

Fault Detection Filtering for A Kind of Nonlinear Markovian Jump Systems with Mode-Dependent Time-Varying Delays and Parameter Uncertainties

..... ZHUANG Guangming, ZHANG Huasheng, ZHAO Junsheng, XIA Jianwei 2871

Disturbance Observer Based Attitude Control for a Three-Degree-of-Freedom Laboratory Helicopter

..... CUI Qingliang, CHEN Mou 2877

A Novel Online Robust Identification Method for Xq of Synchronous Generator Based on IGG Criterion

..... HUANG Zihua, XUE Ancheng, YOU Hongyu, ZHANG Zhaoyang, HUO Jiandong 2883

Delay-dependent robust  $H_\infty$  filtering for uncertain neutral stochastic time-varying delay systems

..... MAO Weihua, DENG Feiqi, WAN Anhua 2889

Structured Controller Synthesis with Restricted Frequency Domain Specifications

|                                                                                                                                         |                                                             |      |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------|
| .....                                                                                                                                   | HAO Yuqing, DUAN Zhisheng, HUANG Di                         | 2895 |
| Design of State Observer for Genetic Regulatory Networks with Interval Time-varying Delays                                              |                                                             |      |
| .....                                                                                                                                   | XUE Yu, CUI Shaochun, ZHANG Xian                            | 2901 |
| Composite Anti-disturbance Control for a Class of Uncertain Nonlinear Systems via Disturbance Observer and Adaptive Backstepping Method |                                                             |      |
| .....                                                                                                                                   | ZHANG Huifeng, JING Yuanwei, WEI Xinjiang                   | 2907 |
| Periodic Riccati-like Differential Equation Approach to Robust $H_\infty$ Control of Spacecraft Rendezvous                              |                                                             |      |
| .....                                                                                                                                   | GAO Xiangyu, TAN Julong                                     | 2913 |
| Sliding Mode Observer Based Composite Controller for Spacecraft Attitude Control System with Reaction Wheel Friction                    |                                                             |      |
| .....                                                                                                                                   | ZHANG PeiXi, QIAO Jianzhong, ZHANG Yabin, GUO Lei, WANG Sen | 2919 |
| Complexity Analysis for Parameter Perturbation Method                                                                                   |                                                             |      |
| .....                                                                                                                                   | LI Wang, YU Wensheng                                        | 2925 |
| A Robust Disturbance Rejection Method for Repetitive Control Systems with Uncertainties                                                 |                                                             |      |
| .....                                                                                                                                   | LIU Ruijuan, NIE Zhuoyun, OUYANG Miao                       | 2930 |
| Design of Robust Observer-Based Controller for Uncertain Time-Delay Systems with Saturating Actuators                                   |                                                             |      |
| .....                                                                                                                                   | WEI Yunliang, ZHENG Wei Xing                                | 2937 |
| Robust $H_\infty$ Input-Output Finite Time Boundedness of Delayed Nonlinear Systems: Analysis and Controller Design                     |                                                             |      |
| .....                                                                                                                                   | CHEN Haiyang, LIU Meiqin, ZHANG Senlin                      | 2943 |
| Optimal PID Controller Design for a Class of Delay Fractional-order Systems                                                             |                                                             |      |
| .....                                                                                                                                   | NIE Zhuoyun, LIU Ruijuan, JIN Fujian, ZHENG Yimin           | 2949 |
| Partial Pole Placement for Systems with Controller Optimization in QMI Region                                                           |                                                             |      |
| .....                                                                                                                                   | HAN Ruicong, WANG Yongji, LIU Lei                           | 2955 |
| Dynamic Output-Feedback Gain-Scheduled Control for LPV Systems with Time-Varying Delays                                                 |                                                             |      |
| .....                                                                                                                                   | ZHANG Jing, ZHANG Baoyong, ZHANG Yijun                      | 2961 |
| Robust PID Control for a Wastewater Treatment Based on Genetic Algorithm and Small-gain Approach                                        |                                                             |      |
| .....                                                                                                                                   | QIAO Xinghong, LUO Fei, XU Yuge                             | 2967 |
| Robust Switching Output Feedback Control of Discrete-Time Linear Polytopic Uncertain Systems                                            |                                                             |      |
| .....                                                                                                                                   | YUAN Chengzhi, WU Fen, DUAN Chang                           | 2973 |
| Systems Safety Verification by Boundary Variation Analysis                                                                              |                                                             |      |
| .....                                                                                                                                   | LI Wang, YU Wensheng                                        | 2979 |

**Adaptive Control and Learning Control**

|                                                                                                                   |                                               |      |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------|
| Adaptive Output Feedback Control of Nonlinear Systems with Unmodeled Dynamics and Prescribed Tracking Performance |                                               |      |
| .....                                                                                                             | XIA Xiaonan, ZHANG Tianping                   | 2983 |
| EMS Maglev Vehicles Model Reference Adaptive Control                                                              |                                               |      |
| .....                                                                                                             | LI Songqi, ZHANG Kunlun, LIU Guoqing, GUO Wei | 2989 |
| Adaptive Control Based on Multiple Sub-Models and Auxiliary Variables for Non-Uniformly Sampled Data Systems      |                                               |      |
| .....                                                                                                             | WANG Hongwei                                  | 2994 |
| Optimal Self-Learning Cooperative Control for Continuous-Time Heterogeneous Multi-Agent Systems                   |                                               |      |
| .....                                                                                                             | WEI Qinglai, LIU Derong, SONG Ruizhuo         | 3005 |
| Adaptive Optimal Control for Linear Stochastic Systems with Additive Noise                                        |                                               |      |
| .....                                                                                                             | BIAN Tao, JIANG Zhong-Ping                    | 3011 |
| Iterative Learning Control Algorithm Based on Chebyshev Orthonormal Basis for Nonlinear Systems                   |                                               |      |
| .....                                                                                                             | KANG Jingli                                   | 3017 |
| Dynamic Modeling and Adaptive Controller Design for a Wire-moving Robot                                           |                                               |      |
| .....                                                                                                             | GUO Lei, MO Xinhui, SONG Yuan                 | 3022 |

|                                                                                                                    |                                                                              |
|--------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Adaptive Dynamic Programming for $H_\infty$ Control of Constrained-Input Nonlinear Systems                         |                                                                              |
| .....                                                                                                              | YANG Xiong, LIU Derong, WEI Qinglai, WANG Ding 3027                          |
| Shaping in Reinforcement Learning via Knowledge Transferred from Human-Demonstrations                              |                                                                              |
| .....                                                                                                              | WANG Guofang, FANG Zhou, LI Ping, LI Bo 3033                                 |
| Robust Stabilization of Discrete-Time Uncertain Nonlinear Systems Using Neuro-Optimal Control Strategy             |                                                                              |
| .....                                                                                                              | WANG Ding, LIU Derong, LI Hongliang, YANG Xiong 3039                         |
| An Improved Full-Form-Dynamic-Linearization Based MFAC for a Class of Nonlinear Systems with Exogenous Disturbance |                                                                              |
| .....                                                                                                              | JIN Shangtai, HOU Mengxue 3045                                               |
| Bi-Channel Memristor Memory: A Design Methodology Based on Current Feedback                                        |                                                                              |
| .....                                                                                                              | LI Wei, SHEN Yi, WU Jisheng 3051                                             |
| Novel Adaptive Estimation and Control of Continuous-time Systems Based on Parameter Estimation Error               |                                                                              |
| .....                                                                                                              | NA Jing, ZHANG Jingang, GAO Guanbin 3056                                     |
| Iterative Learning Control for Discrete-Time Affine Nonlinear System with Iteration Varying Lengths                |                                                                              |
| .....                                                                                                              | ZHANG Wei, SHEN Dong 3062                                                    |
| Iterative Learning Control for Bilinear Parameterized Systems with Time-varying Delay                              |                                                                              |
| .....                                                                                                              | SUN Yunping, YU Jian-ping, WEI Feng, LI Guang-yin 3068                       |
| Quantized Feedback Control for a Class of 2-D Systems with Missing Measurements                                    |                                                                              |
| .....                                                                                                              | BU Xuhui, CHENG Zihao, HOU Zhongsheng 3073                                   |
| Iterative Learning Control for Networked Nonlinear Systems Using Latest Information                                |                                                                              |
| .....                                                                                                              | SHEN Dong, XU Yun 3079                                                       |
| Convergence Analysis for an Identifier-based Adaptive Dynamic Programming Algorithm                                |                                                                              |
| .....                                                                                                              | SONG Jun, NIU Yugang, ZOU Yuanyuan 3085                                      |
| High Performance $L_1$ Adaptive Take-off and Landing Controller Design for Fixed-wing UAV                          |                                                                              |
| .....                                                                                                              | DI Chunlei, GENG Qingbo, FEI Qing 3091                                       |
| Continuous-time Markov Decision Process with Average Reward: Using Reinforcement Learning Method                   |                                                                              |
| .....                                                                                                              | JIA Shengde, SHEN Lincheng, XUE Hongtao 3097                                 |
| Adaptive Neural Network Dynamic Surface Control of Hypersonic Vehicle                                              |                                                                              |
| .....                                                                                                              | LIU Shuguang, FANG Yangwang, TANG Qiang, HUANG Han Qiao, ZHANG Xianglun 3101 |
| A Novel Data-driven Terminal Iterative Learning Control for Nonlinear Time-varying Systems                         |                                                                              |
| .....                                                                                                              | CHI Ronghu, LIU Yu, HOU Zhongsheng, JIN Shangtai 3107                        |
| Sliding Mode Controller with AGA for Drum Water Level of Ship Boiler                                               |                                                                              |
| .....                                                                                                              | LIU Sheng, ZHAO Shiquan, WANG Yuchao 3116                                    |
| An Adaptive Multivariable Disturbance Rejection Algorithm for Helicopter Turbulence Compensation Control           |                                                                              |
| .....                                                                                                              | WEN Liyan, TAO Gang, YANG Hao, CHEN Fuyang 3121                              |
| Adaptive Control Strategy for an Unmanned Helicopter                                                               |                                                                              |
| .....                                                                                                              | WEI Yuanyuan, SHENG Shouzhao, SUN Chenwu, DUAN Haibin 3127                   |
| Adaptive Control of Mechanical Servo System with Glowworm Swarm Friction Identification                            |                                                                              |
| .....                                                                                                              | TAO Liang, CHEN Qiang, NAN Yurong, YU Suhua, SUN Guofa 3132                  |
| Adaptive Output Feedback Tracking Control for a Class of Uncertain Switched Nonlinear Systems                      |                                                                              |
| .....                                                                                                              | HUANG Ran, ZHANG Jinhui, SONG Mingchao 3139                                  |
| A Strategy for Push Recovery in Quadruped Robot Based on Reinforcement Learning                                    |                                                                              |
| .....                                                                                                              | CHEN Yangzhen, HOU Wenqi, WANG Jian, WANG Jianwen, MA Hongxu 3145            |
| Adaptive Neural Network Control for a Class of Non-strict-Feedback Nonlinear Systems                               |                                                                              |
| .....                                                                                                              | YANG Chao, JIA Yingmin 3152                                                  |
| Visual Servoing for Cooperative Dual-Manipulators System                                                           |                                                                              |
| .....                                                                                                              | WANG Yong, LIU Zhi, ZHANG Yun 3158                                           |

|                                                                                                                     |                                                                              |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Design of Reinforce Learning Control Algorithm and Verified in Inverted Pendulum                                    |                                                                              |
| .....                                                                                                               | WANG Linglin, LIU Yongxin, ZHAI Xiaoke 3164                                  |
| Nearly Optimal Tracking Control for Continuous Time Nonlinear Systems Using a Policy Iteration Based HJB Approach   |                                                                              |
| .....                                                                                                               | SONG Ruizhuo, WEI Qinglai, XIAO Wendong, DU Zanzan 3169                      |
| Neural Network-based Adaptive Tracking Control of Mobile Robots in the Presence of Modelling Error and Disturbances |                                                                              |
| ... ..                                                                                                              | ZHENG Tongjia, YANG Anle, WANG Min, HUANG Meichuan, RAO Baozhong 3173        |
| Iterative Learning Identification of Time-Varying Parameter Based on Global Newton Method                           |                                                                              |
| .....                                                                                                               | KANG Jingli, REN Chunming 3179                                               |
| Terminal Iterative Learning Control for Discrete-Time Nonlinear System Based on Neural Networks                     |                                                                              |
| .....                                                                                                               | HAN Jian, SHEN Dong, CHIEN Chiang-Ju 3190                                    |
| Model Reference Adaptive Controller to Regulate Sample Temperature in Microwave Heating Application                 |                                                                              |
| .....                                                                                                               | ZHANG Yuzhe, LIANG Shan, YUAN Yupeng, XIONG Qing Yu 3196                     |
| Active Disturbance Rejection-based Sliding Mode Control for a Surface Vessel                                        |                                                                              |
| .....                                                                                                               | WEI Yuli, SUN Tairen, LIU Guohai 3201                                        |
| A Self-tuning Disturbance Observer Based Adaptive Speed Control for PMSM Servo System                               |                                                                              |
| .....                                                                                                               | LI Juan, LI Shengquan, LI Shihua, OU Meiyong 3206                            |
| Design of Fuzzy Adaptive Iterative Learning Control for Nonaffine Nonlinear Discrete-Time Systems                   |                                                                              |
| .....                                                                                                               | CHIEN Chiang-Ju, WANG Ying-Chung, SHEN Dong, CHI Ronghu 3218                 |
| A Stochastic Policy Gradient Based Adaptive Control for Biped Walking                                               |                                                                              |
| .....                                                                                                               | SONG Sumian, YAN Gangfeng, TANG Chong, WANG Zidong, LIN Zhiyun 3224          |
| Adaptive Controller Implementation for Surface Robotic Vessel                                                       |                                                                              |
| .....                                                                                                               | WANG Jian, BORISOV Oleg, GROMOV Vladislav, PYRKIN Anton, BOBTSOV Alexey 3230 |
| Continuous Characteristic Model Based Adaptive Control Method for a Class of Uncertain Nonlinear Systems            |                                                                              |
| .....                                                                                                               | XU Lijia, HU Yong 3236                                                       |
| Optimization Selection Approach for Distribution of Actuators in Active Vibration Control of Helicopter             |                                                                              |
| .....                                                                                                               | CHENG Qiyong, DENG Jinghui, HUANG Jianping, LING Aimin, LU Ke 3248           |
| Robust Adaptive Control Design for Quadcopter Payload Add and Drop Applications                                     |                                                                              |
| .....                                                                                                               | EMRAN Bara, DIAS Jorge, SENEVIRATNE Lakmal, CAI Guowei 3252                  |

### Variable Structure Control

|                                                                                                                         |                                                                       |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Intelligent Tensor Product Mode Transformation-based Three-Sliding-Surface Sliding Mode Controller Design               |                                                                       |
| .....                                                                                                                   | HUANG Sharina, ZHAO Guoliang, YUAN Yanhua, REN Qiuping, LIU Ying 3258 |
| Continuous Non-singular Terminal Sliding Mode Control of Permanent-Magnet Synchronous Motor with Load Torque Observer   |                                                                       |
| .....                                                                                                                   | WANG Yanmin, CAO Yuqing, XIA Hongwei 3264                             |
| The 6-DOF Synchronized Sliding-Mode Control for Approaching to the Slowly Rotating Satellite                            |                                                                       |
| .....                                                                                                                   | HAN Fei, WU Hailei, HOU Jianwen, WANG Zhaolong, LU Shan, SUN Yue 3269 |
| Sliding Mode Control for Mars Entry with Flatness and Extended State Observer                                           |                                                                       |
| .....                                                                                                                   | LU Kunfeng, XIA Yuanqing, YU Chunmei, ZHOU Liuyu 3275                 |
| Sliding Mode Control Attitude Tracking of Rigid Spacecraft Using Adaptive Back-Stepping Method                          |                                                                       |
| .....                                                                                                                   | YU Chunmei, LU Kunfeng, XIA Yuanqing, LIU Hailiang 3281               |
| Adaptive Dynamic Sliding Mode Control for Overhead Cranes                                                               |                                                                       |
| .....                                                                                                                   | XU Weimin, ZHENG Xiang, LIU Yuqiang, ZHANG Mengjie, LUO Yuyang 3287   |
| Continuous-Time Single Network Adaptive Critic Based Optimal Sliding Mode Control for Nonlinear Control Affine Systems. |                                                                       |
| .....                                                                                                                   | MITRA Aritra, BEHERA Laxmidhar 3300                                   |

|                                                                                                                                 |      |
|---------------------------------------------------------------------------------------------------------------------------------|------|
| Trajectory Tracking Control of a Two-Wheeled Mobile Robot Using Sliding Mode Techniques                                         |      |
| ..... MU Jianqiu, YAN Xing-Gang, SPURGEON Sarah, MAO Zehui                                                                      | 3307 |
| Decentralized Integral Sliding Mode Control of Reconfigurable Manipulator: an Enhancement Methodology for Practical Application |      |
| ..... ZHAO Bo, DU Zhiyuan, LI Yuanchun                                                                                          | 3313 |
| A Cascade First and Second Order Sliding Mode Control Approach for Speed Control of Brushless DC Motor                          |      |
| ..... ZHANG Qingchao, MA Ruiqing, DENG Junjun, ZHAO Ben                                                                         | 3319 |
| Robust and Adaptive Non-homogeneous Higher Order Sliding Mode Control for a Class of Uncertain Nonlinear Systems                |      |
| ..... LI Peng, MA Jianjun, GENG Lina, ZHENG Zhiqiang                                                                            | 3327 |
| Robust Adaptive Fault Tolerant Control for a Steering Subsystem of Unmanned Underwater Vehicles                                 |      |
| ..... HAO Li-Ying, LI Hui                                                                                                       | 3335 |
| Disturbance Observer Based Integral Sliding Mode Control for Systems with Mismatched Disturbances                               |      |
| ..... LIU Xinwei, GAO Meihua, ZHANG Jinhui, HUANG Ran                                                                           | 3341 |
| A Novel Sliding Mode Control with Unstable Surfaces                                                                             |      |
| ..... FU Jian, WANG Liangming, DU Yanli, CHANG Sijiang                                                                          | 3346 |
| Sliding Mode Control for Mixed Logical Dynamical Systems                                                                        |      |
| ..... MA Guoqi, QIN Linlin, LIU Xinghua, WU Gang                                                                                | 3350 |
| Application of Intelligent Variable Structure Control to Flexible Vehicle                                                       |      |
| ..... HAO Mingrui, DUAN Guangren, WEI Yiyin, SONG Chuang                                                                        | 3356 |
| Adaptive Cross-coupled Sliding Mode Control for Synchronization of Dual-cylinder Electro-hydraulic Servo Systems                |      |
| ..... SUN Mengfei, LI Jianxiong, FANG Yi Ming                                                                                   | 3361 |
| Optimal Integral Sliding Mode Control with Feedforward Compensation for Nonlinear Systems and Its Applications                  |      |
| ..... ZHANG Bao-Lin, LIU Liping, DING Ke                                                                                        | 3367 |
| A Fractional Order Sliding Mode Controller Design for Spacecraft Attitude Control System                                        |      |
| ..... ZENG Tianyi, REN Xuemei, ZHANG Yao                                                                                        | 3379 |
| Nonsingular Fast Terminal Sliding Mode Control Method and Its Application on Permanent Magnet Synchronous Motor                 |      |
| ..... ZHOU Shuo                                                                                                                 | 3383 |
| Extended State Observer Based Integral Sliding Model Control for PMSG Variable Speed Wind Energy Conversion System              |      |
| ..... WU Aihua, ZHAO Buhui, MAO Jingfeng, WU Guoqing, ZHANG Xudong                                                              | 3387 |
| Optimized Continuous Non-singular Terminal Sliding Mode Control of Uncertain Flexible Manipulators                              |      |
| ..... WANG Yanmin, CAO Yuqing, XIA Hongwei                                                                                      | 3392 |
| Position and Attitude Tracking Control for a Quadrotor UAV Based on Terminal Sliding Mode Control                               |      |
| ..... ZHOU Wei-dong, ZHU Pengxiang, WANG Changlong, CHU Min                                                                     | 3398 |

### Neural Networks

|                                                                                                       |      |
|-------------------------------------------------------------------------------------------------------|------|
| Adaptive Sliding Mode Control of Flexible Beam Using RBF Neural Controller                            |      |
| ..... HU Tongyue, FEI Juntao                                                                          | 3405 |
| Neuro-Fuzzy Control Based on On-line Least Square Support Vector Machines                             |      |
| ..... LIU Han, DENG Yi, ZHANG Lifan, LIU Ding                                                         | 3411 |
| A Fast Growing Cascade Neural Network for BOD Estimation                                              |      |
| ..... LI Fanjun, QIAO Jun Fei, ZHANG Wei                                                              | 3417 |
| Exponential Stability Analysis of Stochastic BAM Neural Networks with Time Delays and Impulses        |      |
| ..... WANG Tianbo, ZHAO Shouwei, YU Weiqin, FANG Tao                                                  | 3423 |
| Decoupling Control Based on PID Neural Network for Deaerator and Condenser Water Level Control System |      |
| ..... WANG Peng, MENG Hao, DONG Peng, DAI Rihui                                                       | 3441 |

|                                                                                                                   |                                                                           |      |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------|
| Reasoning of Atmospheric Corrosion Level under Missing Data Based on CMAC and Bayesian Network .....              | ZHI Yuanjie, FU Dongmei, LI Zhiping, XU Qing                              | 3447 |
| Two Novel Cellular Neural Networks Based on Mem-elements .....                                                    | SHEN Yi, JIA ZhenZhen, WANG Xiaoping, LIU Yang                            | 3452 |
| Multi-FPGA Implementation of Feedforward Network and Its Performance Analysis .....                               | WANG Jiang, YANG Shuangming, DENG Bin, WEI Xile, YU Haitao                | 3457 |
| Stabilization of Chaotic Neural Networks with Time-varying Delays via Non-periodically Intermittent Control ..... | ZHAO Zhenjiang, SONG Qiankun                                              | 3462 |
| Ship Rolling Motion Prediction Based on Extreme Learning Machine .....                                            | FU Huixuan, WANG Yuchao, ZHANG Hongmei                                    | 3468 |
| Based on Particle Swarm Optimization BP Network of Selective Harmonic Elimination Technique Research .....        | ZHANG Wenyi, LI Zhenhua                                                   | 3473 |
| Synchronization for Discrete-Time Memristive Recurrent Neural Networks with Time-Delays .....                     | LIU Hongjian, WANG Zidong, SHEN Bo, KAN Xiu                               | 3478 |
| Dependence of Neural Network Synchronization on the Extracellular Electric Field and Neural Morphology .....      | WEI Xile, SI KaiLi, LU Meili, WANG Jiang, DENG Bin                        | 3488 |
| Dynamic Analysis of Winner-Take-All Neural Networks with Global Inhibitory Feedback .....                         | YU Yongbin, JIN Ju, ZHANG Rongquan, EBONG Idongesit, PINAKI Mazumder      | 3497 |
| RBF Neural Networks Sliding Mode Controller Design for Static Var Compensator .....                               | ZHANG Chao, ZHANG Aimin, ZHANG Hang, BAI Yunfei, GUO Chujia, GENG Yingsan | 3501 |
| A Nonlinear PLS Modeling Method Based on Extreme Learning Machine .....                                           | WANG Chunxia, HU Jing, WEN Chenglin                                       | 3507 |
| Input and Output Passivity of Coupled Reaction-Diffusion Neural Networks with Impulsive Effects .....             | WEI Puchong, WANG Jin-Liang, HUANG Yanli, XU Beibei                       | 3512 |
| Deep Learning EEG Response Representation for Brain Computer Interface .....                                      | LIU Jingwei, CHENG Yin, ZHANG Weidong                                     | 3518 |
| Neural Network Identification and Control for Nonlinear Dynamic Systems with Time Delay .....                     | ZHANG Jianhua, LI Yang, WU Xueli                                          | 3524 |
| A New Water Quality Evaluation Model Based on Simplified Hopfield Neural Network .....                            | LI Rong, QIAO Junfei                                                      | 3530 |
| On Stability of Multiple Equilibria for Delayed Neural Networks with Discontinuous Activation Functions .....     | NIE Xiaobing, ZHENG Wei Xing                                              | 3542 |
| A One-layer Projection Neural Network for Linear Assignment Problem .....                                         | LIU Qingshan, ZHAO Yan                                                    | 3548 |
| Speech-oriented Negative Emotion Recognition .....                                                                | HE Liang, BO Yuming, ZHAO Gao Peng                                        | 3553 |

### Fuzzy System and Fuzzy Control

|                                                                                                                 |                                                           |      |
|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------|
| A Simulation of Fuzzy Control Algorithm Based on the IMC-PID Controller .....                                   | LIANG Weiping, GE Xiaojing                                | 3559 |
| Fuzzy Multiple Objectives Decision Fusion Based on Vague Sets .....                                             | TANG Zhigang, LIU Dongyuan                                | 3563 |
| Aerodynamic Force and Lateral Thrust Blended Control for Hypersonic Missile Using Fuzzy Control Algorithm ..... | CHAI Dong, FANG Yangwang, WU Youli, XU Suhui, YONG Xiaoju | 3567 |
| Finite-time Stability for Switching T-S Fuzzy Systems with Time-varying Delay .....                             | LEI Tao, LIU Hao, ZHOU Guopeng, TIAN Fengxia              | 3573 |

|                                                                                                                |                                                          |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Robust Stabilization of Uncertain Fractional-order Systems Based on T-S Fuzzy Model                            |                                                          |
| .....                                                                                                          | JI Yude, YANG Liyun, QIU Jiqing 3579                     |
| New Results on Variable Sampling Stabilization of Nonlinear System via Fuzzy Control Approach                  |                                                          |
| .....                                                                                                          | LI Jingying, HUANG Xianlin, BAN Xiao Jun, REN Liwei 3585 |
| Admissibility Analysis of Fuzzy Singular Systems with Interval-Like Time-Delay                                 |                                                          |
| .....                                                                                                          | HAN Chunsong, ZHANG Honglie, DAI Xuefeng, ZHUANG He 3597 |
| Design of Fuzzy Controller Based on Data Mining                                                                |                                                          |
| .....                                                                                                          | PENG Xia, YUAN Yan, CAO Weihua, WU Min 3602              |
| Robust $H_\infty$ tracking controller design for discrete-time affine fuzzy system using Fuzzy Lyapunov method |                                                          |
| .....                                                                                                          | LIU Shanjian, SHEN Jiong, XIA Zhou, LEI Pan 3607         |
| Fuzzy PID Controller Design and Implement in Ball-Beam System                                                  | .....                                                    |
|                                                                                                                | WU Yuanyuan, LIU Yongxin 3613                            |
| T-S Fuzzy Control for a Quad-rotor UAV                                                                         | .....                                                    |
|                                                                                                                | MAO Xiang, ZHANG Hongbin, HAN Dongfei 3617               |
| Event-based $H_\infty$ filter design for T-S fuzzy systems with randomly occurring sensor saturations          |                                                          |
| .....                                                                                                          | TAN Yushun, LIU Jinliang, ZHANG Yuanyuan 3623            |
| Design of Multi-objective Trajectory Optimization with Impact Angle and Time Constraints Based on Fuzzy        |                                                          |
| .....                                                                                                          | ZHANG Limin, WANG Huizhi, GAO Haitao, LI Weixun 3629     |
| Fuzzy Self-tuning PID Controller for an Unmanned Helicopter                                                    |                                                          |
| .....                                                                                                          | GONG Xing, WANG Lifeng, MENG Zhijun 3635                 |
| On Application of Proportional Valve-Controlled Hydraulic Cylinder Position Servo System                       |                                                          |
| .....                                                                                                          | LIU Fei, PENG Xiwei 3642                                 |
| On Regional Pole Placement of Fuzzy Systems                                                                    | .....                                                    |
|                                                                                                                | BAI Jianjun, LIU Xia, LU Renquan, ZHAO Susu 3648         |
| D Stabilization of the Fuzzy Singular Systems                                                                  |                                                          |
| .....                                                                                                          | BAI Jianjun, LIU Xia, LU Renquan, SHU Jianmiao 3653      |
| on Simulation for Fuzzy Control on Oxygen Concentration of the Mixed Air Supplied by Breathing                 |                                                          |
| Adjuster                                                                                                       | .....                                                    |
|                                                                                                                | SUN Hao, WANG Shoujun, SUN Qinglin 3658                  |

## Pattern Recognition

|                                                                                                         |                                                                       |
|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| A Touch Perception Algorithm Based on Depth Information                                                 |                                                                       |
| .....                                                                                                   | YU Hai Tao, GE Shui Ying, LIU Shuman 3669                             |
| Speaker Identification Using FrFT-based Spectrogram and RBF Neural Network                              |                                                                       |
| .....                                                                                                   | LI Peng Hua, LI Yuanyuan, LUO Dechao, LUO Hongping 3674               |
| Learning and Recognizing Human Actions from Video via Poisson Equations                                 |                                                                       |
| .....                                                                                                   | QIAN Hui Min, ZHOU Jun, MAO Yao-bin, YUAN Yue 3680                    |
| Color Structure-light Stripe Center-line Extraction Method Research                                     |                                                                       |
| .....                                                                                                   | CHEN Xuanzhen, WANG Xicong, CAO Yan, LU Shaofang 3686                 |
| Panoramic Sea-Sky Line Extraction Based on Improved Hough Circle Transform                              |                                                                       |
| .....                                                                                                   | SU Li, PANG Di, LIU Zhilin 3690                                       |
| Facial Feature Point Tracking Algorithm Based on Eyes Tracking and Active Appearance Model Step Fitting |                                                                       |
| .....                                                                                                   | ZHONG Rui, WU Huaiyu, WU Ruohong 3695                                 |
| A Local Threshold Algorithm for Cloud Detection on Ground-based Cloud Images                            |                                                                       |
| .....                                                                                                   | ZHU Tingting, WEI Haikun, ZHANG Chi, ZHANG Kanjian, LIU Tianhong 3702 |
| Point Cloud Registration Algorithm Based on NDT with Variable Size Voxel                                |                                                                       |
| .....                                                                                                   | LU Jun, LIU Wei, DONG Donglai, SHAO Qiang 3707                        |
| Small Object Detection Algorithm for Sonar Image Based on Pixel Hierarchy                               |                                                                       |
| .....                                                                                                   | YE Xiufen, WANG Sheng 3713                                            |

|                                                                                                                     |                                                               |      |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------|
| Real-time Traffic Cone Detection for Autonomous Vehicle .....                                                       | HUANG Yong, XUE Jianru                                        | 3718 |
| A Safe Semi-supervised Kernel Minimum Squared Error Algorithm<br>.....                                              | GAN Haitao, MENG Ming, MA Yuliang, GAO Yunyuan                | 3723 |
| Image Recognition for Steel Ball's Surface Quality Detecting Based on Kernel Extreme Learning Machine<br>.....      | LI Xiaodong, MAO Weijie, JIANG Wei                            | 3727 |
| Fusing Kalman Filter with TLD Algorithm for Target Tracking<br>.....                                                | SUN Chengjian, ZHU Songhao, LIU Jiawei                        | 3736 |
| LOCAL SALIENT MOTION ANALYSIS FOR ACTION RECOGNITION<br>.....                                                       | LU Ping, JIN Lizuo, SUN Jian, LI Yawei                        | 3742 |
| Electromyographic Movement Pattern Recognition Based on Random Forest Algorithm<br>.....                            | CHEN Lingling, LI Yaying, ZHANG Tengyu, WEN Qian              | 3753 |
| An Improved Corner Detection for Images Obtained by UAV<br>.....                                                    | XU Jian, CHEN Xiaoyuan, SONG Xiaoping, LI Hang                | 3759 |
| A Dynamic Queue Based Pipeline Filter for Infrared Dim Small Target Detection<br>.....                              | WANG Changcheng, SHEN Yu-heng, ZHANG Di, CAI Yunze            | 3770 |
| Lip Segmentation Algorithm Based on Bi-color Space .....                                                            | MA Xinjun, ZHANG Hongqiao                                     | 3776 |
| Emotional Feature Selection of Speaker-Independent Speech Based on Correlation Analysis and Fisher<br>.....         | LIU Zhen-Tao, LI Kai, LI Dan-Yun, CHEN Luefeng, TAN GuanZheng | 3780 |
| Monocular Optical Flow Navigation Using Sparse SURF Flow with Multi-layer Bucketing Screener<br>.....               | QIAN Chen, WANG Yan, GUO Lei                                  | 3785 |
| Review on Spectral Methods for Clustering .....                                                                     | ZHANG JingMao, SHEN Yanxia                                    | 3791 |
| Detection of Infrared Dim and Small Targets Based on Saliency and Grayscale Morphological Recon-<br>struction ..... | GU Zhangyuan, YANG Shuo, LI Jianxun                           | 3811 |
| A Novel Fast Haze Removal Technique for Single Image Using Image Pyramid<br>.....                                   | ZHAO Dong, BAI Yongqiang                                      | 3816 |
| Object Tracking Algorithm Based on HSV Color Histogram and Block-Sparse Representation<br>.....                     | XIAO Chi, CHEN Wenjie, GAO Huilin                             | 3826 |
| Patch-Feature Fusion via Sparse Representation for Heterogenous Face Recognition<br>.....                           | NI Hui, SU Jianbo                                             | 3832 |
| Modeling Texts in Semantic Space and Ensemble Topic-Models via Boosting Strategy<br>.....                           | WANG Yongliang, GUO Qiao                                      | 3838 |
| Visual Tracking Using Quantum-Behaved Particle Swarm Optimization<br>.....                                          | SUN Bo, WANG Baoyun, SHI Yujiao, GAO Hao                      | 3844 |
| A Novel Facial Expression Recognition Method Based on Extreme Learning Machine<br>.....                             | LIU Zhen-Tao, SUI Guitian, LI Dan-Yun, TAN GuanZheng          | 3852 |
| An Improved Tracking-Learning-Detection Method .....                                                                | WEN Hailong, WU Guangyu, LI Jianxun                           | 3858 |
| Facial Action Video Capture Interactive Mode Designed For Embedded Device<br>.....                                  | GAN Zixuan, SHI Wenhua, YE Chen                               | 3864 |
| A Fast Pedestrian Detection via Modified HOG Feature<br>.....                                                       | LI Weixing, SU Haijun, PAN Feng, GAO Qi, QUAN Bin             | 3870 |
| Clustering Based Road Detection Method .....                                                                        | LU Kaiyue, XIA Siyu, XIA Chao                                 | 3874 |
| Texture Information Fusion Based Image Classification .....                                                         | REN Huifeng                                                   | 3880 |
| Ensemble Based Constrained-Optimization Extreme Learning Machine for Landmark Recognition<br>.....                  | ZHAO Yanfei, CAO Jiuwen, LAI Xiaoping, YIN Chun, CHEN Tao     | 3884 |

The Study of Speech Training and Learning Method Based on DIVA Model

- ..... ZHANG Shaobai, HU Chenhong 3890
- On Discovery of Learned Paths from Taxi Origin-Destination Trajectories ..... LI Qiang, SUN Min 3896
- Mobile Terminal User Authentication Scheme Based On Dynamic Gesture
- ..... ZHOU Zhiping, MIAO Minmin, SUN Zi Wen 3902
- A New Inertial Sensor-Based Gait Recognition Method via Deterministic Learning
- ..... ZENG Wei, WANG Qinghui, DENG Muqing, LIU Yiqi 3908
- Axial Decoupled LS-SVMs for Indoor Positioning Using RSS Fingerprints
- ..... WEI Yanhua, WANG Dongli, ZHOU Yan 3920
- A Classification Method of Fog Image for USV Visual System
- ..... MA Zhongli, LIU Quanyong, HAO Liangliang, CHEN Yuwei 3926
- A Speech Detection Method Based on Sparse Representation in Low SNR Environments
- ..... LIU Guanqun, ZHANG Rubo, YANG Dawei 3932
- Algorithm and Implementation of Steel Head Shape Recognition Based on CRFs
- ..... WANG Zhiqiang, FEI Qing, LI Wei 3948
- Outdoor Scene Labeling Using Deep Convolutional Neural Networks
- ..... WEN Jun, ZHONG Chaoliang, LIU Shirong, WANG Jian 3953
- Target Recognition and Location Based on Binocular Vision System of UUV
- ..... XU Jian, CHEN Xiaoyuan, SONG Xiaoping, LI Hang 3959
- Feature Extraction Method of Motor Imagery EEG Based on DTCWT Sample Entropy
- ..... MENG Ming, LU Shaona, MAN Haitao, MA Yuliang, GAO Yunyuan 3964
- Particle Filter Based Moving Object Tracking in Dynamic Scene
- ..... CHI Hai-hong, LIU Lei, SONG Hanlin 3969
- A Novel Target Detection Method Based on Visual Attention with CFAR
- ..... LI Yaojun, WANG Lizhen, YANG Lei, WANG Yong, WANG Geng 3975
- A Classification Method of Vietnamese News Events Based on Maximum Entropy Model
- ..... ZHU Lijuan, ZHOU Feng, PAN Qingqing, YAN Xin, YU Zhengtao 3981
- Acoustics Recognition of Construction Equipments Based on LPCC Features and SVM
- ..... YANG Sanwei, CAO Jiuwen, WANG Jianzhong 3987

**Predictive Control**

The Prediction of Flight Delays Based the Analysis of Random Flight Points

- ..... FEI Rong, LI Qianya, HU Bo, ZHANG Jing, YANG Dongdong 3992
- A Predictive Controller with Self-renewal Model Observer for Continuous Sterilization of Biochemical Process ..... ZHANG Shiliang, CAO Hui, ZHANG Yanbin, JIA Lixin 3998
- An Improved Dual-Mode Robust Nonlinear MPC with One-Step Set Optimization
- ..... QIN Weiwei, HE Bing, LIU Beixuan, YIN Renping, LIU Gang 4004
- Cycle Life Prediction for Lithium-Ion Battery Based on GM(1,N) Grey Model
- ..... WANG Tong, CUI Naxin, SHANG Yunlong, ZHANG Chenghui 4010
- Ship Motion Prediction of Combination Forecasting Model Based on Adaptive Variable Weight
- ..... PENG Xiuyan, ZHANG Biao, RONG Lihong 4015
- Dynamic Matrix Control Optimization Based New PIPD Type Control for Outlet Temperature in a Coke Furnace ..... LI Haisheng, ZOU Hongbo, LU Renquan 4020
- PFC Optimization Based New PID Design for Fluidized Catalytic Cracking Unit
- ..... LI Haisheng, ZOU Hongbo, LU Renquan 4026

|                                                                                                                                      |      |
|--------------------------------------------------------------------------------------------------------------------------------------|------|
| An Improved Robust Model Predictive Control for Uncertain Systems with Input Saturation                                              | 4037 |
| ..... HAN Huaxiang, ZHANG Xiaohua, ZHANG Weidong                                                                                     |      |
| Nonlinear Model Predictive Control of Blowout Tire Vehicles and Its Map-based Implementation                                         | 4043 |
| ..... WANG Fei, GUO Hongyan, CHEN Hong                                                                                               |      |
| An Explicit MPC for Quadrotor Trajectory Tracking                                                                                    | 4055 |
| ..... LIU Cunjia, LU Hao, CHEN Wenhua                                                                                                |      |
| Modeling and Simulation of an Electronic Oxygen Regulator Based on Generalized Predictive Control Algorithm                          | 4067 |
| ..... JIANG Yuxin, SUN Qinglin, CHEN Zengqiang, DENG Sanpeng                                                                         |      |
| Research on Diving Control of Underactuated UUV Based on Model Predictive Control with Artificial Bee Colony Algorithm               | 4073 |
| ..... ZHANG Wei, GUO Yi, MENG Detao, LIANG Zhicheng, CHEN Tao                                                                        |      |
| MPC-Based Power Tracking Control for a Wind Energy Conversion System with PM Synchronous Generator                                   | 4079 |
| ..... JIANG Haiping, JIAO Xiaohong, REN Lina                                                                                         |      |
| A Noncooperative Distributed Model Predictive Control for Constrained Linear Systems with Decoupled Dynamics                         | 4084 |
| ..... DING Baocang, YANG Yuanqing                                                                                                    |      |
| Case Study on the Advanced Control for Ozone Dosing Process of Drinking Water Treatment                                              | 4091 |
| ..... WANG Dongsheng, JIANG Fuchun, WANG Xingbo                                                                                      |      |
| Dynamic Output Feedback Robust MPC via Zonotope-based Set-membership Estimation for General LPV Systems                              | 4095 |
| ..... PING Xubin, SUN Ning                                                                                                           |      |
| Nonlinear Model Predictive Control of an Intensified Continuous Reactor Using Neural Networks                                        | 4101 |
| ..... LI Shi, LI Yueyang                                                                                                             |      |
| Iterative Learning Predictive Control for Urban Drainage Systems                                                                     | 4107 |
| ..... CUI Yiqun, JIN Mengke, LI Dewei, XI Yugeng, CEN Lihui                                                                          |      |
| Predictive Attitude Controller for Under-Actuated Reentry Vehicle                                                                    | 4113 |
| ..... SUN Shan, LI Huifeng, ZHANG Ran                                                                                                |      |
| A Sophisticated RMPC Design for LPV Systems Based on the Mixed Multi-step Feedback Control                                           | 4119 |
| ..... ZHENG Pengyuan, LI Dewei, XI Yugeng, LI Xiaoli                                                                                 |      |
| Fire Strike Target Decision Making Based on Prospect Theory                                                                          | 4124 |
| ..... WANG Mingjie, ZHANG Zheng, WU Xueping, ZHANG Liaoning                                                                          |      |
| A Design of Global Controller for Nonlinear Model Predictive Iterative Learning Control with Convergence Analysis                    | 4127 |
| ..... YANG Meng, LIU Xiangjie                                                                                                        |      |
| A Novel Comprehensive Solution for Furnace Integrating Outlet Parametric Variable Control and Online Thermal Efficiency Optimization | 4139 |
| ..... QI Lugang, GAO Xiaoyong, HUANG Dexian, WANG Ling, WANG Haijun, SONG Shuguang                                                   |      |
| Time Optimal MPC Based on Offline Construction of Ellipsoidal Sets                                                                   | 4145 |
| ..... CHENG Qifeng, MA Aoyun, WU Zhou, XIA Xiaohua                                                                                   |      |
| Distributed MPC Strategy with Application to AGC in the Presence of Variable Speed Wind Turbine                                      | 4151 |
| ..... YAN YUJIA, ZHANG YI, LIU Xiangjie                                                                                              |      |
| Bihormonal Artificial Pancreas System Based on Switching Model Predictive Control                                                    | 4156 |
| ..... WANG Youqing                                                                                                                   |      |
| Nonlinear Model Predictive Control with Semi-Contracting Constraint and Generalized Terminal Constraint                              | 4162 |
| ..... ZHU Bing, XIA Xiaohua                                                                                                          |      |
| Decentralized Robust $H_\infty$ Model Predictive Control of Discrete-time Singular Large-scale Systems                               | 4173 |
| ..... GAO Chan, LIU Xiaohua                                                                                                          |      |
| Stochastic Output-feedback Model Predictive Control for Systems with Multiplicative and Additive Uncertainty                         | 4179 |
| ..... LI Jiwei, LI Dewei, XI Yugeng, ZHENG Pengyuan                                                                                  |      |

|                                                                                                           |                                        |      |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------|------|
| Event-triggered Model Predictive Control for Constrained Invariant Set Trajectory .....                   | LI Zhe, LI Shaoyuan, WU Jing           | 4185 |
| Iterative Predictive Control Method for Batch System Based on Recurrent Fuzzy Neural Networks Model ..... | XU Huimin, ZHANG Xuedong, LIU Xiangjie | 4191 |

## Motion Control

|                                                                                                                                            |                                                                 |      |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| Position and Speed Tracking Control of Inverted Pendulum Based on Double PID Controllers .....                                             | WANG Jiajun                                                     | 4197 |
| Stabilization and Tracking Control of X-Z Inverted Pendulum Based on PID Controllers .....                                                 | WANG Jiajun                                                     | 4202 |
| Cooperation and Collision Avoidance for Multiple DP Ships with Disturbances .....                                                          | FU Mingyu, XU Yujie, WANG Yuanhui                               | 4208 |
| A Survey of Motion Control for Marine Vehicles .....                                                                                       | QI Ai-Chun, HAN Qing-Long, WANG Yu-Long                         | 4214 |
| A Tracking Control Method for Flocking of AmigoBots .....                                                                                  | CHENG Jin, ZHANG Yong, HUI Qing                                 | 4219 |
| Servo System Design and Implementation Based on Position and Speed Control for the Linear Motor .....                                      | JI Lanlong, CAO Rongmin, ZHOU Huixing, HOU Zhongsheng           | 4223 |
| A Sliding Mode Flux Observer for Online Rotor and Stator Resistance Estimation in Predictive Torque Controlled Induction Motor Drive ..... | ZHOU Dehong, ZHAO Jin                                           | 4228 |
| Analysis and Rejection of Angular Position-based Disturbances for PMSM-actuated Testing Table Systems .....                                | HUO Xin, TONG Xingang, LIU Xiaokun, ZHANG Xiaorou               | 4233 |
| Classical and Intelligent Based Control Method for Positioning Systems .....                                                               | YAKUB Fitri, MORI Yasuchika, AJI WIJAYA Andika                  | 4239 |
| RBF Adaptive Sliding Control for Five-axis Flexible Satellite .....                                                                        | MA Zheng, WU Yunjie, DONG Xiao-meng                             | 4245 |
| Robust Control of DC Motors Based on Disturbance Estimation .....                                                                          | XU Zhangbao, YAO Jianyong, MA Dawei, YANG Guichao               | 4251 |
| Adaptive Robust Control of DC Motors with Time-Varying Output Constraints .....                                                            | YANG Guichao, YAO Jianyong, LE Guigao, MA Dawei                 | 4256 |
| Extended State Observer Based Output Feedback Asymptotic Tracking Control of DC Motors .....                                               | DENG Wenxiang, LUO Chengyang, YAO Jianyong, MA Dawei, LE Guigao | 4262 |
| A Novel MTPA Control for IPMSMs Based on Extremum Seeking Control .....                                                                    | TIAN Lisi, LIU Yang, ZHAO Jin, SUN Jiajiang                     | 4268 |
| On the Motion Control Strategy of AUV to Optimize the Voyage Resistance .....                                                              | YAO Xuliang, MENG Lingwei, WEI Cunli                            | 4274 |
| A Cascaded Adaptive UUV Tracking Control Design with Ocean Current .....                                                                   | SUN Bing, MEI Man, ZHU Daqi                                     | 4280 |
| A Motion Planning Method for Underactuated 3D Overhead Crane Systems .....                                                                 | ZHANG Menghua, MA Xin, GAO Faqin, TIAN Xincheng, LI Yibin       | 4286 |
| Peak-to-peak Controller Design for a Dual-stage Actuation System with Input Saturation .....                                               | GAO Tingting, ZHOU Yong, HUANG Jiangshuai                       | 4292 |
| Experimental Evaluation of a Proximate Time-optimal Servo Control Scheme .....                                                             | ZHAO Jiqiang, CHENG Guoyang                                     | 4297 |
| Pseudospectral Method Based Time Optimal Trajectory Planning for Double Pendulum Cranes .....                                              | CHEN He, FANG Yongchun, SUN Ning, QIAN Yuzhe                    | 4302 |

|                                                                                                                           |                                                                              |      |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------|
| Active Disturbance Rejection Trajectory Tracking Control for Pneumatic Servo System Based on Back-stepping Approach ..... | YANG Yafei, ZHAO Ling, FAN Xiaozhao, LIU Zhixin                              | 4308 |
| Instantaneous Torque Ripple Control in Brushless DC Motors Based on Conduction PWM Duty Ratio .....                       | HOU Hongsheng, LIU Weiguo                                                    | 4313 |
| Self-adaptive Control with Hysteresis Compensation on Ultra-precision Pneumatic Servo Stage .....                         | TIAN Yanbing, WANG Tao, LIU Jun, HAN Sen                                     | 4319 |
| Sensorless Speed Control of Permanent Magnet Synchronous Motor Based on RBF Neural Network .....                          | HAN Feifei, WANG Zhonghua, LI Yueyang, HAN Tongyi                            | 4325 |
| A Discrete-time Robust Composite Nonlinear Control Approach to Motor Position Regulation .....                            | CHEN Yi, ZHAO Jiqiang, CHENG Guoyang                                         | 4331 |
| Constrained Energy Efficiency Optimization for Robotic Manipulators Using Neuro-dynamics Approach .....                   | XU Peng, WANG Liyang, LI Zhijun, SU Chunyi                                   | 4337 |
| Extended Disturbance Observer Based Robust Control for Vibration Isolation on Airborne Optoelectronic Platform .....      | YANG Yanyu, FU Zhihao, WANG Yong, JIA Ping                                   | 4343 |
| PI-PSO Algorithm Based Voltage Controller of STATCOM for Self-Excited Induction Generator .....                           | GONG Pingping, LU Ziguang, LI Zhuo, WANG Di                                  | 4349 |
| Evaluation on Direct Torque and Flux Control of IPMSM for Electric Vehicle .....                                          | LIN Weijie, REN Jinsong, LIU Dongliang, WU Qiuxuan                           | 4355 |
| Fixed-time Terminal Sliding Mode Trajectory Tracking Control of Quadrotor Helicopter .....                                | HOU Yun, ZUO Zongyu, SHI Zhiguang                                            | 4361 |
| Motor Speed Estimation Method Based on Second Order Generalized Integrator-Frequency Locked Loop .....                    | ZHANG Jianya, LU Wenqi, GU Xiaowei, YUAN Yanhong, LIU Hu, YU Zhiyuan         | 4367 |
| Kinematic and Static Analysis of a Cable-driven 3-DOF Delta Parallel Mechanism for Haptic Manipulators .....              | HAO Jianlong, BIAN Gui-Bin, XIE Xiaoliang, HOU Zengguang, YU Hongnian        | 4373 |
| Walking Analysis of a Biped Moving System in the Lateral Plane ....                                                       | WANG Haiyan, RUAN Jiuhong                                                    | 4379 |
| The Research on BLDCM Control System Based on DSP .....                                                                   | HE Qing, WANG Yu                                                             | 4388 |
| Research on Trajectory Planning of On-The-Fly Observing for the Active Feed Receiver in FAST .....                        | DENG Sai, JING Fengshui, YANG Guodong, LIANG Zize, YU Dongjun                | 4393 |
| Research on an Extended State Observer Based Self Tuning Control Strategy for a Two-axis Four-gimbal Servo System .....   | SHU Junyi, PAN Feng, CHANG Yanchun, LI Weixing, ZHAO Junhua                  | 4400 |
| An Iterative Learning Controller for Quadrotor UAV Path Following at a Constant Altitude .....                            | MA Zhaowei, HU Tianjiang, SHEN Lincheng, KONG Weiwei, ZHAO Boxin, YAO Kaidi  | 4406 |
| A Novel Approach of Tuning Trapezoidal Velocity Profile for Energy Saving in Servomotor Systems .....                     | ZHU Yu, CHEN Han, MU Haihua                                                  | 4412 |
| The Cam Grinding Contour Error Compensation Based on Cycle to Cycle Control .....                                         | WANG Jing, SUI Zhen, SUN Zhongbo, LI Cong, JIN Hui, WANG Hongyu, TIAN Yantao | 4418 |
| Formation Tracking Control of Multiple Quadrotors Based on Backstepping .....                                             | YUAN Xuemin, CAO Ke-cai, HU Haisheng, ZHANG Tao                              | 4424 |
| Flight Control Algorithm for Small UAVs with Aerodynamic Asymmetry .....                                                  | TIAN Hua, FANG Zhou, WEN Yali, ZHAO Wenjie, LI Ping                          | 4431 |
| Global Straight-Path Tracking Control Design for Underactuated Ships with Unknown Control Direction .....                 | YAN Xuehua, SONG Xinmin, LI Yueyang                                          | 4449 |
| Controller Design for a Permanent Magnet Linear Synchronous Motor: a Singular Perturbation Method .....                   | YANG Chunyu, HAN Yuchen, SHI Yuxiang, ZHOU Linna                             | 4453 |

|                                                                                                                   |                                                      |      |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|
| The Study on Fine Adjustment of Focus Cabin Suspension of FAST Based on the Quadric Error Model of Receiver ..... | HAO Jianlin, JING Fengshui, YANG Guodong, LIANG Zize | 4459 |
| A Vortex-ring-state-avoiding Descending Control Strategy for Multi-rotor UAVs .....                               | LI Chenglong, FANG Zhou, WANG Jiafang, ZHANG Xiang   | 4465 |
| An Optimization Method for Inverse Kinematics of a 7-DOF Redundant Manipulator .....                              | YAN Wenbin, SUN Lei                                  | 4472 |
| Study of Humanoid Robot Gait Based on Human Walking Captured Data .....                                           | WANG Baoping, DU Yuqian, SUN Xiaoying, LIN Jiayi     | 4480 |
| Control Strategies for the Electromagnetic Launcher for UAVs .....                                                | YANG Yu, WU Jun                                      | 4486 |
| Analysis and Solution of Single Phase Winding Broken Fault of BLDCM .....                                         | ZHANG Qin, QU Wentai                                 | 4490 |
| Harmonic Disturbances Observer Based Control for DC-AC Inverter .....                                             | WANG Zuo, LI Shihua, WANG Junxiao, YANG Jun          | 4495 |
| ANN-inversion Based Fractional-Order Sliding Control ....                                                         | XU Qinghong, HUANG Jiakai, ZHOU Lei                  | 4501 |
| PMSM Hamiltonian Energy Shaping Control with Parameters Self-tuning PID Control .....                             | QIU Jun, HU Chao, YANG Sainv                         | 4506 |

### Signal Processing and Information fusion

|                                                                                                                             |                                                               |      |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------|
| Wavelet Based Harmonic Parameter Estimation in Non-Gaussian Impulsive Noise Environments .....                              | DAI Yu, XUE Yuan, ZHANG Jianxun                               | 4512 |
| Block MMV for the Reconstruction of Multiband Signals .....                                                                 | LI Haifeng, LI Rui, LI Bei                                    | 4523 |
| Accelerated Information Weighted Consensus-based DPF Algorithm for Target Tracking in Sparse Wireless Sensor Networks ..... | TANG Wenjun, ZHANG Guoliang, ZENG Jing                        | 4529 |
| Posterior Cramer-Rao Bounds for Discrete-Time Nonlinear Filtering with Finitely Correlated Noises .....                     | WANG Zhiguo, SHEN Xiaojing                                    | 4541 |
| Detection of Feature Points on the Three-Dimensional Scene under Varying Conditions of Observation .....                    | RUMYANTSEV Konstantin, PETROV Dmitry                          | 4547 |
| A Novel Algorithm on Adaptive Image Compressed Sensing with Sparsity Fitting .....                                          | XU Xue, WANG Xiaohua, WANG Weijiang                           | 4552 |
| Optimal Linear Estimation Fusion for Systems with One-Step Delays and Packet Dropouts .....                                 | SUN Jiabing, ZHANG Chengjin, SUN Xiaoxia                      | 4558 |
| On Forecast Modeling of MEMS Gyroscope Random Drift Error .....                                                             | REN Bo, LI Huan                                               | 4563 |
| A JND-based Saliency Map Fusion Method for Digital Video Watermarking .....                                                 | CHEN Dandi, XIA Siyu, LU Kaiyue                               | 4568 |
| Design and Performance Analysis of Infrared Micro-Polarizer Array .....                                                     | ZHAO Yongqiang, LIU Wuteng, KONG Seong G., LIU Yong, PAN Quan | 4574 |
| Online Calibration for FBG Networks Based on Improved Particle Swarm Optimization Algorithm .....                           | LIU Kaining, ZHU Xiaojin, ZHANG Hesheng, GAO Zhiyuan, GENG Lu | 4581 |
| Optimal Placement of FBG Sensors for Reconstruction of Flexible Plate Structures Using Modal Approach .....                 | GENG Lu, ZHU Xiaojin, ZHANG Hesheng, GAO Zhiyuan, LIU Kaining | 4587 |
| Caputo Fractional Derivative Estimation for a Class of Signals Satisfying a Linear Differential Equation .....              | WEI Xing, LIU Da-Yan, BOUTAT Driss                            | 4598 |
| Radar Data Processing of Blast Furnace Stock-Line Based on Spatio-Temporal Data Association .....                           | HOU Qingwen, CHEN Xianzhong, CHEN Ping                        | 4604 |

|                                                                                                    |                                              |
|----------------------------------------------------------------------------------------------------|----------------------------------------------|
| Event-triggered State Fusion Estimation for Wireless Sensor Networks with Feedback                 |                                              |
| ..... JIN Zengwang, HU Yanyan, SUN Changyin, ZHANG Lan                                             | 4610                                         |
| Robust 3D Human Tracking Based on Kinect .....                                                     | LI Min, YANG Yang, LIU Yun-Xia, LENG Yan     |
| 4615                                                                                               |                                              |
| Improved Strong Tracking Filter Algorithm for Dynamic Positioning Vessels                          |                                              |
| ..... WANG Yuanhui, TUO Yulong, CHI Cen, WANG Haiying, NI Chenglin                                 | 4624                                         |
| Small Celestial Body Image Feature Matching Method Based on PCA-SIFT                               |                                              |
| ..... TAO Tianyuan, KANG Zhiwei, LIU Jin, HE Xin                                                   | 4629                                         |
| Granger Causality Analysis in the Neural Mass Model                                                |                                              |
| LIANG Li, DENG Bin, WANG Jiang, WANG Ruofan, WEI Xile, YU Haitao, QIN Ying Mei, YANG               | 4641                                         |
| On Realization of Signal Processing Based on Tracking-Differentiator for Maglev Train              |                                              |
| ..... DOU Fengshan, WANG Zhiqiang, HE Hongli, LONG Zhiqiang                                        | 4646                                         |
| A New Method of Reconstruction of Dynamical System of Nonstationary Time-series                    |                                              |
| ..... WANG Rui, MA Hongguang, LIU Lingxia                                                          | 4651                                         |
| An Anti-interference EEG-EOG Hybrid Detection Approach for Motor Image Identification and Eye      |                                              |
| Track Recognition .....                                                                            | TANG Haoyue, ZHAO Yue, HE Wei, FU Wei        |
| 4657                                                                                               |                                              |
| Automatic Busbar Detection in Substation: Using Directional Gaussian Filter,                       |                                              |
| Gradient Density, Hough Transform and Adaptive Dynamic K-means Clustering                          |                                              |
| ..... CHEN Hongkai, SUN Shiyang, WANG Tianzheng, ZHAO Xiaoguang, TAN Min                           | 4668                                         |
| Event-based State Estimation of a Discrete-State Hidden Markov Model Through a Reliable Communi-   |                                              |
| cation Channel .....                                                                               | SHI Dawei, ELLIOTT Robert, CHEN Tongwen      |
| 4673                                                                                               |                                              |
| Distributed Fusion Filter for Multi-rate Multi-sensor Systems with Multiplicative Noises           |                                              |
| ..... JIN Hao, MA Jing                                                                             | 4679                                         |
| A Target Tracking Method Based on Tangential and Normal Acceleration Variable-Structure Multiple   |                                              |
| Model .....                                                                                        | HUANG Dayu, QIU Jier, WU Shaofeng, CAI Yunze |
| 4688                                                                                               |                                              |
| Image Blind Restoration Based on Blur Identification and Quality Assessment of Restored Image      |                                              |
| ..... YIN Lei, DI Xiaoguang, FU Shaowen, GAO Lei, MA Jie                                           | 4693                                         |
| An Efficient Matrix-based Algorithm for the WLS Design of 2-D FIR Filters with Centrally Symmetric |                                              |
| or Antisymmetric Response .....                                                                    | ZHAO Ruijie, HONG Xiao-Ying                  |
| 4699                                                                                               |                                              |
| A Target Tracking Algorithm Based on Mean Shift with Feature Fusion .....                          | JI Xiaoyan, QU Shiru                         |
| 4704                                                                                               |                                              |
| A Study on Occluded Pedestrian Detection Based on Block-based Features and Ensemble Classifier     |                                              |
| ..... WU Bin, QU Shiru                                                                             | 4710                                         |
| Multi-platform Maneuvering Target Tracking Based on BLUE - AIMM - CI Algorithm                     |                                              |
| ..... WANG Mao-zhang, BAI Yongqiang                                                                | 4716                                         |
| Simultaneous Registration and Estimation for Distributed Non-uniformly Sampled Sensor Network      |                                              |
| ..... ZHAO Zhiquan, CAI Meng, LI Jianxun                                                           | 4722                                         |
| Design of an Online BCI System Based on CCA Detection Method                                       |                                              |
| ..... LIN Dongxue, TAN Jeffrey Too Chuan, ZHU Chi, DUAN Feng                                       | 4728                                         |
| Bearing-only Target Tracking Using Cubature Rauch-Tung-Striebel Smoother                           |                                              |
| ..... LIU Meiqin, ZHANG Di, ZHANG Senlin                                                           | 4734                                         |
| Based on UWB Wireless Ranging's Unmanned Helicopter Position System                                |                                              |
| ..... LI Hongliang, ZHANG Daibing, ZHANG Jiyang, SHEN Lincheng                                     | 4739                                         |
| Covariance Intersection Fusion Kalman Predictor for Two-sensor Descriptor System                   |                                              |
| ..... RAN Chenjian, DOU Yinfeng                                                                    | 4744                                         |
| Joint Estimation of State and Bias Based on Generalized Systematic Model                           |                                              |
| ..... ZHOU Jie, LIANG Yan, ZHOU Lin, PAN Quan                                                      | 4750                                         |

|                                                                                                                                         |                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Fan Fault Diagnosis Based on Wavelet Spectral Analysis                                                                                  |                                              |
| ..... WEN Zheng, WANG Pu, GAO Xue-jin, ZHANG Yachao                                                                                     | 4756                                         |
| Multi-dimensional State Estimation in Adversarial Environment                                                                           | ..... MO Yilin, MURRAY Richard               |
| On Applying Multi-scale Entropy to Quality Assessment of ECG Collected via Mobile Phone                                                 |                                              |
| ..... ZHANG Yatao, WEI Shoushui, LONG Yutao, LIU Chengyu                                                                                | 4767                                         |
| Asynchronous Track-to-Track Association Algorithm Based on Dynamic Time Warping Distance                                                |                                              |
| ..... YANG Yanting, LIANG Yan, YANG Yanbo, QIN Yuemei                                                                                   | 4772                                         |
| The LMMSE Estimation for Markovian Jump Linear Systems with S-tochastic Coefficient Matrices and One-step Randomly Delayed Measurements |                                              |
| ..... QIN Yuemei, LIANG Yan, YANG Yanbo, YANG Yanting, PAN Quan                                                                         | 4783                                         |
| Performance Analysis of MEMS Gyro and Improvement Using Kalman Filter                                                                   |                                              |
| ..... GUO Yanning, HAN Fei, DU Shaohe, MA Guangfu, ZHU Liangkuan                                                                        | 4789                                         |
| Empirical Mode Decomposition Based on the Kernel Extreme Learning Machine and Its Application in the Spectrum Denoising                 | ..... XU Zhe, WANG Chao                      |
| EMD Interval Thresholding Denoising Based on Correlation Coefficient to Select Relevant Modes                                           |                                              |
| ..... ZHANG Shangyue, LIU Yuanyuan, YANG Gongliu                                                                                        | 4801                                         |
| Tracking of Hypersonic Aircraft in Near Space Based on GSF                                                                              |                                              |
| ..... HE Chongyang, LIANG Yan, WANG Li, ZHANG JinFeng                                                                                   | 4807                                         |
| An Improved Hybrid Invasive Weed Optimization for Antenna Beamformer                                                                    |                                              |
| ..... HUANG Ping, LI Yupeng                                                                                                             | 4813                                         |
| The Filter Design Based on Multiple Characteristic Functions in Nonlinear Systems                                                       |                                              |
| ..... CHENG Xingshuo, WEN Chenglin                                                                                                      | 4818                                         |
| Optimal FPGA Implementation of High Speed Scale Space Generator                                                                         | ..... LI Nan, WANG Junzheng                  |
| Multi-Target Joint Tracking and Classification Based on MMPHD Filter and TBM Framework                                                  |                                              |
| ..... ZHAN Kun, JIANG Hong, ZHAO Tianqu, YANG Peng, XIONG Zihao, LI Qingdong                                                            | 4829                                         |
| A Mismatching Eliminating Method Based on Camera Motion Information                                                                     |                                              |
| ..... LI Chuang, DONG Hongxin, QUAN Quan                                                                                                | 4835                                         |
| Combination Approach for Conflicting Evidence Based on Discount Coefficient                                                             |                                              |
| ..... ZHAO Yuxin, JIA Renfeng                                                                                                           | 4841                                         |
| Sparse FIR Filter Design Using Iterative Reweighted 1-Norm Minimization and Binary Search                                               |                                              |
| ..... LIU Lei, LAI Xiaoping                                                                                                             | 4846                                         |
| Optimal Distributed Fusion for State Estimation in Multirate Wireless Sensor Networks                                                   |                                              |
| ..... JIANG Lu, YAN Liping, XIA Yuanqing, FU Mengyin                                                                                    | 4851                                         |
| Multi-sensor Image Fusion Scheme Based on Dual-Tree Complex Wavelet Transform                                                           |                                              |
| ..... XIE Xiaozhu, XU Yawei                                                                                                             | 4857                                         |
| A Mobile Sensor Configuration and Multi-object Tracking Algorithm                                                                       |                                              |
| ..... LIU Weifeng, WEN Chenglin, ZHU Shujun, SUN Yao                                                                                    | 4862                                         |
| Levenberg-Marquardt Algorithm Based Nonlinear Optimization of Camera Calibration for Relative Measurement                               | ..... TIAN Shaoxiong, LU Shan, LIU Zong-ming |
| Application of Curvelet Transform for Denoising in Electronic Speckle Pattern Interferometry Fringe Patterns                            | ..... REN Hongwei, ZHANG Linghua, TANG Chen  |
| Optimal and Self-tuning Information Fusion Kalman Filter with Complex Colored Noise                                                     |                                              |
| ..... TAO Guili, LIU Wenqiang, ZHANG Jianfei, QI Wenjuan, XU Hongchang                                                                  | 4877                                         |
| SH-STF: a Novel Adaptive Filter and Its Application in SINS/GPS/DVS Integrated Navigation                                               |                                              |
| ..... YAN Liping, XIA Yuanqing, FU Mengyin                                                                                              | 4882                                         |

|                                                                                                    |                                                                                                     |      |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------|
| Sinusoid Frequency Estimation Based on DFT and the Argument of the Sample Autocorrelation Function | FAN Lei, QI Guoqing, ZHANG Di                                                                       | 4895 |
| An Efficient Magnetic Localization System for Indoor Planar Mobile Robot                           | HU Chao, FENG Zhongqing, REN Yupeng, CHEN Yueyue, LIN Haixiang, WANG Kai, XU Xiaodong, BAO Jianmeng | 4899 |
| Time Irreversibility Analysis of Two Phase Flow Based on Symbolic Relative Entropy                 | FAN Chunling, LI Li                                                                                 | 4905 |
| Repeated Game for Distributed Estimation in Autonomous Wireless Sensor Networks                    | LIU Guiyun, LIU Yonggui, TANG Dong                                                                  | 4909 |
| Adaptive Multiple Cues Integration for Robust Outdoor Vehicle Visual Tracking                      | XIN Jing, LIU Xiao-dan, RAN Bao-jing, LIU Ding                                                      | 4913 |
| Application on Information Fusion Technology of Fault Diagnosis of Mine Hoist                      | WANG Yufang                                                                                         | 4919 |
| Adaptive Hybrid Kalman Filter Based on the Degree of Observability                                 | SHANG Zhigang, MA Xiaochuan, LIU Yu, YAN Shefeng                                                    | 4923 |
| Auto Regressive Moving Average (ARMA) Prediction Method of Bank Cash Flow Time Series              | NING Chen-xu, WANG Jie-sheng                                                                        | 4928 |

### Big Data Analysis and Compressed Sampling

|                                                                                                            |                                                                 |      |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| Optimized Projections for Generalized Joint Sparse Representation Based Image Fusion                       | ZHANG Qiheng, YUN Hongquan, JU Wen, XU Li, LU Zhengkun          | 4934 |
| A New Approach to Sensing Matrix Optimization Using Steepest Descent Algorithm                             | LI Xiao, YE JiaHui, LI Gang, BAI Huang, JIANG Qianru            | 4939 |
| Bi-graph Random Walk Sampling of Directed Online Social Networks                                           | SHEN Luyi, WANG Xiaofan                                         | 4945 |
| Alternating Direction Method Based Decoding for Object Recognition                                         | ZHANG Qiheng, YUN Hongquan, JU Wen, WANG Xiaojing               | 4951 |
| Compressing Sampling for Time Series Big Data                                                              | MIAO Beibei, JIN Xue-bo                                         | 4957 |
| A Hubness Based Sampling Approach for PAM Algorithm                                                        | HE Zhenfeng                                                     | 4962 |
| Multi-Channel Detection for Abrupt Change Based on the Ternary Search Tree and Kolmogorov Statistic Method | QI Jinpeng, QI Jie, PU Fang, GONG Tao                           | 4968 |
| A K-medoids Algorithm Based Method to Alleviate the Data Sparsity in Collaborative Filtering               | LIN Ziqi, NI Wancheng, ZHANG Haidong, ZHAO Meijing, YANG Yiping | 4974 |
| Structure Regularized Traffic Monitoring Model for Traffic Matrix Estimation and Anomaly Detection         | ZHANG Qi, CHU Tianguang                                         | 4980 |
| A Feasible Graph Partition Framework for Random Walks Implemented by Parallel Computing in Big Graph       | LIU Xiaoming, ZHOU Yadong, GUAN Xiaohong, SUN Xiaoxiao          | 4986 |

### Navigation and Guidance

|                                                                                        |                               |      |
|----------------------------------------------------------------------------------------|-------------------------------|------|
| New Calibration and Error Compensation for Strapdown Magnetometer                      | LIU Zhiping, XUE Jinqiang     | 4992 |
| Tracking for Near Space Nonballistic Target Based on Several Filter Algorithms         | QIN Lei, ZHOU Di, LI Jun Long | 4997 |
| Longitudinal Dynamic Characteristics Analysis for Controller Design of Elastic Missile | XU Zhao Qing, PEI Hailong     | 5003 |

|                                                                                                                          |                                                                       |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| An Entry Guidance Algorithm Based on Trajectories Database                                                               |                                                                       |
| .....                                                                                                                    | ZENG Liang, ZHANG Hongbo, ZHENG Wei 5008                              |
| A Robust Kalman Filter for Mars Entry Navigation                                                                         |                                                                       |
| .....                                                                                                                    | YU Zhengshi, ZHU Shengying, CUI Pingyuan, WANG Lina 5014              |
| Mobile Robot Navigation Based on Improved CA-CMAC and Q-Learning in Dynamic Environment                                  |                                                                       |
| .....                                                                                                                    | LI Guojin, CHEN Shuang, XIAO Zhuli, DONG Diyong 5020                  |
| Maneuvering Target Tracking with Unknown Acceleration Using Retrospective-Cost-Based Adaptive Input and State Estimation |                                                                       |
| .....                                                                                                                    | HAN Liang, XIE Antai, REN Zhang, BERNSTEIN Dennis S. 5029             |
| Temperature Drift Modeling and Compensation of FOG Combined Extended Forgetting Factor Recursive Least Square (EFRLS)    |                                                                       |
| .....                                                                                                                    | LIU Yuanyuan, YANG Gongliu, YIN Hongliang 5035                        |
| H2 Optimal Proportional Navigation Guidance Law                                                                          |                                                                       |
| .....                                                                                                                    | CHEN Mengxiang, ZHANG Weidong 5041                                    |
| In-Flight Aid Alignment with Multi-Population Genetic Algorithm in the Arctic                                            |                                                                       |
| .....                                                                                                                    | LI Jing, SONG Ningfang, YANG Gongliu, LIU Yuanyuan, WANG Jing 5047    |
| Single Moving-mass Asymmetrical Reentry Vehicle Guidance Law Design                                                      |                                                                       |
| .....                                                                                                                    | WANG Linlin, YU Jianqiao, JING Wenming, SU Xiaolong 5052              |
| Stochastic Modeling the Vertical Deflection Errors of EGM2008 for INS/GNSS Integration                                   |                                                                       |
| .....                                                                                                                    | DAI Dongkai, WANG Xingshu, HUANG Zongsheng, ZHENG Jiaying 5057        |
| Constrained Predictor Corrector Entry Guidance for Common Aero Vehicle                                                   |                                                                       |
| .....                                                                                                                    | WANG Haoliang, HUA Yongzhao, LI Qingdong, REN Zhang, DONG 5061        |
|                                                                                                                          | Xiwang, HAN Liang, YANG Peng                                          |
| Robust Control for Constant Thrust Collision Avoidance Maneuver                                                          |                                                                       |
| .....                                                                                                                    | QI Yongqiang, JIA Yingmin 5067                                        |
| Robust Control for Constant Thrust Collision Avoidance Maneuver under Thrust Failure                                     |                                                                       |
| .....                                                                                                                    | QI Yongqiang, JIA Yingmin 5073                                        |
| Attitude Dynamics Aiding for Line-of-Sight Angular Rate Reconstruction of Strap-down Seeker                              |                                                                       |
| .....                                                                                                                    | ZHAO Bin, ZHOU Jun 5079                                               |
| Finite Time Control for Line Path Following of Underactuated Surface Vessels                                             |                                                                       |
| .....                                                                                                                    | ZHANG Tianhong, ZHANG Jun, LIU Zhilin, ZHAO Dean, WANG Zhanlei 5084   |
| Autopilot Design for BTT Missile Based on CADET                                                                          |                                                                       |
| .....                                                                                                                    | JIANG Ruimin, ZHOU Jun, GUO Jianguo 5090                              |
| On Observability of a Relative Attitude Determination System Based on Stereo Vision                                      |                                                                       |
| .....                                                                                                                    | BAI Bo, ZHOU Jun, YU Xiao-Zhou 5095                                   |
| Survey of Measurement of Position and Pose for Space Non-Cooperative Target                                              |                                                                       |
| .....                                                                                                                    | LI Yawen, BO Yuming, ZHAO Gao Peng 5101                               |
| The Analysis of Time Synchronization Errors in INS/GPS Tightly Integrated Navigation                                     |                                                                       |
| .....                                                                                                                    | CHEN Jingjing, MIAO Ling-juan, GUO Yanbing 5107                       |
| Minimum-Fuel Powered Descent Guidance for Soft Landing on Irregular-Shaped Asteroids                                     |                                                                       |
| .....                                                                                                                    | ZHENG Yiyu, CUI Hutao, TIAN Yang 5113                                 |
| A ROS-based Smooth Motion Planning Scheme for a Home Service Robot                                                       |                                                                       |
| .....                                                                                                                    | ZHANG Sen, SUN Lei, CHEN Zhongliang, ZHANG Lishuang, LIU Jingtai 5119 |
| Improved Adaptive Kalman Filtering Algorithm for Vehicular Positioning                                                   |                                                                       |
| .....                                                                                                                    | HUIHUI LU, ZHANG Ai Jun 5125                                          |
| Optimization of Projectile State and Trajectory of Reentry Body Based on Hp-adaptive Pseudospectral Method               |                                                                       |
| .....                                                                                                                    | JING Wuxing, JIANG Chunwang, GAO Chang-sheng 5130                     |
| Windowing-based Adaptive Unscented Kalman Filter for Spacecraft Relative Navigation                                      |                                                                       |
| .....                                                                                                                    | LI Wenling, JIA Yingmin, DU Junping 5136                              |

|                                                                                                               |                                                                              |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| The Switching Condition of Guidance Laws for Compound Control Missile                                         |                                                                              |
| .....                                                                                                         | SUN Sheng, LIU Xiaodong, WEI Xiaolei, LIU Hailiang, YAO Yinwei 5148          |
| The Data Fusion of Beidou/SINS Based on UKF                                                                   |                                                                              |
| .....                                                                                                         | GUAN Jun, YI Wen-jun, CHANG Si-jiang, YUAN Dandan, SUN Lei 5159              |
| Cooperative Guidance Law with Time Constraint for Multiple Missiles                                           |                                                                              |
| .....                                                                                                         | ZHAO Enjiao, CHAO Tao, WANG Songyan, YANG Ming 5164                          |
| Coordinated Guidance Strategy for Heterogeneous Missiles Intercepting Hypersonic Weapon                       |                                                                              |
| .....                                                                                                         | ZHAO Qilun, DONG Xiwang, CHEN Jian, WANG Rui, LI Qingdong, REN Zhang 5170    |
| A Three-Dimensional Terminal Guidance Law Based on Finite-time Input-to-State Stability                       |                                                                              |
| .....                                                                                                         | LI Guilin, JI Haibo 5176                                                     |
| Research on the Evasive Strategy of Missile Based on the Theory of Differential Game                          |                                                                              |
| .....                                                                                                         | YANG Tao, GENG Lina, DUAN Mingkuan, ZHANG Ke, LIU Xiaoma 5182                |
| Performance Analysis of Continuous Non-smooth Attitude Control for Spacecraft                                 |                                                                              |
| .....                                                                                                         | MA Kemao, DONG Jipeng, ZHANG Jinpeng, ZHENG Tianyu 5188                      |
| Adaptive Extended Kalman Filter for a Red Shift Navigation System                                             |                                                                              |
| .....                                                                                                         | FU Kui, ZHANG Dan, TANG Peng, TANG Zhong-Liang, HE Wei 5194                  |
| Target Allocation Method Based on Intercept Geometry                                                          |                                                                              |
| .....                                                                                                         | WU Jingchuan, YANG Baoqing, WU Kai-Ning 5200                                 |
| Integrated Missile Guidance and Control Design with Smooth Adaptive Sliding Mode Control                      |                                                                              |
| .....                                                                                                         | ZHOU Jialing, YANG Jianying 5206                                             |
| Terminal Guidance Law Design Based on Predictive Control for Aerodynamic Missile with Side Window Detection   |                                                                              |
| .....                                                                                                         | ZHOU Lisha, YAO Yu, ZHENG Tianyu, HE Fenghua 5212                            |
| Scaled UKF with Reduced Sigma Points Particle Filter for A Red Shift Navigation System                        |                                                                              |
| .....                                                                                                         | ZHAO Guangqiong, FU Kui, CHEN Shaogang, TANG Zhong-Liang, HE Wei 5218        |
| A Composite Guidance Law Based on the Nonlinear Disturbance Observer-based Control for Mars Pin-point Landing |                                                                              |
| .....                                                                                                         | ZHANG Yabin, GUO Lei, SUN Haibin, CHEN Wenhua, WANG Sen 5224                 |
| A Formation Control Approach with Autonomous Navigation of Multi-Robot System in Unknown Environment          |                                                                              |
| .....                                                                                                         | LU Weining, ZHANG Tao, YANG Jun, WANG Xueqian 5230                           |
| Composite Nonlinear Predictive Control Based on Finite-time Disturbance Observer for Mars Entry Vehicle       |                                                                              |
| .....                                                                                                         | ZHAO Zhenhua, YANG Jun, LI Shihua, GUO Lei 5235                              |
| SDRE-based Cooperative Target Tracking Problem                                                                |                                                                              |
| .....                                                                                                         | ZHANG Bowen, HE Fenghua, HOU DeXin 5241                                      |
| GNC Schemes Design for Future China Asteroid Exploration                                                      |                                                                              |
| .....                                                                                                         | JIANG Xiuqiang, TAO Ting, YANG Wei, LI Shuang 5247                           |
| Guidance Law Design and Simulation of Non-Seeker Missiles Based on Target Prediction                          |                                                                              |
| .....                                                                                                         | GUO Hongwu, DUAN Mingkuan, HAN Yang 5253                                     |
| Terminal Angle Constrained Optimal Guidance Law with Finite Time Convergence                                  |                                                                              |
| .....                                                                                                         | WENG Xuehua, CHAO Tao, WANG Songyan, YANG Ming 5259                          |
| Unscented Particle Filter Using Scaled Spherical Simplex UKF                                                  |                                                                              |
| .....                                                                                                         | TANG Peng, ZHAO Guangqiong, CHEN Shaogang, TANG Zhong-Liang, HE Wei 5265     |
| An Improved Nonlinear Guidance Law for Unmanned Aerial Vehicles Path Following                                |                                                                              |
| .....                                                                                                         | MAO Yunhui, CHEN Qingyang, HOU Zhongxi, GUO Zheng 5271                       |
| Graphic Semi-major Axis Iteration Algorithm for Lambert Problem                                               |                                                                              |
| .....                                                                                                         | LI Jiali, CHAO Tao, WANG Songyan, MA Ping 5277                               |
| Multiple Model Adaptive Estimation Algorithm for SINS/CNS Integrated Navigation System                        |                                                                              |
| .....                                                                                                         | ZHAO Fangfang, ZHAO Guangqiong, FAN Shuangfei, TANG Zhong-Liang, HE Wei 5286 |

|                                                                                                                  |                                                                                                                           |      |
|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------|
| Dynamic Alignment Research of the Dead Reckoning System Aided by Electro-Optical Detection System .....          | GUO Qiang, LI Suilao                                                                                                      | 5292 |
| A New Zero Velocity Update Algorithm for the Shoe-Mounted Personal Navigation System Based on IMU .....          | ZHANG Xiaodong, REN Ming Rong, WANG Pu, PAN Kai                                                                           | 5297 |
| Multiple Model Adaptive Estimation for the Celestial Navigation System .....                                     | PENG Hui, ZHAO Fangfang, FAN Shuangfei, TANG Zhong-Liang, HE Wei                                                          | 5303 |
| Novel Approach for Modeling Bell-shaped Vibratory Angular Rate Gyro .....                                        | LIU Ning, SU Zhong, FAN Jun-fang                                                                                          | 5309 |
| Research for Pedestrian Navigation Positioning Method Based on MEMS Sensors .....                                | XIONG Yunqiang, ZHANG Yanshun, WANG Zhan Qing, LI Ming                                                                    | 5315 |
| Design of Constrained Adaptive Backstepping Guidance Law .....                                                   | SONG Junhong, SONG Shenmin                                                                                                | 5319 |
| Research of Unscented Kalman Filter Application in Polarization/MEMS Integrated Navigation System .....          | LIU Huiya, LI Leilei, CHEN Jiabin, SHI Tuo, HE Xin                                                                        | 5326 |
| Pico-Satellite Attitude Determination Using a Star Tracker with Compressive Sensing .....                        | YANG Jianan, LIU Yong, HAN Fei, FENG Qian, PAN Quan                                                                       | 5331 |
| Global Sliding Mode Attitude Control for Flexible Satellite with a Rotating Antenna .....                        | ZHANG Chao, SUN Yanchao, MA Guangfu, LI Chuanjiang, LI Zhuo                                                               | 5337 |
| New Calibration Method for Shipboard Platform Inertial Navigation System .....                                   | LI Chan, CAO Yuan, ZHANG Shifeng                                                                                          | 5342 |
| Design of Missile-Borne GNSS/SINS Tightly-coupled Integrated Navigation System .....                             | BAI Hongyang, XIONG Kai, DUAN Jiangfeng3, XU Huiling                                                                      | 5348 |
| Code-Carrier Divergence for Ground Based Augmentation System: A Comparative Analysis Study .....                 | LI Liang, YANG Weixin, YANG Fuxin, ZHAO Lin                                                                               | 5354 |
| Autonomous Track and Land a MAV Using a Modified Tracking-Learning-Detection Framework .....                     | KONG Weiwei, ZHANG Daibing, ZHAO Shulong, ZHOU Dianle, ZHAO Boxin, ZHONG Zhiwei, MA Zhaowei, TANG Dengqing, ZHANG Jianwei | 5359 |
| Modified Multi-target Recognition Based on CamCom .....                                                          | WANG Lichen, ZHANG Aimin, GUO Chujia, BHAN Pervez, YAN Tian                                                               | 5367 |
| An Investigation on the Second-order Drift Error Coefficient Calibration of Gyroscope by Vibration Table .....   | ZENG Ming, ZOU Zhongxian, YU Zhiwei, ZHANG Xin                                                                            | 5374 |
| A Robust Position Estimation Algorithm for Low-cost INS/GPS Integrated Navigation System .....                   | WEN Yali, ZHAO Wenjie, LI Ping, TIAN Hua                                                                                  | 5381 |
| Signal Processing of Fiber Optic Gyro under Vehicle Vibration Environment .....                                  | JIANG Ming, NIE Min                                                                                                       | 5387 |
| Design of Longitudinal Controller Based on Acceleration Command with Flight Test .....                           | QIAN MingXin, LI Qing, ZHAO Qianchuan, SUN Weihua                                                                         | 5391 |
| Approach and Landing Guidance Based on Sliding Mode Control and Input-to-State Stability .....                   | YAN Han, TAN Shuping                                                                                                      | 5397 |
| Harmonic Wave Radar Seeker Target Micro-Motion Recognition .....                                                 | HE Changjian                                                                                                              | 5402 |
| The Design of Finite Time Convergence Guidance Law with Angular Constraint Based on the ESO .....                | LIN Lin, CHAO Tao, WANG Songyan, YANG Ming                                                                                | 5408 |
| Point-to-point Near-Optimal Obstacle Avoidance Path for the Unmanned Aerial Vehicle .....                        | HU Liang, WANG Zhong, ZHAO Chunhui                                                                                        | 5413 |
| An Indoor Pedestrian Positioning System Based on Inertial Measurement Unit and Wireless Local Area Network ..... | MI Luna, GUO Meifeng, ZHANG Xinxi, ZHANG Yongjian, SONG Mingliang                                                         | 5419 |

|                                                                                                                      |                                                                         |      |
|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------|
| Outer Field Calibration by Differentiators Based on High-order Sliding Mode of Laser Gyroscope SINS .....            | ZHANG Chi, XIE Ling, HAN Yongqiang, CHEN Jiabin, SONG Chunlei           | 5425 |
| On SLAM algorithm combined with entropy probability DDF II .....                                                     | WANG Dandan, YUAN Gannan, LI Tao                                        | 5437 |
| Research on Time Interval of Gravity Compensation for Airborne INS .....                                             | WANG Jing, YANG Gongliu, LI Xiangyun, CHENG Jian-hua                    | 5442 |
| Velocity-Constrained Trajectory Planning of Anti-ship Missile .....                                                  | LIN Ping, HOU Jian, SUN Sheng                                           | 5451 |
| A Robust Data Driven Error Damping Method for Inertial Navigation System Based on Unfalsified Adaptive Control ..... | HAN Yongqiang, CHEN Jiabin, TIAN Xiaochun, LI Nan                       | 5455 |
| Vibration Suppress of Flexible Spacecraft Considering the Effects of Gravity .....                                   | GAO Juanjuan, CHEN Xin, JIA Xiaojing, LIU Fucui                         | 5461 |
| A New Online Trajectory Generation Solution for Reusable Launch Vehicles During Approach and Landing .....           | LONG Shike, LI Huifeng                                                  | 5467 |
| Aerostats/Orbiters Radiometric Measurement Based Integrated Navigation for Mars Descent and Landing .....            | JIANG Xiuqiang, TAO Ting, LI Shuang                                     | 5473 |
| An Adaptive Maneuvering Target Tracking Algorithm Based on Three-Dimensional Parameter Identification Model .....    | WU Yanxuan, CHEN Jianbin                                                | 5479 |
| Three-Dimensional Guidance Law Design with Impact Time Constraint .....                                              | SHI Zhen, WANG Jian, HE Chendi, CUI Wenhao                              | 5484 |
| Relative Angle Based Obstacle-avoidance .....                                                                        | WANG Xiaohua, LIANG Yan, HU JINWEN, ZHAO Chunhui                        | 5491 |
| Robust Tracking of Quadrotor UAV Using RISE Controller with Input Saturation .....                                   | WAHEED Sadia, AWAN Asad Ullah, KHAN Kunwar Faraz Ahmed, LIAQAT Muwahida | 5507 |
| Sliding Mode Control Based on Extended Observer for Underactuated Quadrotor UAV .....                                | YANG Liben, ZHANG Weiguo, HE Yong                                       | 5513 |
| Attitude Determination of Autonomous Underwater Vehicles Based on Pressure Sensor Array .....                        | SHANG Zhigang, MA Xiaochuan, LIU Yu, YAN Shefeng                        | 5517 |
| Rotary Position System Based on Improved Nonlinear Tracking Differentiator-Fuzzy PID .....                           | SHEN Jun, CUI Huiqiang                                                  | 5521 |
| Model-based Line-of-sight Detection of an Irregular Celestial Body for Autonomous Optical Navigation .....           | WU Qian, ZOU Wei, XU De, MAO Xiaoyan                                    | 5527 |

## Control Design

|                                                                                               |                                                        |      |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------|------|
| Improvement of Trajectory Tracking Performance via Modified Composite Nonlinear Control ..... | SHI Yufang, CHENG Guoyang, HUANG Yanwei, HU Jingao     | 5533 |
| UUB Control of Multi-equilibrium UAV Elastic Formation .....                                  | XU Guangyan, LI Zheng, ZHAO Dan, ZHANG Hongmei         | 5539 |
| Stabilization of an Under-actuated Spacecraft .....                                           | WANG Zhaohui, JIA Yinghong                             | 5544 |
| A Modified Weighted Pseudo-Inverse Control Allocation Using Genetic Algorithm .....           | SHAO Xingyue, LIANG Zixuan, CHEN Bai, LIU Cunjia       | 5554 |
| Position and Heading Angle Control of an Unmanned Quadrotor Helicopter Using LQR Method ..... | DONG Yiqun, FU Jun, YU Bin, ZHANG Youmin, AI Jianliang | 5566 |
| Roll Autopilot Design for Reentry Vehicle with Moving-mass Control System .....               | WANG Yafei, YU Jianqiao, WANG Linlin, SHEN Yuanchuan   | 5572 |

|                                                                                                       |                                                                     |      |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------|
| On Detection Technology of Relative Position Detection Sensor for High Speed Maglev Train             | HE Hongli, DAI Chunhui, LONG Zhiqiang                               | 5577 |
| Command Filtered Backstepping-based Flight Control of Unmanned Helicopters with Disturbance Observers | HE Yuebang, PEI Hailong, ZHOU Hongbo                                | 5581 |
| Roll Control Analysis for the Long-rang Reentry Vehicle under Composite Control                       | JING Wuxing, WEI Pengxin, GAO Chang-sheng, JIANG Chunwang, ZHENG Xu | 5587 |
| Nanosecond Pulse Delivery Device with Adjustable Pulse-Width Based on IGBT                            | LV Donghao, ZHANG Jianxun, DAI Yu                                   | 5593 |
| Optimal Design of Controllers Based on Libraries and Differential Evolution                           | SUN Zhenlu, XIN Bin, CHEN Jie                                       | 5599 |
| Design and Application of Fractional-order Improved Disturbance Observer                              | MENG Hongbo, WANG Chang Ming, ZHANG Ai Jun                          | 5605 |
| Velocity-measuring Feedback Control Based on PMAC ForHydraulic Position Servo System                  | WANG Chunyang, JIANG Xue, CAI Nianchun, LIU XueLian                 | 5610 |
| A High Reliable Design of Memristor-Based Multilevel Memory                                           | WANG Xiaoping, WANG Ziyang, SHEN Yi                                 | 5615 |
| Output Feedback Control for Continuous-Time Switched Systems with Actuator Saturation                 | ZHAO Xiao-Qi, ZHAO Jun, DIMIROVSKI Georgi                           | 5619 |
| High-Precision Overload Control Technology of Sub-Orbital Launch Vehicle                              | JIA Zhiqiang, WANG Wei, WANG Hui, LIU Xiaodong                      | 5636 |
| Attitude Tracking Control of a 3-DOF Helicopter with Actuator Saturation and Model Uncertainties      | ZHENG Zewei, SUN Liang, ZOU Yao                                     | 5641 |
| Autonomous Landing of Quadrotor Based on Ground Effect Modelling                                      | LI Danjun, ZHOU Yan, SHI Zongying, LU Geng                          | 5647 |
| Adaptive Control of Hypersonic Vehicles Using Guardian Maps Theory                                    | LIU Mengying, SHE Zhiyong, XIAO Dibo, LIU Yanbin, LUO DeLin         | 5653 |
| A Design Method of Switching Control for Hypersonic Vehicles Based on Guardian Maps                   | XIAO Dibo, CHEN Boyi, LIU Yanbin, LIU Mengying, LU Yuping           | 5658 |
| Autonomous Landing for Unmanned Seaplanes Based on Active Disturbance Rejection Control               | DU Huan, FAN Guoliang, YI Jian-qiang                                | 5663 |
| Angle Maneuvers of Underactuated Spacecraft with Single Gimbal Control Momentum Gyros                 | ZHANG Jiawei, MA Kemao, WANG Chenggang, GUO Yang                    | 5675 |
| Output Regulation Problem for Discrete-Time Linear Time-Delay Systems                                 | YAN Yamin, HUANG Jie                                                | 5681 |
| Anti-Disturbance PD Controller Design for Flexible Spacecraft Attitude Stabilization                  | BENMANSOUR Jalal Eddine, DU Yijiang, WU Zhong                       | 5687 |
| Point Cloud Registration in Shoe Glue Spraying Line                                                   | ZENG Huixiong, LI Jun                                               | 5691 |
| Automatic Mass Balancing and Design of a Six Degrees-of-Freedom Air Bearing Spacecraft Simulator      | WANG Yan, HUANG Cheng, CHEN Xinglin                                 | 5696 |
| Fractional PID and Backstepping Control for a Small Quadrotor Helicopter                              | FU Jiahe, LI Rui                                                    | 5701 |
| Trajectory Tracking Control of a Small Unmanned Helicopter Based on Fuzzy CMAC-PID                    | ZHENG Zhao, LI Rui, WANG Gang                                       | 5713 |
| Back-stepping Control Design for Transport Aircraft in Airdropping Heavy Cargo                        | XIA Yingzhou, SHI Zhongke, XU Bin, CHEN Jie, WANG Danwei            | 5718 |

State-Space Modelling and Control for MIMO Depyrogeation Tunnel

- ..... WANG Yizhi, ZHU Quan-Min, NIBOUCHE Mokhtar 5724
- Aircraft Turbine Engine Control Systems Development: Historical Perspective
- ..... Jackson Lutambo, WANG Jiqiang, YUE Hong, Georgi Dimirovsky 5736
- Design and Implementation of Modern Greenhouse Remote Monitoring System Based on the Android System
- ..... LI Xiaofeng, QIN Linlin, LU LinJian, WU Gang 5742
- An Active Disturbance Rejection Controller for Marine Dynamic Positioning System Based on Biogeography-based Optimization
- ..... WU Defeng, REN Fengkun 5747
- Semi-active Vibration Control Using Self-sensing Synchronized Switch Damping on Negative Capacitance
- ..... CAO Jingjun, TANG Wei, XU Yanqing, DU Xin, LI Qiang 5753
- Fractional Order Controller for Satellite Attitude Control System with PWPF Modulator
- ..... WANG Xinsheng, ZHANG Huaqiang 5758
- Active Disturbance Rejection Control for DC Voltage in Z-Source Inverter
- ..... GUO Chujia, ZHANG Aimin, ZHANG Hang, ZHANG Chao, YAN Tian 5764
- Modeling and Tracking Control for Omnidirectional Rehabilitative Training Walker with Random Parameters
- ..... CHANG Hongbin, SUN Ping 5770
- Parametric Approach for Longitudinal Attitude Control of a Hypersonic Vehicle
- ..... DUAN Guang-Ren, HU Yanmei, TAN Feng, LIU Wangkui 5776
- Robust Adaptive Dynamic Surface Control for Attitude Tracking of Spacecraft
- ..... ZHOU Chengbao, ZHOU Di 5782
- Multivariable Super-twisting Sliding Mode Approach for Attitude Tracking of Spacecraft
- ..... LI Xuehui, SONG Shenmin, GUO Yong 5789
- Repetitive Control of the Stator-side Four-leg Converter in Stand-Alone DFIG-Based Wind Energy Conversion System
- ..... LI Dan-Yun, SHEN Qun-Tai, LIU Zhen-Tao, WANG Hui 5795
- Control of the Double-Container Overhead Crane
- ..... ZHAN Yizhao, WU Xianqing, HE Xiongxiang 5799
- A Predictive Modified Round Robin Scheduling Algorithm for Web Server Clusters
- ..... XU Zongyu, WANG Xingxuan 5804

**Intelligent Robots and Mechatronic Systems**

Collision Position Sensing for Manipulator Using Force/Torque Sensor

- ..... LENG Yuquan, CHEN Zhengcang, ZHANG Wei, ZHANG Yang, HE Xu, LUO Haitao, 5809
- ZHOU WEIJIA
- Mobile Robot Task Planning System Design in Intelligent Environments
- ..... FANG Fang, ZHOU Bo, QIAN Kun, MA Xudong, DAI Xianzhong 5815
- Construction Method of Line Segment Based Map with Sonar Sensor
- ..... CHENG Jin, HUI Qing, ZHANG Yong 5819
- Neural Adaptive Control for Robots with Uncertainties in Manipulator Dynamics and Actuator Dynamics under Constrained Task Space
- ..... TANG Zhong-Liang, GE Shuzhi Sam, HE Wei 5824
- Zero Reaction Coordinated Motion Planning for Free-Floating Space Manipulators
- ..... XIE Ran, SHI Peng, ZHAO Yu-shan 5830
- An Error-Sensitive Q-learning Approach for Robot Navigation
- ..... TANG Rongkuan, YUAN Hongliang 5835
- FPAA-based Control of Bilateral Teleoperation Systems
- ... YANG Ting, FU Yili, TAVAKOLI Mahdi 5841
- A Mobility Training and Remote Monitoring Device for the Elderly
- ..... LIU Rensong, ZHANG Zhenbo, HAN Shun, LIN Dongxue, DUAN Feng 5846

|                                                                                                                              |                                                                                 |      |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------|
| Loop Closure Detection for Visual SLAM Systems Using Deep Neural Networks                                                    | GAO Xiang, ZHANG Tao                                                            | 5851 |
| Analog Strategy of A Receiver Aircraft Testbed for Boom and Receptacle Refueling                                             | CHANG Liang, JIA Yingmin                                                        | 5857 |
| The Obstacle-climbing Capability of a Pole-climbing Robot                                                                    | XU Fengyu, HU Jinlong, WANG Bei                                                 | 5863 |
| Dynamic Analysis on a Cable with a Climbing Robot                                                                            | XU Fengyu, WANG Bei, HU Jinlong                                                 | 5869 |
| Design and Kinematics Analysis of a 4-DOF Articulated Steering Mechanism                                                     | LIN Hao, ZHENG Jingyi, LI En, LIANG Zize                                        | 5875 |
| A Complete Coverage Path Planning Algorithm for Mobile Robot Based on FSM and Rolling Window Approach in Unknown Environment | LI Caihong, WANG Fengying, SONG Yong, LIANG Zhenying, WANG Zhiqiang             | 5881 |
| The Polynomial Modeling and Analysis of a Special Behavior for Mobile Robot                                                  | SONG Yong, LI Yibin, LI Caihong, MA Xin                                         | 5886 |
| The Energy Consumption Analysis of Hydraulic Quadruped Robot Based on Gait Parameters                                        | ZONG Xiaoyan, WANG Shou Kun, WANG Junzheng, CHEN Guangrong, ZHANG Xiaoling      | 5891 |
| An Analysis of Sampling Effect on Bilateral Teleoperation System Transparency                                                | YANG Ting, FU Yili, TAVAKOLI Mahdi                                              | 5896 |
| Moving Target Following Control of Multi-AUVs formation Based on Rigid Virtual Leader-Follower under Ocean Current           | YAN Zheping, LIU Yibo, ZHOU Jiajia, ZHANG Gengshi                               | 5901 |
| Autonomous Parking: A Unified Motion Planning Framework Based on Simultaneous Dynamic Optimization                           | LI Bai, SHAO Zhijiang                                                           | 5913 |
| 2D Monocular Visual Odometry Using Mobile-Phone Sensors                                                                      | ZHAO Boxin, HU Tianjiang, ZHANG Daibing, SHEN Lincheng, MA Zhaowei, KONG Weiwei | 5919 |
| Fast and Templatable Path Planning of Spray Painting Robots for Regular Surfaces                                             | ZHOU Bo                                                                         | 5925 |
| An Adaptive Way to Detect the Racket of the Table Tennis Robot Based on HSV and RGB                                          | ZHANG Kun, FANG Zaojun, LIU Jianran, TAN Min                                    | 5936 |
| A Novel Localization Method for Indoor Mobile Robot Based on Odometry and Ceiling Visual Features                            | ZHAO Jun, LIU Guoping                                                           | 5941 |
| Fuzzy Approximation Based Adaptive Control for Multiple Robotic Arms with Input Hysteresis Nonlinearities                    | CHEN Ci, LIU Zhi, ZHANG Yun                                                     | 5948 |
| Design and Simulation of a Robotic Jellyfish Based on Mechanical Structure Drive and Adjustment                              | LI Xiangbin, YU Junzhi                                                          | 5953 |
| Multiple-fan Active Control Wind Tunnel for Outdoor Near-surface Airflow Simulation                                          | WANG Jiaying, MENG Qing-hao, LUO Bing, ZENG Ming, SUN Biao                      | 5959 |
| Image-Based Adaptive Neural Control of Underactuated Aerial Mobile Robot without Direct Position Measurement                 | LAI Guanyu, LIU Zhi, ZHANG Yun                                                  | 5965 |
| A Comparative Study of Four Jacobian Matrix Derivation Methods for Quadruped Robot                                           | XIN Yaxian, HONG Zhen, LI Bin, LI Yibin                                         | 5970 |
| Quantitative Microinjection on the Picoliter Scale Based on the Gas-Liquid Interface Positioning Control                     | YU Jin, CUI Maosheng, SUN Mingzhu, ZHAO Xin                                     | 5977 |
| Mobile Robot Odor Source Localization via Semi-tensor Product                                                                | JIANG Ping, WANG Yuzhen, XU Meirong                                             | 5989 |
| An Intelligent Vision Localization System of a Service Robot Nao                                                             | SONG Peipei, LI Wenyu, YANG Ningjia, DUAN Feng                                  | 5993 |

|                                                                                                                           |                                                                                |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Adaptive Fuzzy Yaw Moment Control of Humanoid Robot Based on Ankle Joint                                                  |                                                                                |
| .....                                                                                                                     | YANG Liang, LIU Zhi, ZHANG Yun 5999                                            |
| Development of an On-board Single-frequency GNSS RTK System for MAVs                                                      |                                                                                |
| .....                                                                                                                     | LUO Bing, MENG Qing-hao, XU Fei, WANG Jiaying, SUN Biao 6005                   |
| Three-Dimensional Gas Distribution Mapping with a Micro-Drone                                                             |                                                                                |
| .....                                                                                                                     | LUO Bing, MENG Qing-hao, WANG Jiaying, SUN Biao, WANG Ying 6011                |
| Online-Estimation of Image Jacobian Based on Adaptive Kalman Filter                                                       |                                                                                |
| .....                                                                                                                     | LIU Songqing, LIU Shiyue 6016                                                  |
| Electrode Size Affects Underwater Electric Current Communication Between Two Fish Models                                  |                                                                                |
| .....                                                                                                                     | WANG Wei, DENG Hanbo, ZHAO Jianwei, XIE Guangming 6020                         |
| An Embedded Visual SLAM Algorithm Based on Kinect and ORB Features                                                        |                                                                                |
| .....                                                                                                                     | XU Fen, WANG Zhen 6026                                                         |
| Unsupervised Scene Detection for Field Robots in Long-Term Operation Using Single Camera                                  |                                                                                |
| .....                                                                                                                     | CHEN Haotian, SUN Fengchi, GENG Da, HUANG Yalou 6032                           |
| Multi-UAVs Cooperative Area Search with No-fly Zones Constraints                                                          |                                                                                |
| .....                                                                                                                     | LIU Bo, WEI Guangwei, XI Wenqing, FU Xiaowei 6038                              |
| Design and Simulation of a Turtle Performing Robot for Robotic Theater                                                    |                                                                                |
| .....                                                                                                                     | XU Wenfu, ZHENG Yanning, PAN Erzhen 6049                                       |
| Back-stepping Control of Underactuated AUV's Depth based on Nonlinear Disturbance Observer                                |                                                                                |
| .....                                                                                                                     | CHEN Wei, WEI Yanhui, ZENG Jianhui 6061                                        |
| Modeling, Simulation & Control of Human Lower Extremity Exoskeleton                                                       |                                                                                |
| .....                                                                                                                     | ZHANG Xinyi, WANG Haoping, TIAN Yang, WANG Zefeng, PEYRODIE Laurent 6066       |
| Localizing Multiple Odor Sources with a Mobile Robot in Time-varying Airflow Environments Using Dempster-Shafer Inference |                                                                                |
| .....                                                                                                                     | LI Ji-Gong, ZHOU Jie-Yong, YANG Jing, LIU Jia, ZENG Fan-Lin, YANG Li 6072      |
| Efficient Exploration for Real-time Robot Indoor 3D Mapping                                                               |                                                                                |
| .....                                                                                                                     | DU Jianhao, LIU Meiqin, SHENG Weihua 6078                                      |
| Dynamic Model Based Ground Reaction Force Estimation for A Quadruped Robot without Force Sensor                           |                                                                                |
| .....                                                                                                                     | QI Chenkun, GAO Feng, ZHAO Xianchao, SUN Qiao, TIAN Xinghua, CHEN Xianbao 6084 |
| Area Coverage Searching for Swarm Robots Using Dynamic Voronoi-based Method                                               |                                                                                |
| .....                                                                                                                     | YANG Bin, DING Yongsheng, HAO Kuangrong 6090                                   |
| The Robot Writing Study Based on 6B Matrix Software                                                                       |                                                                                |
| .....                                                                                                                     | GUO Yongdong 6095                                                              |
| Modified Adaptive Critic-based Control for a Class of Robotic Rehabilitation Systems                                      |                                                                                |
| .....                                                                                                                     | MENG Fancheng, FAN Keyan 6099                                                  |
| A Direct Visual-Inertial Sensor Fusion Approach in Multi-State Constraint Kalman Filter                                   |                                                                                |
| .....                                                                                                                     | GUI JIANJUN, GU Dongbing 6105                                                  |
| Posture Optimization of the Locust-like Hopping Robot During the Take-off Stage                                           |                                                                                |
| .....                                                                                                                     | ZUO Guoyu, QU Wentian, GONG Daoxiong 6111                                      |
| Autopilot Design for a Robotic Unmanned Surface Vehicle                                                                   |                                                                                |
| .....                                                                                                                     | PENG Zhouhua, TIAN Yong, WANG Dan, LIU Lu 6116                                 |
| An Effective Tracking Control for Robotic Fish: Implementation and Application                                            |                                                                                |
| .....                                                                                                                     | PAN Xiang, LI Liang, CHEN Shiming, XIE Guangming 6121                          |

### Fault Diagnosis and Reliable Control

|                                                                                                                              |                                               |
|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| Internal Leakage Detection for Wind Turbine Hydraulic Pitching System with Computationally Efficient Adaptive Asymmetric SVM |                                               |
| .....                                                                                                                        | WU Xin, SU Rui, LU Congfei, RUI Xiaoming 6126 |

|                                                                                                                                           |      |
|-------------------------------------------------------------------------------------------------------------------------------------------|------|
| Inductive Monitoring System Based Fault Detection for Liquid-Propellant Rocket Engines                                                    |      |
| ..... GAO Kehan, XIONG Zihao, YI Ke, DONG Xiwang, YANG Peng, LI Qingdong, REN Zhang                                                       | 6131 |
| Research on Fault Diagnosis Problems of Levitation Sensor on Maglev Train Based on Tracking Differentiator                                |      |
| ..... WANG Zhiqiang, LI Xiaolong, LONG Zhiqiang                                                                                           | 6136 |
| Fuzzy Adaptive Fault Isolation for Dynamic Systems                                                                                        |      |
| ..... GAO Jicheng, SHEN Qikun                                                                                                             | 6142 |
| Finite Frequency Fault Detection Observer Design for 2-D Continuous-discrete Systems in Roesser Model                                     |      |
| ..... WANG Lanning, WANG Weiqun, CHEN Weimin, ZHANG Guangchen                                                                             | 6147 |
| Fault Tolerant Control with Switched LPV Method Based on Hysteresis Strategy and an Application to a Microsatellite Model                 |      |
| ..... HE Xu, ZHANG Wei, LENG Yuquan, ZHANG Yang                                                                                           | 6153 |
| Fault Diagnosis of Multivariable Dynamic System Based on Nonlinear Spectrum and Support Vector Machine                                    |      |
| ..... ZHANG Jialiang, CAO Jianfu                                                                                                          | 6159 |
| Model-based Fault Detection, Isolation and Fault-tolerant Control for a Class of Nonlinear Uncertain Systems Using Information Estimation |      |
| ..... HUANG Sunan, LIN Feng, CHEN Ben M.                                                                                                  | 6164 |
| Research on the Reliability Modeling Methods of FMS Based on HSPN                                                                         |      |
| ..... LIU Xin, SUN Shiwei, ZHANG Ziyang, SUN Mingyu, HONG Chenghua                                                                        | 6176 |
| Actuator and Sensor Fault Reconstruction for a Class of Uncertain Linear Systems                                                          |      |
| ..... YANG Junqi, ZHU Fanglai, WANG Xin                                                                                                   | 6181 |
| Fault Detection for Logarithmic Quantized Feedback Control Systems                                                                        |      |
| ..... GUO Fumin, REN Xuemei, LI ZhiJun, HAN Cunwu                                                                                         | 6187 |
| A Novel Ensemble Classifier for Fault Diagnosis of Thermal System under Different Operational Conditions                                  |      |
| ..... WANG Xiaoxia                                                                                                                        | 6192 |
| An Adaptive Linear Parameter Varying Fault Tolerant Control Scheme for Unmanned Surface Vehicle Steering Control                          |      |
| ..... LIU Zhixiang, ZHANG Youmin, YUAN Chi, LUO Jun                                                                                       | 6197 |
| Actuator Fault Detection and Isolation of Combined System Based on Space Geometry Theory                                                  |      |
| ..... CHENG Qianshuai, QIAO Dianfeng, HOU Yan-dong, JIN Yong                                                                              | 6203 |
| State of Health Estimation Combining Robust Deep Feature Learning with Support Vector Regression                                          |      |
| ..... LIU Qiaoqiao, LI Jianxun                                                                                                            | 6207 |
| Asymptotic Output Tracking Control for a Class of Nonlinear Systems with Unknown Failures of Hysteretic Actuators                         |      |
| ..... HOU Chuanjing, HU Lisheng                                                                                                           | 6213 |
| An Analysis Method of Gear Fault Diagnosis Based on Chirp-Z Transform and Local Mean Decomposition                                        |      |
| ..... WANG Jiying, LIU Zhenxing, HU Jiquan, LI Chenrui                                                                                    | 6218 |
| Observer-based Fault Diagnosis Incorporating Adaptive Sliding Mode Control for Spacecraft Attitude Stabilization                          |      |
| ..... MA Guangfu, LI Bo, YU Yanbo, HU Qinglei                                                                                             | 6224 |
| Adaptive Fault-tolerant Attitude Control for Microsatellite Based on Disturbance Observer                                                 |      |
| ..... ZHAO Yunfeng, CAO Songyin                                                                                                           | 6230 |
| Efficient Faulty Variable Selection and Parsimonious Reconstruction Modeling for Fault Diagnosis                                          |      |
| ..... WANG Wei, ZHAO Chunhui                                                                                                              | 6236 |
| Data-Driven Design and Implementation of an Alternately Adaptive Residual Generator for Hammerstein Systems                               |      |
| ..... WANG Yulei, GAO Bingzhao, GUO Hongyan, CHEN Hong                                                                                    | 6242 |
| Robust Fault Detection Filter Design for Networked Control Systems Based on State Observer                                                |      |
| ..... YAN Fei, QIU Jiqing, GUO Yanping                                                                                                    | 6248 |
| Active Fault Tolerant Control with Sliding Mode Observer                                                                                  |      |
| ..... LI Hao, YANG Ying, ZHANG Yong, ZHAO Zhengeng                                                                                        | 6259 |
| Fault Diagnosis of Hydraulic System of Quadraped Robot by SVM Based on Rough Set and CS Algorithm                                         |      |
| ..... MA LiLing, ZHAO Jiali, WANG Junzheng, WANG Shou Kun                                                                                 | 6264 |

|                                                                                                                                        |                                                               |      |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|------|
| Orthogonal Matrix Based Control Allocation for Time-Varying State Delay Systems with Actuator Faults .....                             | HUANG Sheng-Juan, ZHANG Daqing, HE Xi-Qin                     | 6269 |
| A New Multiple-Model Adaptive Actuator Failure Compensation Scheme for a Class of Nonlinear MIMO Systems .....                         | MA Yajie, JIANG Bin, TAO Gang                                 | 6274 |
| Sensor Placement Optimization with Fault Diagnosable Constraint and Its Application in Spacecraft Attitude Control System .....        | GAO Sheng, GUO Yanning, MA Guangfu, XU Kang                   | 6280 |
| Surface Defects Detection of Railway Turnouts .....                                                                                    | LI Shen, WEI Xiukun, JIA Limin                                | 6285 |
| A Fast Fault Diagnosis Method Based on Reset Augmented Observer .....                                                                  | ZHOU Meng, WANG Zhenhua, WANG Yan, SHEN Yi                    | 6291 |
| Detection of Railway Track Squats by Using Bogie Acceleration Measurement .....                                                        | YIN Xianxian, WEI Xiukun, JIA Limin                           | 6297 |
| Minimum Risk Bayesian Decision Based Fault Diagnosis of Industrial Chemical Process .....                                              | LIU Shujie, MAO Simin, WANG Yanwei, ZHENG Ying                | 6303 |
| Robust Detection of Intermittent Faults for Linear Discrete-time Stochastic Systems with Parametric Perturbations .....                | YAN Rongyi, HE Xiao, ZHOU Donghua                             | 6308 |
| A Novel Data-Driven Fault Detection Method Inspired by Parallel Distributed Compensation .....                                         | CHEN Zhaoxu, FANG Huajing                                     | 6314 |
| Research on Aging Failure Rate Estimation of Protective Relay Based on Versatile Distribution .....                                    | WANG Junhao, XUE Ancheng, JING Qi, ZHANG Zhen, HUANG Shaofeng | 6320 |
| Traction Motor Broken Bar Fault Injection Based on Parameters of Equivalent Circuit .....                                              | YIN Jintian, XIE Yongfang, PENG Tao, YANG Chunhua, ZHAO Shuai | 6325 |
| Bearing Fault Diagnosis Method Based on Stacked Autoencoder and Softmax Regression .....                                               | TAO Siqin, ZHANG Tao, YANG Jun, WANG Xueqian, LU Weining      | 6331 |
| Evaluation Methods for Fault Diagnosability of Affine Nonlinear System .....                                                           | HUANG Yonglong, LIU Chengrui, ZHONG Xunyu                     | 6336 |
| Adaptive Observer-based Fast Fault Estimation of A Leader-follower Linear Multi-Agent System with Actuator Faults .....                | LIU Guosheng, ZHANG Ke, JIANG Bin                             | 6340 |
| Modeling and Monitoring of Multimode Process Based on Between-Mode Relative Analysis .....                                             | ZHANG Yingwei, FAN Yunpeng, SUN Rongrong                      | 6345 |
| Observer-based Fault Estimation for Nonlinear Singularly Perturbed Systems .....                                                       | LIU Dan, YANG Ying, ZHAO Zhengeng                             | 6351 |
| Fault Detection and Identification for Quadrotor Based on Airframe Vibration Signals: A Data-Driven Method .....                       | YAN Jiang, ZHAO Zhiyao, LIU Haoxiang, QUAN Quan               | 6356 |
| Comparison of Multivariate Analysis Methods with Application to Fault Diagnosis for Non-Gaussian Process .....                         | XU Jiapeng, WEN Chenglin                                      | 6362 |
| Locating Faulty Variables by Evaluating Ratio of Variable Contribution Based on Discriminant Analysis for Online Fault Diagnosis ..... | WANG Wei, ZHAO Chunhui, SUN Youxian                           | 6366 |
| An Intelligent Fault Diagnosis Method for Electrical Equipments Using Infrared Images .....                                            | ZOU Hui, HUANG Fuzhen                                         | 6372 |
| Weighted Principal Component Analysis Applied to Continuous Stirred Tank Reactor System with Time-varying .....                        | GU Shanmao, LIU Yunlong, LIU Lijun, ZHANG Ni                  | 6377 |
| Fault Detection and Estimation for Discrete-time Switched Systems .....                                                                | DU Dongsheng, YANG Yan                                        | 6382 |
| An Optimal Inspection Policy for a Standby System under Limited Inspection Opportunities .....                                         | SI Xiaosheng, ZHANG Qi, LI Tianmei, LI Juan                   | 6386 |

## Fault Tree Analysis of Electro-mechanical Actuators

- ..... CAO Yuyan, WANG Jian, XIE Rong, WANG Xinmin 6392
- Analysis of Class Group Distinguishing Based Conceptual Models for Multiple Fault Diagnosis
- ..... ZHANG Ke, CHAI Yi, LIU Jianhuan, FENG Xiaohui 6397
- Sliding Mode Fault-tolerant Control for Uncertain Time-delay Systems
- ..... PAN Xu, YANG Pu, GUO Ruicheng 6403
- Fault Estimation Design for Dynamic Systems with Event-Triggered Sampling
- ..... JI Honggang, QIU Aibing, GU Juping, JING Zhang 6408
- Fault Diagnosis of Hard Rock Tunnel Boring Machine Cutterhead Driving System Based on Adaptive Observers
- ..... SHAO Chengjun, LIAO Jianfeng, LI Xiuliang, SU Hongye 6414

## Communication Network Systems

### Design and Implementation of the Low-Speed Maglev Train Communication System

- ..... ZHANG Bin, DAI Chunhui, LONG Zhiqiang 6420
- Wireless Location for Indoor Based on UWB
- ..... LI Huan, REN Bo 6430
- Attribute Based Generalized Signcryption for Online Social Network
- ..... HAN Yiliang, LU Wanyi 6434
- The Multivariate Signcryption Scheme for Structured Big Data
- ..... HAN Yiliang 6440
- A Refinement Algorithm for Device-Free Localization with RF Sensor Networks
- ..... WANG Jing 6452
- Electrical Resistance Tomography System with Long-Distance Data Transmission Function
- ..... ZHANG Jinyu, TAN Chao, DONG Feng 6457
- Planar Near-field to Far-field Transformation for Massive MIMO Systems
- ..... HAN Xiangzi, TAN Xiaobin, WU Fan 6463
- A Distributed Bandwidth Allocation Algorithm for Bluetooth Wireless Networks Based on Wardrop Equilibrium
- ..... PIETRABISSA Antonio, POLI Cecilia, ODDI Guido, PALAGI Laura, SURACI Vincenzo 6469
- Future Internet Architecture: Control-based Perspectives Related to Quality of Experience (QoE) Management
- ..... DELLI PRISCOLI Francesco, GORI GIORGI Claudio, MONACO Salvatore, SURACI Vincenzo 6475
- Robust Power Allocation and Price-based Interference Management in Two-tier Femtocell Networks
- ..... YUAN Huanhuan, MA Juhai, YANG Hongjiu, LIU Zhixin, GUAN Xinping 6483
- An Approach of Power Allocation Scheme for Relay Communication Networks Based on Seller-Buyer Game
- ..... ZHANG Peng, LIU Zhixin, ZHAO Ling, YANG Hongjiu, LI Xinbin 6489
- A Multi-Agent Reinforcement Learning Based Approach to Quality of Experience Control in Future Internet Networks
- BATTILOTTI Stefano, DELLI PRISCOLI Francesco, GORI GIORGI Claudio, MONACO Salvatore, PANFILI Martina, PIETRABISSA Antonio, RICCIARDI CELSI Lorenzo, SURACI Vincenzo 6495
- NKBM: A Neighbor Knowledge-Based Multicast Scheme for Dense Wireless Mesh Networks
- ..... LU Dingzhu, DONG Shoubin, JIAO Dongyan 6501
- An Improved Routing Protocol Based on Gauss-Markov Model in Ad Hoc Networks Utilizing Prediction of Link Quality
- ..... DUAN Chenghao 6507
- Coaxial Cable Noise Removal Using Instrumentation Amplifier
- ..... SHAHZAD Aamir, UMER Musab, HASNAIN Syed Ali, AHSAN Maaz, HASAN Meraj, HASSAN Saad 6512

### Computer Control and Cyber-Physical Systems

Jamming Attack in Centralized State Estimation

..... YANG Chao, REN Xiaoqiang, YANG Wen, SHI Hongbo, SHI Ling 6530

Robust Power Control for Femtocell Networks Based on Chance-constrained Linear Programs

..... ZHANG Peng, ZHAO Ling, LIU Zhixin, YANG Hongjiu, LI Xinbin 6536

### Control of Network Systems and Networked Control Systems

Stabilization of Dynamic Quantized System with Faults

..... DUAN Kai, CAI Yunze, ZHANG Weidong 6541

Finite-time Stabilization and Boundedness for Time-Varying Networked Control System

..... SUN Yeguo, LIU Heng 6546

Finite-Time Reliable Networked Control for Continuous-Time Nonlinear Time-Delay Systems

..... YANG Dedong 6552

Stabilization of Discrete-time Networked Control Systems with Packet Dropout and Network-Induced Delay .....

TAN Cheng, LI Lin, ZHANG Huanshui 6557

The Study of Time Delay Compensation Method for a Kind of Heterogeneous Networked Cascade Control Systems .....

MA Bing, DU Feng, FANG Xian Ming, TANG Yinqing, HUANG Chunrong 6562

Modified Internal Model Control for WiNCS with Unstable Time Delay Plants

..... TANG Yinqing, DU Feng, FANG Xian Ming, MA Bing, HUANG Chunrong 6566

Consensus of Multi-Agent Systems with Communication Delays

..... LI Yanjiang, TAN Chong, LUO Liyong, TAN Feng, HOU Mingzhe 6571

Fuzzy Control for a Class of Networked Control Systems with the Variation Ranges of Asynchronous Membership Functions .....

YU Yang, JIANG Xie fu, LI Huanhuan 6576

Modeling and Reachability Analysis of A Class of Petri Nets via Semi-tensor Product of Matrices

..... HAN Xiaoguang, CHEN Zengqiang, ZHANG Kuize, LIU Zhongxin, ZHANG Qing 6586

Sliding Mode Control for Network Control Systems with Packets Dropout

..... ZHANG Luyang, ZHAO Ling, LI Li 6592

Improved Results on Delay-dependent Stability for Neutral Systems with Mixed Time-varying Delays and Nonlinear Perturbations .....

ZHOU Xin, ZHANG Hexin, SUN Peng, WU Yubin, HUI Junjun 6597

A Fully Distributed Economic Dispatch Strategy for Power Systems Considering Flexible Loads

..... CHEN Kaixuan, XIE Jun, WANG Lu, YUE Dong, YONG Taiyou, LI Yaping 6602

A Distributed Algorithm for the Economic Dispatch Problems in Power Systems

..... WANG Lu, XIE Jun, CHEN Kaixuan, YUE Dong, YONG Taiyou, LI Yaping 6608

Variable Structure Synchronization Control for Switched Time-delay Neural Networks Subject to Packet Dropouts .....

LV Jing, ZHANG Xiaomei 6613

Controllability of Path Graphs by Using Information of Second-Order Neighbors

..... CHAO Yongcui, JI Zhijian, WANG Yaowei 6619

TDMA Based IEEE 802.15.4 for Simple/Secured Low Latency Deterministic Networked Control Systems

..... ANWAR Mashood, XIA Yuanqing 6624

Adaptive Model-Based Event-Triggered Control for Linear Systems .....

YU Hao, HAO Fei 6630

An Efficient Scheme for Implementation of Multi-qudit Parallel Control Operations on Distant Qudits in Quantum Network .....

XUE Lipeng, JIANG Min 6636

A New GTS Allocation Scheme in IEEE 802.15.4 Sensor-Actuator Networks

..... ZHAN Yufeng, XIA Yuanqing 6640

|                                                                                                                                                |                                                                      |      |
|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------|
| Admission Control for Distributed VoD System with Scalable Videos                                                                              | TANG Jucai, YIN Baoqun, LU Xiaonong                                  | 6646 |
| Real-Time Communication Schemes for Web-Based 3D Control Laboratories                                                                          | LEI Zhongcheng, HU Wenshan, ZHOU Hong                                | 6651 |
| Stability Analysis of Event-triggered Networked Control Systems with Time-Varying Delay                                                        | WANG Zhao, SUN Jian, CHEN Jie                                        | 6657 |
| Fuzzy $H_\infty$ Filtering for Nonlinear Networked Systems with Multiple Stochastic Time-varying Delays, Packet Dropouts and Sensor Saturation | XU Xiaoli, YAN Huaicheng, ZHANG Hao, SHI Hongbo                      | 6662 |
| Realize Almost Sure Optimal Consensus with Quantized Gossip-type Subgradient Algorithms                                                        | HU Bin, JIANG Xiao-Wei, ZHANG Dingxue, LI Tao, GUAN Zhi-Hong         | 6668 |
| Synchronization of Fractional-order Drive-response Complex Dynamical Networks Using Scalar Signals                                             | ZHAO Xiao-Wen, WU Yonghong, ZHANG Xian-He, LIU Feng, GUAN Zhi-Hong   | 6674 |
| State Estimation for Systems with Delayed Measurements: an Interacting Multiple Model Approach                                                 | TOU Run Ze, GAO Meihua, HUANG Ran, ZHANG Jinhui                      | 6679 |
| Algorithms for Determining Networks' Feasible Control Schemes                                                                                  | WANG Xichen, XI Yugeng                                               | 6685 |
| Stability Analysis for Kalman Filtering in a Muti-hop Network                                                                                  | REN Zhu, CHENG Peng, SHI Ling, DAI Yanyun                            | 6691 |
| Control of Bilateral Teleoperation with Time Delay Considering Operator Force Sending                                                          | QIN Yongming, XIA Yuanqing                                           | 6697 |
| Quantized Consensus Analysis for a Class of Heterogeneous Multi-agent Systems                                                                  | ZHANG Guoliang, SUN Yi-Jie, ZENG Jing                                | 6703 |
| Globally Optimal Kalman Filtering with Correlated Noises, Random One-Step Sensor Delay and Multiple Packet Dropouts                            | YU Yonglong, CHEN Dongyan                                            | 6709 |
| Robust H-infinity Dynamic Output Feedback Control for Discrete Switched Systems by Using Sojourn-probability-dependent Method                  | HU Yinghui, GU Wei, TIAN Engang                                      | 6715 |
| Stability Conditions and Phase Transition for Kalman Filtering over Markovian Channels                                                         | WU JUNFENG, SHI Guodong, ANDERSON Brian D. O., JOHANSSON Karl Henrik | 6721 |
| Consensus of Nonlinear Multi-agent Systems with Communication Constraints                                                                      | CUI Bing, ZHAO Chunhui, MA Tiedong, FENG Chi                         | 6729 |
| Design and Optimal Control for MIMO Networked Control Systems Based on Dead Band Scheduling Strategy                                           | XIE Ronghua, FAN Weihua, CHEN Qingwei                                | 6734 |
| A Reinvestigation on the Controllability and Observability of Networked Dynamic Systems                                                        | ZHANG Yuan, ZHOU Tong                                                | 6740 |
| False Data Injection Attacks for Output Tracking Control Systems                                                                               | PANG Zhonghua, HOU Fangyuan, ZHOU Yuguo, SUN Dehui                   | 6747 |
| $H_\infty$ Filtering for Event-based T-S Fuzzy Systems with Stochastic Sensor Faults                                                           | LIU Jinliang, FEI Shumin, ZOU Wenlin                                 | 6753 |
| Event-triggered Guaranteed Cost Control for Uncertain Networked Markov Jump Systems                                                            | YING Yujia, WANG Huijiao, GU Minming                                 | 6759 |
| Controllability of Multi-agent Systems Coupled by Dynamic Edges                                                                                | WANG Yuping, LI Yanjun, XIANG Ji                                     | 6765 |
| Networked $L_2$ -Gain Analysis and Controller Design for T-S Fuzzy Systems via an Event-Triggered Communication Scheme                         | ZHAO Junhua, YANG Yanping, ZHANG Dawei, JIA Xinchun                  | 6771 |
| $H_\infty$ Control for Uncertain Discrete-time System with Data Packet Dropouts and One Step Delay                                             | ZHOU Ying, ZHU Yijin                                                 | 6777 |

|                                                                                                      |                                                   |      |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------|------|
| Observer-Based Deadband Control for Discrete Systems Subject to External Disturbance                 | ZHANG Jinhui, ZHENG Wei Xing                      | 6782 |
| Active Queue Management Algorithm Based on Data-driven Predictive Control                            | WANG Ping, LIANG Yu, LU Xiaohui                   | 6788 |
| $H_\infty$ Networked Control of Two Inverted Pendulums Coupled by a Spring                           | ZHOU Liuyang, YAN Zhibin                          | 6794 |
| A Majorization Condition for MIMO Stabilizability via MIMO Transceivers with Pure Fading Subchannels | CHEN Wei, WANG Songbai, QIU Li                    | 6800 |
| $H_\infty$ Control for A Class of Wireless Networked Control Systems                                 | LU Renquan, SHU Jianmiao, BAI Jianjun, LIU Shuang | 6805 |
| Optimal Guaranteed Cost Control of NCSs with Time-varying Sampling                                   | LI Yuan, SUN Kunqiu, ZHANG Yi, ZHANG Qingling     | 6810 |
| Distributed Output Regulation for a Class of Nonlinear Multi-agent Systems via Controller Network    | YANG Xi, WAN Fuhua, WANG Yong                     | 6816 |
| Quantized Stabilization of Networked T-S Fuzzy Singular Systems                                      | LU Renquan, HUANG Mingwei, BAI Jianjun, PENG Hui  | 6822 |
| Communication and Control of Wide-Area Power Systems: A Survey                                       | ZHANG Chu, PENG Chen, ZHANG Jin, ZHANG Heng       | 6826 |
| Pairwise Nonequivalence of Observability of Controllable Boolean Control Networks                    | ZHANG Kuize, ZHANG Lijun, QI Hongsheng            | 6832 |
| Networked Predictive Control Based on the Round-Trip Delay                                           | WANG Binglin, KANG Yu, YIN Baoqun, XIE Zhen       | 6836 |
| Event-triggering Control for Model-based Networked Control Systems under Communication Constraints   | ZHOU Liuyang, YAN Zhibin                          | 6841 |

### Multi-Agent Systems and Distributed Control

|                                                                                                                    |                                                        |      |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------|
| Formation-containment Analysis and Design for High-order Linear Time-invariant Swarm Systems with Time Delays      | DONG Xiwang, LI Qingdong, REN Zhang, ZHONG Yisheng     | 6847 |
| Cooperative Pinning Synchronization of A Class of Undirected Complex Networks                                      | ZHU Henghui, LIU Kexin, LU Jinhu                       | 6861 |
| Distributed Adaptive Output Feedback Consensus Tracking for Multi-Agent Systems with Unknown Nonlinearities        | SUN Junyong, GENG Zhiyong                              | 6866 |
| Consensus of Heterogeneous Multi-agent Systems with Switching Topologies Using Input-output Feedback Linearization | ZHANG Qichao, ZHAO Dong-bin, WEI Qinglai, LI Chengdong | 6872 |
| Algebraic Solution to Distributed $H_2$ Control of Multi-agent Systems with Time Delays                            | YE Fei, ZHANG Weidong                                  | 6878 |
| Optimal Control of Multi-missile Systems                                                                           | DONG Shuai, LIU Lei, OU Liuli, WANG Yongji             | 6884 |
| Consensusability of Multi-Agent Systems with Constant Communication Delay                                          | HOU Wenyong, FU Minyue, ZHANG Huanshui                 | 6889 |
| Coordination Method of Pencil Lead Sinter Production Line System Based on MAS                                      | YE Xiufen, WU Zhiwei, GAO Yingjiang, WU Yan            | 6894 |
| Weighted Group-consensus Analysis of Multi-agent Systems on a Directed Bipartite Graph                             | DU Yingxue, WANG Yuzhen, ZHAO Guodong                  | 6900 |
| Consensus Control of Mobile Sensor Networks with Markov Switching Topology Under a Given Energy Budget             | ZHAO Yuan, GUO Ge, WEI Yue, GAO Zhenyu                 | 6906 |

|                                                                                                                                   |                                                                              |      |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------|
| Fully Distributed Finite-time Leader-following Control for High-order Integrator Systems with Directed Communication Graphs ..... | FU Junjie, WANG Jinzhi, LI Zhongkui                                          | 6912 |
| Dynamic Dwell-time Condition of Switching Information Topology for Consensus of Linear Multi-agent Systems .....                  | ZHANG Yaxiao, CHEN Yangzhou, ALEKSANDROV Alexander Yu                        | 6918 |
| Model Predictive Control Algorithm for Consensus in Multi-agent Systems under Dynamically Changing Interaction Networks .....     | CHENG Zhaomeng, ZHANG Hai-Tao                                                | 6924 |
| Distributed Event-triggered Bipartite Consensus for Multiple Agents over Signed Graph Topology .....                              | ZENG Jinzhou, LI Fangyuan, QIN Jiahu, ZHENG Wei Xing                         | 6930 |
| Multiple UCAVs Target Assignment via Bloch Quantum-Behaved Pigeon-Inspired Optimization .....                                     | ZHANG Shujian, DUAN Haibin                                                   | 6936 |
| Orientation Alignment-based Formation Control with Reference Node .....                                                           | AHN Hyo-Sung, LEE Byung-Hun, OH Kwang-Kyo, JEONG Kyungmin                    | 6942 |
| Distance-based Formation Shape Stabilisation via Event-triggered Control .....                                                    | LIU Qingchen, SUN Zhiyong, QIN Jiahu, YU Changbin                            | 6948 |
| Distributed Optimization on Proximity Network Rigidity via Robotic Movements .....                                                | SUN Zhiyong, YU Changbin, ANDERSON Brian D. O.                               | 6954 |
| A Bio-inspired Collision-free 4D Trajectory Generation Method for Unmanned Aerial Vehicles Based on Tau Theory .....              | YANG Zuqiang, FANG Zhou, LI Ping                                             | 6961 |
| Decentralized Cooperative Tracking Strategy Based on the Theory of Consistency .....                                              | CUI Yani, REN Jia, CHEN Dan, DAI Jing Guo                                    | 6969 |
| Approximate Method of Distributed Control for Continuous-time Multi-agent Systems .....                                           | ZHANG Fangfang, TAN Cheng, WANG Wei, ZHANG Huanshui                          | 6974 |
| Leader-follower Consensus for Multi-agent Systems with Lipschitz-Type Node Dynamics and Jointly Connected Dynamical Topology .... | WANG Bohui, WANG Jingcheng, ZHANG Langwen, ZHANG YI                          | 6980 |
| Virtual Agent Based Static and Dynamic Boundary Estimation and Tracking with Multiple Agents .....                                | MONDAL Arindam, BEHERA Laxmidhar, SHUKLA Anupam, SAHOO Soumya Ranjan         | 6986 |
| Distributed Detection via Bayesian Updates and Consensus .....                                                                    | LIU Qipeng, ZHAO Jiuhua, WANG Xiaofan                                        | 6992 |
| Adaptive Time-Varying State Formation Control for High-Order LTI Multi-agent Systems .....                                        | WANG Rui, DONG Xiwang, LI Qingdong, ZHAO Qilun, REN Zhang                    | 6998 |
| Guaranteed-cost Output Consensus for Distributed Descriptor Swarm Systems with Communication Delays .....                         | XI Jianxiang, YANG Xiaogang, YANG Bailong, LIU GuangBin                      | 7004 |
| Leader-Following Consensus of Discrete-Time Linear Multi-Agent Systems with Communication Noises ....                             | WANG Yunpeng, CHENG Long, WANG Hongming, HOU Zengguang, TAN Min, YU Hongnian | 7010 |
| Finite-time Flocking of Cucker-Smale Systems .....                                                                                | SUN Yongzheng, LIU Feng, LI Wang, SHI Hongjun                                | 7016 |
| Coordinated Transportation of a Group of Unmanned Ground Vehicles .....                                                           | WANG Yunpeng, CHENG Long, HOU Zengguang, TAN Min, YU Hongnian                | 7027 |
| Robust Iterative Learning Control of Multi-agent Systems with Logarithmic Quantizer .....                                         | ZHANG Ting, LI Junmin                                                        | 7033 |
| Zeno-free Event-triggered Consensus Using Sampled Data .....                                                                      | FAN Yuan, WANG Shi, SONG Cheng                                               | 7039 |
| The Central Estimator Design for the Moving Targets .....                                                                         | LI Rui, SHI Ying Jing                                                        | 7044 |
| Leader-Following Consensus of Linear Multi-Agent Systems by Distributed Event-Triggered Control .....                             | HU Wenfeng, LIU Lu, FENG Gang                                                | 7050 |

|                                                                                                                     |                                                             |      |
|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------|
| An Optimal Cooperative Tracking Algorithm for Discrete-time Multi-agent Systems                                     | YAO Meng, QIAO Yupeng                                       | 7056 |
| Containment Control of Discrete-time Multi-agent Systems with Multiple Stationary Leaders and Time-delays           | LI Bo, CHEN Zengqiang, LIU Zhongxin, ZHANG Qing             | 7062 |
| Adaptive Bipartite Tracking Control for Coopetition Networks                                                        | HU Jiangping, HU Xiaoming, ZHANG Yuping                     | 7067 |
| Group Consensus for Multi-agent Systems with Lurie Dynamics and Time Delays                                         | GUO Ling, PAN Huan, MU Jia, BING Zhitong                    | 7073 |
| Distributed Consensus of Second-order Multi-agent Systems with Uniquely Sampled Position Data                       | HUANG Na, DUAN Zhisheng                                     | 7079 |
| Circular Formation Control for Multi-agent Systems with Input Saturation                                            | SONG Cheng, FAN Yuan                                        | 7084 |
| Decentralized Adaptive Consensus Control of Uncertain Nonlinear Systems under Directed Topologies                   | WANG Wei, HUANG Jiangshuai, FAN Huijin, JIANG Wei           | 7090 |
| Leader-Follower Consensus for High-Order Integrator Systems with Lipschitz Nonlinear Dynamics                       | WANG Qi, FU Junjie, WANG Jinzhi                             | 7096 |
| On Distributed Consensus Control of Higher-order Systems with Dynamically Changing Directed Interaction Topologies  | SU Shize, LIN Zongli                                        | 7102 |
| Cluster Consensus in Networks of Agents with Weighted Cooperative-Competitive Interactions via Non-linear Protocols | ZHOU Meng, ZHAN Jingyuan, LI Xiang                          | 7108 |
| Consensus of Multiple Double-integrators with Aperiodic Sampled-data and Switching Topology                         | ZHAN Jingyuan, LI Xiang                                     | 7113 |
| Distributed Formation Control for a Multi-agent System with Dynamic Role Assignment                                 | MA Zhengguang, LIU Zhongxin, CHEN Zengqiang                 | 7118 |
| Formation Tracking of Multi-agent Systems with Bearing-only Measurement                                             | HAN Liang, TAN Qingke, DONG Xiwang, LI Qingdong, REN Zhang  | 7124 |
| A Riccati Equation Approach to Cooperative Output Regulation of Heterogeneous Multi-agent Systems                   | JIAO Qiang, LIU Shuai, LEWIS Frank, XU Shengyuan, XIE Lihua | 7130 |
| A PDE Approach to Formation Tracking Control for Multi-agent Systems                                                | QI Jie, PAN Feng, QI Jinpeng                                | 7136 |
| Hierarchical Distributed Receding Horizon Control for a Group of Agents                                             | LU Qiang, HAN Qing-Long, LIU Shirong                        | 7142 |
| Finite-time Consensus of Second-order Nonlinear Systems with Unknown Dynamics                                       | WANG Wei, WANG Dan, PENG Zhouhua                            | 7148 |
| An Orientation Alignment Problem Using Only Local Information                                                       | LEE Byung-Hun, OH Koog-Hwan, JOHN Young-Hun, AHN Hyo-Sung   | 7153 |
| Distributed $H_\infty$ -Consensus Estimation for Moving Target Using Constant gain                                  | HU Chen, HE Bing, MA Xi, LIU Gang                           | 7159 |
| The Consensus Region Design and Analysis of Fractional-order Multi-agent Systems                                    | MA Xi, LI HongBo, HE Bing, HU Chen, YIN RenPing             | 7165 |
| Second-order Consensus for Nonlinear Leader-following Multi-agent Systems with Sampled-data Information             | DU Haibo, CHENG Yingying, LI Chaojie                        | 7178 |
| Controllability of Heterogeneous Multi-Agent Systems                                                                | GUAN Yongqiang, JI Zhijian, ZHANG Lin, WANG Long            | 7184 |

|                                                                                                                                             |                                                                |      |
|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------|
| Second-order Edge Agreement with Locally Lipschitz Dynamics under Digraph via Edge Laplacian and ISS Method .....                           | ZENG Zhiwen, WANG Xiangke, ZHENG Zhiqiang                      | 7190 |
| Attitude Synchronization of Multiple 3-DOF Helicopters without Angular Velocity Measurements by Bounded Distributed Control ...             | PENG Chen, ZHU Bo, YIN Linfei, YANG Baojian, WANG Cunsong      | 7196 |
| Accelerated Consensus of Discrete-Time Multi-agent Systems under Switching Topologies ....                                                  | LI Min                                                         | 7202 |
| Multiple UAVs Configuration Formation Control via the Dual Quaternion Method .....                                                          | ZHAO Yunyun, WANG Xiangke, ZHU Huayong                         | 7207 |
| Clustering by Group Consensus of Unstable Dynamic Linear High-Order Multi-Agent Systems .....                                               | CAI Ning, XUE Lin                                              | 7212 |
| A Framework of Stability Analysis for Multi-agent Systems on Arbitrary Topology Graph: Linear Systems .....                                 | WANG Yong, LI Guiming, HU Haidong                              | 7217 |
| Quantized Consensus for Nonlinear Multi-agent System Based on Edge Laplacian .....                                                          | LI Jinsha, HO Daniel, LI Junmin                                | 7223 |
| Event-triggered Consensus of General Linear Multi-agent Systems with Directed Topology .....                                                | YU Pian, DING Li, LIU Zhi-Wei, GUAN Zhi-Hong                   | 7229 |
| Practical Synchronization of Discrete-Time Multi-Agent Systems under Finite Input Sets .....                                                | MENG Yang, LI Tao, ZHANG Ji-Feng                               | 7235 |
| Discrete-Time Function Consensus Algorithms for Second-Order Moment Statics .....                                                           | MENG Yang, LI Tao, ZHANG Ji-Feng                               | 7240 |
| Adaptive Event-Triggered Consensus Control for Multi-Agent Systems Subject to Input Saturation .....                                        | YIN Xiuxia, YUE Dong, HU Songlin                               | 7245 |
| Distributed Optimization Design for High-Order Multi-Agent Systems .....                                                                    | ZHANG Yanqiong, HONG Yiguang                                   | 7251 |
| Distributed Observer-based Adaptive Consensus Protocols for Leader-following Multi-agent Systems .....                                      | CHEN Wenhai, GAO Lixin                                         | 7257 |
| Robust Stabilization for Nonlinear Multi-Agent Systems with Unity Relative Degree by Distributed Switched Control and Its Application ..... | LIU Wei, HUANG Jie                                             | 7263 |
| Discontinuous Finite-time Consensus Algorithm for Multiple Nonholonomic Systems with Disturbances .....                                     | SHI Shang, YU Xin, LIU Guohai, LI Wuquan                       | 7269 |
| Adaptive Consensus Algorithms for Heterogeneous Second-order Multi-agent Systems .....                                                      | LIU Cheng-Lin, LIU Fei                                         | 7275 |
| Finite-Time Consensus of Double Integrator Multi-Agent Systems Subject to Input Saturation .....                                            | ZUO Zhiqiang, ZHANG Zhicheng, WANG Yijing                      | 7280 |
| An Overview of Distributed Consensus of Multi-agent Systems with Measurement/ Communication Noises .....                                    | DJAIDJA Sabir, WU Qinghe                                       | 7285 |
| Driver Edges Analysis for Network Controllability .....                                                                                     | PANG Shaopeng, HAO Fei                                         | 7291 |
| Formation Control and Obstacle Avoidance for Multi-vehicle Systems with Optimal Assignment .....                                            | RUAN Guangkai, WANG Zhanqing, XIA Yuanqing                     | 7297 |
| Consensus Seeking in Second-order Multi-Agent Systems with Restricted Switching Topology .....                                              | WANG Junwei, CHEN Kairui, ZHANG Yun, LIANG Zhipeng             | 7303 |
| Guaranteed Cost Formation Control for Multi-agent Systems: Consensus Approach .....                                                         | WANG Zhong, LIU Guang-bin, XI Jianxiang, XUE Bing, LIU Yunfeng | 7309 |
| A Reduction Method to Consensus Control of Uncertain Multi-agent Systems with Input Delay .....                                             | ZUO Zongyu, WANG Chunyan, DING Zhengtao                        | 7315 |

|                                                                                                                                    |                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Convergence of Fractional-order Discrete-time Multi-agent Systems with A Leader                                                    |                                                                             |
| .....                                                                                                                              | LIU Bo, HAN Xiao, ZHANG Junjun, SUN De Hui 7322                             |
| Self-triggered Based Semi-global Consensus Tracking of Multi-agent Systems with Input Saturation                                   |                                                                             |
| .....                                                                                                                              | WANG Xiaoling, SU Housheng, LI Jiwei, WANG Xiaofan 7333                     |
| Distributed Adaptive Consensus Protocols for Linear Multi-agent Systems with Directed Graphs and a Leader of Unknown Control Input |                                                                             |
| .....                                                                                                                              | LV Yuezun, LI Zhongkui, DUAN Zhisheng 7339                                  |
| Optimal Topology Selection for Leader-following Multi-agent Systems with Opposite Leaders                                          |                                                                             |
| .....                                                                                                                              | MA Jingying, ZHENG Yuanshi, WANG Long 7344                                  |
| Controllability of Fractional-Order Multi-Agent Systems With Single Leader                                                         |                                                                             |
| .....                                                                                                                              | LIU Bo, LU Xue, ZHANG Jie, WANG Li, SHI Hong 7350                           |
| Robust Second-Order Tracking of Multi-agent Systems without Velocity Measurements and with Input Saturation                        |                                                                             |
| .....                                                                                                                              | WANG Qingling, SUN Changyin, HOU Jian, ZHOU Yingjiang 7356                  |
| The Relative Tempo of Discrete-time Consensus Networks                                                                             |                                                                             |
| .....                                                                                                                              | SHAO Haibin, MESBAHI Mehran, XI Yugeng 7362                                 |
| Distributed Attitude and Position Consensus for Networked Rigid Bodies Based on Unit Dual Quaternion                               |                                                                             |
| .....                                                                                                                              | WANG Yinqiu, YU Fengmin, YU Changbin 7368                                   |
| Tracking Control for Second-order Agents with an Active Leader and Jointly-connected Topologies                                    |                                                                             |
| .....                                                                                                                              | CHEN Lei, QIN Kaiyu, HU Jiangping 7374                                      |
| Distributed Control of Uncertain Nonlinear Multi-agent Systems in Non-affine Pure-feedback Form Using DSC Technique                |                                                                             |
| .....                                                                                                                              | YANG Yang, YUE Dong, DING Jie, YUAN Deming 7380                             |
| Angle-based Cooperation Control of Triangle Formation                                                                              |                                                                             |
| .....                                                                                                                              | GUO Jing, ZHANG Caixia, LIN Meijin 7386                                     |
| Decentralized Formation Control of Multi-UAV Systems under Wind Disturbances                                                       |                                                                             |
| .....                                                                                                                              | ZHANG Jie, MENG Fanlin, ZHOU Yan, LU Geng, ZHONG Yisheng 7392               |
| Finite Time Dynamical Formation Control of Multi-Agent Systems                                                                     |                                                                             |
| .....                                                                                                                              | MA Longbiao, HE Fenghua, SUN Chuanpeng, WANG Long, ZHANG Silun, YAO Yu 7398 |
| State-Transition and Observability Constrained EKF for Multi-robot Cooperative Localization                                        |                                                                             |
| .....                                                                                                                              | ECKENHOFF Kevin, HUANG Guoquan 7404                                         |
| Formation Control of Mobile Sensors in the Process of Dynamic Coverage                                                             |                                                                             |
| .....                                                                                                                              | LUO Xiaoyuan, ZHANG Xiaohong, LI Shaobao, GUAN Xinpeng 7411                 |
| Consensus of Heterogeneous Agents with Linear Discrete Dynamics                                                                    |                                                                             |
| .....                                                                                                                              | SONG Yunzhong 7416                                                          |
| Scaling Control of Circular Formation of Agents with Different Reference Variables                                                 |                                                                             |
| .....                                                                                                                              | REN Dongxu, YU Shuanghe 7423                                                |
| Distribute Consensus for Multi-agent Systems with Attacks and Delays                                                               |                                                                             |
| .....                                                                                                                              | WU Yiming, HE Xiongxiang, OU Xianhua 7429                                   |
| Fixed Time Consensus of Multi-agent Systems                                                                                        |                                                                             |
| .....                                                                                                                              | ZHOU Yingjiang, JIANG Guoping, SUN Changyin, WANG Qingling 7434             |
| A Class of Tracking Problem for Multi-agent Systems with Time Delays                                                               |                                                                             |
| .....                                                                                                                              | ZOU Delong, CHAI Senchun, DONG Lijing, SUN Guangxiong 7440                  |
| Stability of Distributed LMS under Cooperative Stochastic Excitation                                                               |                                                                             |
| .....                                                                                                                              | XIE Siyu, GUO Lei 7445                                                      |
| Coordination of Heterogeneous Nonlinear Multi-Agent Systems with Prescribed Behaviors                                              |                                                                             |
| .....                                                                                                                              | TANG Yutao 7451                                                             |
| Distributed Observer-based Output Feedback Control for Networked Robot Systems                                                     |                                                                             |
| .....                                                                                                                              | ZHANG Bin, JIA Yingmin, MENG Deyuan 7463                                    |
| Distributed Average Tracking for Multiple Nonlinear Time-varying Signals with Output Measurements                                  |                                                                             |
| .....                                                                                                                              | ZHAO Yu, DUAN Zhisheng, LIU Yongfang 7469                                   |

|                                                                                                                           |                                                                   |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Distributed Stabilization of Fuzzy Networked Systems with Event-based Sampling Scheme                                     |                                                                   |
| .....                                                                                                                     | HUANG Chi, HO Daniel, ZHAI Guisheng 7475                          |
| Distributed Control of Nonlinear Multi-Agents in the Strict-Feedback Form: A Cyclic-Small-Gain Approach                   |                                                                   |
| .....                                                                                                                     | LIU Tengfei, JIANG Zhong-Ping 7481                                |
| Distributed Parameter Estimation in Sensor Networks Based on Stochastic Approximation                                     |                                                                   |
| .....                                                                                                                     | LEI Jinlong, CHEN Han-Fu 7487                                     |
| Second-order group consensus in multi-agent systems with time-delays based on second-order neighbours' information        |                                                                   |
| .....                                                                                                                     | GAO Yulan, YU Junyan, SHAO Jinliang, YU Mei, GAO Yanping 7493     |
| Impulsive Consensus for Second-order Multi-agent Systems with Directed Topology and Communication Time-delays             |                                                                   |
| .....                                                                                                                     | JIANG Fangcui, XIE Dongmei 7499                                   |
| Globally Stable Rigid Formation Control for Multi-robot Systems                                                           |                                                                   |
| .....                                                                                                                     | WANG Qin, ZHU Yadong, LI Juan, HUA Qingguang 7505                 |
| Event-Based Leader-following Consensus of Multi-agent Systems with Switching Topologies                                   |                                                                   |
| .....                                                                                                                     | ZHU Wei, SUN Chuntao, LI Huaqing 7511                             |
| Directed Coordinated Orbit-Tracking Control of Second-Order Nonlinear Satellites in Three-Dimensional Space               |                                                                   |
| .....                                                                                                                     | CHEN Yang-yang, ZHANG Ya, WEI Ping 7517                           |
| Pinning Synchronization of Complex Networks with Lur'e-Type Nodes and Directed Switching Topology                         |                                                                   |
| .....                                                                                                                     | WEN Guanghui, CHEN Michael Z. Q., YU Wenwu, DU Haibo 7523         |
| Consensus of Multi-agent System with Nonlinear Dynamics via Event-triggered Strategy                                      |                                                                   |
| .....                                                                                                                     | XIE DUOSI, XIE Jianquan, ZHAO Huanyu 7529                         |
| Generalized Formation Control for Unicycles                                                                               |                                                                   |
| .....                                                                                                                     | DONG Yi, HU Xiaoming 7535                                         |
| Distributed Kalman Filter for Relative Sensing Networks                                                                   |                                                                   |
| .....                                                                                                                     | LU Shiyuan, LIN Che, LIN Zhiyun, ZHENG Ronghao, YAN Gangfeng 7541 |
| Algorithms and Experiments for Multi-vehicle Systems in Diverse Motion Patterns                                           |                                                                   |
| .....                                                                                                                     | ZHANG Hai-Tao, CHEN Zhiyong, FAN Mingcan 7547                     |
| Long Range Kick for RoboCup3D – a Practical Approach                                                                      |                                                                   |
| .....                                                                                                                     | ZHAO Hecheng, LIANG Zhiwei, WANG Qingyuan 7552                    |
| Global Finite-time Stabilization of Second-order Systems Subject to Mismatched Disturbances with Application to Consensus |                                                                   |
| .....                                                                                                                     | WANG Xiang-Yu, LI Shihua, DU Haibo 7557                           |
| Trajectory Tracking Control of Circular Formation of Agents with Tracking Different Reference Variables                   |                                                                   |
| .....                                                                                                                     | REN Dongxu, YU Shuanghe 7563                                      |
| Cooperative Control of Linear Systems with Coupled Constraints via Distributed Model Predictive Control                   |                                                                   |
| .....                                                                                                                     | ZHOU Lifeng, LI Shaoyuan 7569                                     |
| Consensus of Heterogeneous Multi-agent Nonlinear Systems with Node and Edge Uncertainties                                 |                                                                   |
| .....                                                                                                                     | XU Dabo, WANG Xinghu, BO Yuming, WEN Guanghui 7575                |
| Distributed Adaptive Output Regulation Controllers of Heterogeneous Linear Multi-agent Systems with Directed Graphs       |                                                                   |
| .....                                                                                                                     | LI Zhongkui, CHEN Michael Z. Q., DING Zhengtao 7580               |
| Distributed Observer Design for Group Consensus Tracking of Multi-agent Systems with Time-delays                          |                                                                   |
| .....                                                                                                                     | HAN Kepeng, XIE Dongmei, JIANG Fangcui 7586                       |
| Convergence Analysis of Consensus Based Distributed Filtering Algorithm in Sensor Networks                                |                                                                   |
| .....                                                                                                                     | ZHANG Ya, TIAN Yuping, CAI Jun 7592                               |
| Multi-agent Consensus with Delayed Quantized Information                                                                  |                                                                   |
| .....                                                                                                                     | LI Lulu, HO Daniel, LU Jianquan, HUANG Chi 7598                   |
| Observer-Based Task-Space Consensus of Networked Robotic Systems: A Separation Approach                                   |                                                                   |
| .....                                                                                                                     | WANG Hanlei, XIE Yongchun 7604                                    |

|                                                                                          |                                                         |
|------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Distributed Adaptive Containment for Linear Multi-agent Systems Using Output Information |                                                         |
| .....                                                                                    | XU Chengjie, SU Housheng, ZHENG Ying, LIU Xingguo 7610  |
| Bipartite Consensus Behavior of Agents in Networked Systems                              | ..... LIU Huiyang, HUANG Juntao 7616                    |
| Distributed Adaptive Static Output Feedback Consensus of Multi-Agent Systems             |                                                         |
| .....                                                                                    | WANG Yingchun, SUN Xun, HUI Guotao, ZHANG Huaguang 7622 |
| Finite-time Containment Control of Multi-agent Network with Nonlinear Dynamics           |                                                         |
| .....                                                                                    | YU Di, ZHANG Huizhen, GAO Hongyu, JIANG Renling 7627    |
| Non-linear Flocking Networks with Collision Avoidance                                    | .... SOMARAKIS Christoforos, BARAS John 7633            |
| Pose Synchronization of Rigid Body Networks with Switching Topologies                    |                                                         |
| .....                                                                                    | DENG Juan, SONG Wenjun, LIU Zhi-Xin, BARAS John 7639    |
| Distributed Set Surrounding and Modulus Consensus for Multi-agent Systems                |                                                         |
| .....                                                                                    | WANG Yan, QIN Huashu 7645                               |

### Sensor Networks and Internet of Things (IoT)

|                                                                                                       |                                                                                          |
|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| An Application-Specific WSN Routing Protocol for EV Charging Piles Management System                  |                                                                                          |
| .....                                                                                                 | YANG Xiaodong, LIANG Xiaoli, ZHANG Youbing, ZHOU Wenwei, REN Shuaijie, WENG Guoqing 7651 |
| Receding Horizon Consensus Estimation of Sensor Networks with Packet Dropouts                         |                                                                                          |
| .....                                                                                                 | LI Huiping, YAN Weisheng, YANG HuiZhen 7659                                              |
| A Clustered Routing Protocol for Underwater Wireless Sensor Networks                                  |                                                                                          |
| .....                                                                                                 | ZHANG Ying, SUN Hongliang 7665                                                           |
| Stability of Networked Control System with Bandwidth Limitation and Bernoulli-Process Packet Loss in  |                                                                                          |
| Feed-back                                                                                             | ..... XU Qing, WANG Jianqiang, ZHANG Fang, LI Keqiang 7671                               |
| A Multiple Key Management Method in Distributed Sensor Networks                                       |                                                                                          |
| .....                                                                                                 | ZHANG Ying, ZHENG Bingxin 7676                                                           |
| A Mobile Sensor Distributed Cooperative Searching and Coverage Strategy in Unknown Environments       |                                                                                          |
| .....                                                                                                 | ZHENG Zhi, PENG Zhihong 7682                                                             |
| Application Scenarios of Wireless Sensor Networks for Urban Transportation: a Survey                  |                                                                                          |
| .....                                                                                                 | HU Xiaoya, XIONG Wei, LI Wei, KE Li 7688                                                 |
| Sequential Fusion Estimations for Asynchronous Sensor Networks                                        |                                                                                          |
| .....                                                                                                 | YANG Xusheng, ZHANG Wen'an, YU Li, XING Kexin 7692                                       |
| Compressed Data Collection for Clustering-based Sensor Networks                                       |                                                                                          |
| .....                                                                                                 | DING Xu, WU Xiaobei, WANG Huaiyuan, WANG Lili 7703                                       |
| Node Failure Restoration in WSN via Cooperative Communication                                         |                                                                                          |
| .....                                                                                                 | WANG Huaiyuan, WU Xiaobei, ZHANG Shengfeng, WANG Lili 7709                               |
| A Dynamic Clustering Method with Overlaps for Event Detection in WSNs                                 |                                                                                          |
| .....                                                                                                 | HU Yuan, NIU Yugang, CHEN Bei 7715                                                       |
| Sequential Algorithm for Extended $H_\infty$ Filter-based Target Tracking in Wireless Sensor Networks |                                                                                          |
| .....                                                                                                 | WANG Xingbo, PANG Xiaoshuang, WANG Dongsheng 7721                                        |
| A Trust-based Secure Routing Algorithm for Wireless Sensor Networks                                   |                                                                                          |
| .....                                                                                                 | LIU Wei, YE Qing, YANG Nan 7726                                                          |
| Robust Power Control with Probability Constraint for Co-channel Two-tier Femtocell Networks           |                                                                                          |
| .....                                                                                                 | LI Shiyi, LIU Zhixin, LI Xinbin, YANG Hongjiu 7730                                       |
| A Research on Banded Topology Control of Wireless Sensor Networks Along High-speed Railways           |                                                                                          |
| .....                                                                                                 | ZHOU Dong, SHI Tianyun, LV Xiaojun, BAI Wei 7736                                         |

|                                                                                                                     |                                                               |
|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Topological Analysis of the Time Synchronization Error for LSTS Algorithm in WSNs                                   |                                                               |
| .....                                                                                                               | CAO Qingqing, TIAN Yuping 7741                                |
| The Routing Protocol of Event-triggered WSN for High-speed Railways                                                 |                                                               |
| .....                                                                                                               | SHI Tianyun, SHI Xiaodong, HAO Jun, YANG Bo, JIA Xinchun 7747 |
| Micro-IMU-Based Motion Tracking System for Virtual Training                                                         |                                                               |
| .....                                                                                                               | ZHANG Yang, FEI Yunfeng, XU Lin, SUN Guangyi 7753             |
| An Optimal Region Selection Strategy for WSNs Localization Based on Voronoi Diagram                                 |                                                               |
| .....                                                                                                               | GUAN Zixiao, ZHANG Baihai, DONG Lijing, CHAI Senchun 7759     |
| A Kind of Nodes Localization Method for Three-dimensional UWSNs                                                     |                                                               |
| .....                                                                                                               | ZHANG Ying, LIANG Jixing 7765                                 |
| An Efficient Depth-adjustment Deployment Scheme for Underwater Wireless Sensor Networks                             |                                                               |
| .....                                                                                                               | WANG Hui, LIU Meiqin, ZHANG Senlin 7771                       |
| Low Rate Sampling Techniques for UWB Systems: A Survey                                                              |                                                               |
| .....                                                                                                               | ZHOU Yan, ZHOU Cong, WANG Dongli 7777                         |
| Iterative search with emulating nodes' local movement on range-free sensor network localization                     |                                                               |
| .....                                                                                                               | QIAO Dapeng, GUO Zongben, MA Hongwei, SHI Shuguang 7783       |
| Event-triggered Communication for Distributed Time Synchronization in WSNs                                          |                                                               |
| .....                                                                                                               | CHEN Zhenping, LI Dequan, HUANG Yourui, TANG Chaoli 7789      |
| A Fault-Tolerant Topology Control Algorithm Base on Optimally Rigid Graph in 3-Dimensional Wireless Sensor Networks |                                                               |
| .....                                                                                                               | XUE Liang, CHEN Xi, ZHAO Jijun, GUAN Xinping 7795             |
| Scheduling Strategy for Hidden Markov Model in Wireless Sensor Network                                              |                                                               |
| .....                                                                                                               | WANG Qihua, GUO Ge, CAO Lijie, XING Xufeng 7806               |
| A Dynamic Clustering and Routing Protocol for Multi-hop Data Collection in Wireless Sensor Networks                 |                                                               |
| .....                                                                                                               | CHEN Liquan, XU Zhezhuang, LIU Ting, CHEN Cailian 7811        |
| A TDOA Location Algorithm Based on Semidefinite Relaxation Programming                                              |                                                               |
| .....                                                                                                               | CAO Lijie, GUO Ge, WANG Qihua, HAO Li-Ying 7817               |
| Lower-limb Driven Energy Harvesting Backpack: Design, Performance and Energetics                                    |                                                               |
| .....                                                                                                               | LI Qingguo, SHEPERTYCKY Michael, MARTIN Jean-Paul 7821        |
| Localization Based on Best Spatial Correlation Distance Mobility Prediction for Underwater Wireless Sensor Networks |                                                               |
| .....                                                                                                               | LIU Meiqin, GUO Xiaodong, ZHANG Senlin 7827                   |
| Voronoi Coverage Algorithm Based on Connectivity for Wireless Sensor Networks                                       |                                                               |
| .....                                                                                                               | WANG Qihua, GUO Ge, CAO Lijie, XING Xufeng 7833               |

### **New Energy Technology and Control in Energy and Environment**

|                                                                                                                      |                                                          |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| A New Zero-Voltage Switching Equalization System for Series Super-capacitor String                                   |                                                          |
| .....                                                                                                                | GAO Zhigang, JIANG Fenlin, GAO Han, LIAO Xiao-zhong 7838 |
| Performance Assessment of Two Adaptive Kalman Filters for Battery State-of-Charge Estimation                         |                                                          |
| .....                                                                                                                | CHENG Ximing, YAO Liguang 7843                           |
| The Research on Battery SOC Estimation Within First-order Markov Process                                             |                                                          |
| .....                                                                                                                | DU Lianbo, CHENG Ximing, LI Yang 7849                    |
| Maximum Power Point Tracking Algorithm for Photovoltaic Generation Based on Voltage Compensation                     |                                                          |
| .....                                                                                                                | HUANG Long, YANG Xu, HU Changbin, TONG Chaonan 7855      |
| Predictive Functional Control of Power Kites for High Altitude Wind Energy Generation Based on Hybrid Neural Network |                                                          |
| .....                                                                                                                | WANG Yongyu, SUN Qu 7866                                 |

|                                                                                                                                        |                                                                       |      |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|------|
| A Three-phase Voltage Source PWM Rectifier with Strong DC Immunity Based on Model Predictive Control .....                             | CAI Shulin, CAO Hui, LIANG Danxi, NIU Ruigen, JIA Lixin, WASEEM Ahmad | 7871 |
| An Integrated Configuration Optimization and Economic Evaluation Approach for Microgrids .....                                         | XIE Dong, DU ZHI, DING Heng, ZHANG Ji, MA Lin, ZHANG Shirong          | 7877 |
| Drilling Data Quality Control via Wired Drill Pipe Technology .....                                                                    | ZHAO Kairui, SUI Dan                                                  | 7883 |
| Can General PD Output-Feedback Laws Be Asymptotic Power Stabilizers of Pressurized Water Reactors? .....                               | DONG Zhe                                                              | 7889 |
| Model Predictive Slip Control for Electric Vehicle with Four In-wheel Motors .....                                                     | YUAN Lei, CHEN Hong, REN Bingtao, ZHAO Haiyan                         | 7895 |
| Adaptive Neural Universal Tracking Control for High-order Nonaffine Variable-speed Wind Turbine System .....                           | WANG Lei, SHEN Tao, CHEN Chen                                         | 7901 |
| Cascade Constrained DMC-PID Control for SCR Denitrification System .....                                                               | ZHANG Yi, SHEN Jiong, LI Yiguo, WU Xiao                               | 7906 |
| Solve the Selective Harmonic Elimination Problem with Groebner Bases Theory .....                                                      | YANG Kehu, YUAN Zhibao, WEI Wei, YUAN Ruyi, YU Wensheng               | 7910 |
| The State-of-art of the EV Charging Control Strategies .....                                                                           | ZHOU Yimin, LI Xiaoyun                                                | 7916 |
| A Review of Equalization Topologies for Lithium-ion Battery Packs .....                                                                | LING Rui, WANG Lizhi, HUANG Xueli, DAN Qiang, ZHANG Jie               | 7922 |
| Control Strategy for Grid-connection Converter under the Distorted Grid Condition .....                                                | WANG Rongyu, LI Chunlai, ZHANG Lei, XIE Zhen                          | 7928 |
| Nonlinear Tracking Controller of Variable Speed Wind Turbines with the Parameter Adjusted by Fuzzy Logic .....                         | ZHENG Wei, YIN Minghui, DU Baozhu, LI Weijie, ZHOU Lingke             | 7934 |
| A MPPT Algorithm Based on Extremum Seeking with Variable Gain for Microinverters in Microgrid .....                                    | YAN Weihang, WANG Jianhui, GAO Wenzhong, YAN Shijie                   | 7939 |
| Model Predictive Control for DFIG-Based Wind Power Generation under Unbalanced Network Conditions .....                                | SI Tianqi, LIU Xiangjie                                               | 7945 |
| Comparison of EMI Suppression Performance for Dual-Bridge Series Resonant DC/DC Converter Based on Several Kinds of Chaotic Maps ..... | GAO Hong, SI Gangquan, ZHAO Weili, YUE Wenmeng, AHMAD Waseem          | 7950 |
| Using Two Kinds of Consensus Control to Solve the Energy Equalization Problem of Battery Pack .....                                    | ZHU Zheren, HUANG Qin, LING Rui                                       | 7955 |
| Maximum Power Point Tracking in Variable Speed Wind Turbine System via Optimal Torque Sliding Mode Control Strategy .....              | MAO Jingfeng, WU Aihua, WU Guoqing, ZHANG Xudong                      | 7967 |
| Fuzzy Control in Diesel Working Adjustment for HEV Bus .....                                                                           | KONG Zhiguo, WANG Hongxiu                                             | 7978 |
| Optimization of HEV Energy Management Strategy Based on Driving Cycle Modeling .....                                                   | CUI Naxin, LIAN Fengxia, WU Jian, WANG Xiaoxia                        | 7983 |
| Sliding-Mode Control for Three-phase PWM Inverter via Harmonic Disturbance Observer .....                                              | ZHENG Wen, LI Shihua, WANG Junxiao, WANG Zuo                          | 7988 |
| Harmonic Current Suppression for DFIG Based on PR Controller .....                                                                     | SHI Tianyu, XIE Zhen, WANG Lingxiang                                  | 7994 |

### Automotive/Vehicle Systems Control

|                                                                                                                       |                                |      |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|------|
| Control Strategy of Emergency Steering Return of Distributed Drive Electric Vehicle Based on Driver's Intention ..... | TENG Guowen, XIONG Lu, LENG Bo | 7998 |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|------|

|                                                                                                                                |                                                          |      |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|------|
| Road and Obstacle Detection Based on Multi-layer Laser Radar in Driverless Car                                                 | DUAN JianMin, ZHENG Kaihua, SHI Li Xiao                  | 8003 |
| Non-linear Reference Model with Dynamic Regulator for Vehicle Dynamic Control                                                  | TENG Guowen, XIONG Lu, LENG Bo                           | 8009 |
| Cooperative Adaptive Cruise Control with Communication Constraints                                                             | WU Ligang, GUO Ge, YUE Wei, GAO Zhenyu                   | 8015 |
| Performance Enhancement of Supervisory Robust Control for Largely Mismatched Processes                                         | LI Shengbo, GAO Feng                                     | 8021 |
| Parameter Design of the Powertrain of Fuel Cell Electric Vehicle and the Energy Management Strategy                            | GU Cheng, LIU Hao, CHEN Xinbo, QIAN Shaoming             | 8027 |
| Robust Adaptive Control for Vehicle Active Suspension Systems with Uncertain Dynamics                                          | HUANG Yingbo, NA Jing, GAO Guanbin, WU Xing, GUO Yu      | 8033 |
| Scalability Limitation of Homogeneous Vehicular Platoon under Undirected Information Flow Topology and Constant Spacing Policy | LI Shengbo, ZHENG Yang, LI Keqiang, WANG Jianqiang       | 8039 |
| Finite Time Tracking Control of Vehicle Suspension Systems                                                                     | PAN Huihui, SUN Weichao, GAO Huijun                      | 8046 |
| Adaptive Tracking Control of Vehicle Suspensions with Actuator Saturations                                                     | ZHANG Jing, WANG Jue                                     | 8051 |
| Performance Evaluation of Active and Energy Regenerative Suspension Using Optimal Control                                      | YIN Jun, CHEN Xinbo, LI Jianqin, QIAN Shaoming           | 8057 |
| Disturbance Rejection During Inertia Phase of Automatic Transmission                                                           | SANADA Kazushi                                           | 8061 |
| Model-Free Tracking Control for Vehicle Active Suspension Systems                                                              | WANG Jue, ZHANG Jing                                     | 8067 |
| State Estimation for A Four-wheel-independent-drive Electric Ground Vehicle                                                    | ZHANG Hui, ZHANG Guoguang, WANG Junmin                   | 8073 |
| Autonomous Vehicle Following Control Based on an Extended State Observer                                                       | SUN Xinhe, JIA Xinchun, LI Lei, ZHANG Dawei              | 8079 |
| Braking Controller Design for Electrical Vehicle Using Feedback Linearization Method                                           | HAO Ningfeng, GUO Hongyan, CHEN Hong                     | 8085 |
| Motion Control of Free Piston Engine Generator Based on LQR                                                                    | YANG Rongbin, GONG Xun, HU Yunfeng, CHEN Hong            | 8091 |
| On-line Shift Schedule Optimization of Electric Vehicles with Multi-speed AMT Using Moving Horizon Strategy                    | GUO Lulu, GAO Bingzhao, CHEN Hong, LU Jianbo             | 8097 |
| Neural Network and Efficiency-based Control for Dual-Mode Hybrid Electric Vehicles                                             | QI Yunlong, WANG Weida, XIANG Changle                    | 8103 |
| Clutch Fill Control of a Heavy-duty Automatic Transmission                                                                     | MENG Fei, ZHANG Hui                                      | 8109 |
| Design of Structure Parameters for Gasoline Engine Common Rail System Based on Random Algorithm                                | WANG Changyong, YANG Rongbin, HU Yunfeng, XIE Xiaohua    | 8114 |
| Weight Scheduling Model Predictive Control for Gear Shift of a 2-Speed Electric Vehicle                                        | YE Keyu, LIU Qifang, GAO Bingzhao, CHEN Hong             | 8120 |
| Autonomous Vehicle Longitudinal Following Control Based on Model Predictive Control                                            | WANG QIU, QU Ting, YU Shuyou, GUO Hongyan, CHEN Hong     | 8126 |
| Nonlinear GDI Rail Pressure Control: Design, Analysis and Experimental Implementation                                          | LIU Qifang, GONG Xun, CHEN Hong, XIN Baiyu, SUN Pengyuan | 8132 |
| Lateral and Longitudinal Combined Vehicle Dynamic Controller for Caliper Integrated Electrical Parking Brake System (Ci-EPB)   | ZHAO Zhiguo, ZHOU Liangjie                               | 8140 |

|                                                                                                                          |                                                                 |      |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| Research on Driving Force Optimal Distribution and Fuzzy Decision Control System for a Dual-motor Electric Vehicle ..... | WANG Da, WANG Bo                                                | 8146 |
| A New Nonlinear Method for Launch Control of AMT Vehicles .....                                                          | LU Xiaohui, CHEN Dong, LIU Qifang, GAO Yuan                     | 8154 |
| Yaw Stability of Four-wheel-drive Electric Vehicle Based on Multi-Model Predictive Control .....                         | YIN Guodong, CHEN Qi, AHMED Qadeer, JIN Xianjian, BIAN Chentong | 8159 |
| A Traction Control Strategy Based on Optimal Slip Ratio for the In-Wheel Motor Electric Vehicle While Steering .....     | JIA Fengjiao, LIU Zhiyuan, ZHOU Hongliang                       | 8171 |
| Semi-active Suspension Control with Polynomial Inverse Model: Frequency Response Analysis and HIL Simulation .....       | WU Jian, LIU Zhiyuan, JING Houhua                               | 8177 |

### Data Driven Modeling and Control

|                                                                                                                   |                                                                                          |      |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------|
| Comparison of Two Multi-step Ahead Forecasting Mechanisms for Wind Speed Based on Machine Learning Models .....   | ZHANG Chi, WEI Haikun, ZHU Tingting, ZHANG Kanjian, LIU Tianhong                         | 8183 |
| Support Vector Regression Learning Based Uncalibrated Visual Servoing Control for 3D Motion Tracking .....        | ZHANG Bingfei, ZHANG Xianxia, QI Junda                                                   | 8208 |
| Prediction of Hot Metal Silicon Content in Blast Furnace Based on EMD and DNN .....                               | WANG Hongwu, YANG Genke, PAN Chang-Chun, GONG Qingsong                                   | 8214 |
| An Incremental Convex Hull Algorithm Based Online Support Vector Regression .....                                 | ZHOU Xujun, ZHANG Xianxia, ZHANG Bingfei                                                 | 8220 |
| Adaptive Digital Control of Systems with Scarce Measurements .....                                                | WANG Hongwei                                                                             | 8226 |
| A New Control Algorithm Based on Data-Driven Design to Reject Ship Course Disturbance .....                       | RONG Lihong, PENG Xiuyan, ZHANG Biao                                                     | 8232 |
| Prediction of Single Neural Firings for Hodgkin-Huxley Neuron by Fitting Generalized Linear Model .....           | WEI Xile, SHI Dingtian, LU Meili, DENG Bin, YU Haitao, WANG Jiang                        | 8238 |
| Forecasting Building Energy Consumption Based on Hybrid PSO-ANN Prediction Model .....                            | HU Chenglei, LI Kangji, LIU Guohai, PAN Lei                                              | 8243 |
| An Improved Markov Chain Model for Hour-Ahead Wind Speed Prediction .....                                         | MIAO Changyu, CHEN Jian, LIU Jia, SU Hongye                                              | 8252 |
| Online Flooding Monitoring in Packed Towers Using EDPCA Method .....                                              | WANG Wenwen, CAO Zewen, GAO Zengliang, LIU Yi                                            | 8258 |
| Data-driven Thermal Efficiency Modeling and Optimization for Reheating Furnace Based on Statistics Analysis ..... | WANG Jian-Guo, SHEN Tiao, ZHAO Jinghui, MA Shiwei, RAO Wen-Tao, ZHANG Yong-Jie           | 8271 |
| Multi-variable Time Series Forecasting for Thermal Load of Air-conditioning System on SVR .....                   | ZHOU Xuan, LIU Qingdian, LIU Guoqiang, YAN Junwei, YANG Jiancheng, LIANG Liequan, HU Wei | 8276 |

### Micro-nano and Quantum Systems

|                                                                                                                   |                                                |      |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------|
| Dynamics of a Double Quantum Dot Charge Qubit Measured by a Quantum Point Contact .....                           | CUI Wei                                        | 8281 |
| State Transfer for Closed Quantum Systems with Dipole and Polarizing Coupling via Implicit Lyapunov Control ..... | ZHAO Shouwei, LIN Hai, SUN Jitao, ZHOU Lei     | 8287 |
| The Unscented Kalman Filter for the Sandwich System with Hysteresis .....                                         | LI Haifen, TAN Yonghong, DONG Ruili, LI Yanyan | 8293 |
| Improving Metrological Limit via Weak Measurement and Quantum Measurement Reversal .....                          | LIU Lijun, QI Bo, CHENG Shuming, XI Zairong    | 8298 |

|                                                                                                             |                                                                 |      |
|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| LQG/ $H_\infty$ Control of Linear Quantum Stochastic Systems .....                                          | BIAN Chuanxin, ZHANG Guofeng                                    | 8303 |
| Ultrafast Manipulation of a Double Quantum Dot via Lyapunov Control Method .....                            | GAO Ming-yong, CONG Shuang, HU Longzhen, CAO Gang, GUO Guo-ping | 8309 |
| Quantization Makes Investors Avoid the Moral Hazard .....                                                   | LEI Zhenzhou, ZHANG Ming, DAI Hong-Yi, CHEN Xi, LIU Boyang      | 8315 |
| Open-System Dynamics of the Geometrical Representation for a Qutrit .....                                   | CHENG Shuming, LIU Lijun, LI Li, XI Zairong                     | 8319 |
| A Low Cost Measurement Method for a Large Stroke XY Nano-positioner by Using Linear Optical Encoders .....  | WANG Peng, ZHANG Zhen, YAN Peng                                 | 8325 |
| Twisting Sliding Mode Control of an Electrostatic MEMS Micromirror for a Laser Scanning System .....        | CHEN Hui, SUN Zhendong, SUN Weijie, YEOW John T W               | 8331 |
| An Adaptive Quantum-inspired Genetic QoS Multicast Routing Algorithm and Its Application .....              | LI Ming                                                         | 8337 |
| Hybrid Flexure-based Multi-level Mechanism Design Supporting Centimeter Stroke Nano Manipulator .....       | TANG Jiajun, ZHANG Zhen, WANG Peng, YAN Peng                    | 8342 |
| A Unified Framework for Fault Tolerant Quantum Filtering and Fault Detection .....                          | GAO Qing, DONG Daoyi, PETERSEN Ian                              | 8348 |
| Determination of Polarity of ZnO Single Crystal by Contactless Electroreflectance and Photorefectance ..... | WANG Dong-Po                                                    | 8354 |
| The Dynamics of a Hybrid System Based on the NV Center in Spin Bath .....                                   | YU Shanping, XI Zairong                                         | 8357 |
| Dynamic Modeling of a Polymer Composite Based Hard-Magnetic Micro-mirror .....                              | LI Guanlin, ZUO Peng, XIE Wei, John T. W. Yeow                  | 8362 |

### Nature-inspired (GA, etc.) Computing

|                                                                                                                                      |                                                                    |      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------|
| 3D Morphing Method Based on Kriging Algorithm for Surgical Navigation .....                                                          | HU Yan, WEI Jun, WANG Tianmiao, ZHAO Qin-jun, ZHAO Honghua, LI Shi | 8372 |
| Human Gesture Recognition Based on Image Sequences .....                                                                             | LI Huan, REN Bo                                                    | 8388 |
| Expansion Rate Based Collision Avoidance for Unmanned Aerial Vehicles .....                                                          | LEI Xin, WANG Xiangke, LI Jie, ZHANG Guozhong, SHEN Lincheng       | 8393 |
| A Target Assignment Method Based on Particle Swarm Optimization .....                                                                | CHEN Zheng-xiong                                                   | 8405 |
| Enhancing Local Search of Differential Evolution Algorithm for High Dimensional Optimization Problem .....                           | DONG XiaoGang, DENG ChangShou, ZHANG Yan, TAN Yu-Cheng             | 8411 |
| Optimization for Alkali/Polymer Flooding Based on Parallel Self-regulation Differential Evolution with Maximum Average Entropy ..... | GE Yulei, LI Shurong, CHANG Peng, LU Songlin, LEI Yang             | 8416 |
| Research on Function Optimization Problem Based on Artificial Bee Colony Algorithm .....                                             | LI Shu-xia, WANG Jie-sheng                                         | 8428 |

### Transportation Systems

|                                                                                            |                                                                     |      |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------|
| Speed Optimization for a Container Shipping Route in Competitive Environment .....         | JIN Xiaochuang, QUAN XiongWen, CHEN Qiushuang, CAO Zhengquan, XU Ya | 8446 |
| Calibration for TRANSIMS Model Considering Mean and Standard Deviation Value of Data ..... | LIU Hong, WANG Hui                                                  | 8452 |

Green Shipping Oriented Coordinated Berth Allocation for Port Group

..... ZHANG Heng, CHEN Qiushuang, QUAN XiongWen, JIN Xiaochuang, XU Ya 8466

On Fuzzy Self-adaptive PID Control for USV Course

..... FAN Yunsheng, SUN Xiaojie, WANG Guofeng, GUO Chen 8472

Influence of Track Periodical Irregularities to the Suspension System of Low-speed Maglev Vehicle

..... YU Pei-Chang, LI Jie, LI Jinhui, WANG LianChun 8479

A Novel Distributed Nonlinear MPC Algorithm of Signaling Split in Urban Traffic System

..... ZHOU Xuanhao, PAN Zaisheng, CHEN Peng, LIANG Shiwu, LU Yongzai 8490

## Systems Biology and Life Systems

Increasing Interaction Strength Will Destroy Persistence of Mutualistic Ecological Networks

..... SU Wei 8495

Circadian Rhythms Recovery Based on Slide Mode Controller

..... ZHOU Ren, REN Haipeng, HUANG Xiao-na 8499

Frequency-window Effects of Subthreshold Electric Fields on Neuronal Discharges of Active Neurons

..... WEI Xile, LI Bingjie, LU Meili, WANG Jiang, DENG Bin, YU Haitao 8503

Permanence of a Nonautonomous Two Prey-One Predator System with Stage Structure and Multiple Time Delays .....

LIU Chao, ZHANG Qingling 8508

Evaluation of Treatment Regimens for Blood Glucose Regulation in Type II Diabetes Using Pharmacokinetic-Pharmacodynamic Modeling

..... EKRAM Fatemeh, BARAZANDEGAN Melissa, KWOK Ezra, GOPALUNI Bhushan 8519

Stability Analysis of a Class of Oral Microorganisms Chemostat Models with Distributed Time Delay

..... YANG Kunyi, MA Zhichao, ZHANG Jie 8525

The Exploration of Amino Acid Variants Co-occurring with Post-translational Modifications

..... QIN Guimin, HOU Yibo, ZHAO Xingming 8531

MeSHSim: an R/Bioconductor Package for Measuring Semantic Similarity over MeSH Headings and MEDLINE Documents .....

ZHOU Jing, SHUI Yuxuan, PENG Shengwen, LI X- 8535

uhui, MAMITSUKA Hiroshi, ZHU Shanfeng

Prediction of Interactions Between LncRNA and Protein by Using Relevance Search in a Heterogeneous LncRNA-protein Network .....

YANG Jianghong, LI Ao, GE Mengqu, WANG Minghui 8540

Visualization of Module Alignment Discovery

..... XIANG Chaojuan, XIE Jiang, GU Yongli, XU Junfu, LU Kai 8545

A Method for Homopolymer Length Discrimination in Ion Torrent Sequencing

..... FENG Weixing, XUE Dingkai, SONG Fengfei, CHEN Duojiang, LI Ziwei, WANG Xueying 8550

Estimation of Isoform Expression Using Hierarchical Bayesian Model by RNA-seq

..... DENG Minghua 8554

PNP-DIPseAAC: Prediction of Nucleosome Position Based on the DNA Sequence Information

..... XIAO Xuan, LIU Zi, QIU Wang-Ren 8559

Research About Feature Genes Selection for Cancer Type Identification Based on Gene Expression Profiles

..... SONG Xuekun, ZHANG Han, LI Yaoting, HUO Yahui, XIAO Shaochong, ZHANG Peijiang 8563

Predicting Tyrosine Phosphorylation from Site-modification Network

..... WANG Binghua, WANG Minghui, JIANG Yujie, SUN Dongdong, XU Xiaoyi 8569

An Integrated Network Motif Based Approach to Identify Colorectal Cancer Related Genes

..... SHI Kai, GAO Lin, WANG Bingbo 8573

### **Economy, Finance, Population and Military Systems**

|                                                                                                                                 |                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Eco-efficiency Evaluation Based on a Modified Radial DEA Model and Its Application                                              |                                                                            |
| .....                                                                                                                           | XU Tianqun, CHEN Yuepeng 8579                                              |
| Control, Synchronization and Coexistence of Synchronization and Anti-synchronization of a Novel Hyperchaotic Finance System ... | LIU Lixia, REN Ling, BEI Xiaomeng, GUO Rongwei, YAN Zhiguo, ZHAO Ping 8585 |
| Coexistence of Synchronization and Anti-synchronization in the Unified Chaotic Systems                                          |                                                                            |
| .....                                                                                                                           | LIU Lixia, REN Ling, BEI Xiaomeng, GUO Rongwei, YAN Zhiguo, ZHAO Ping 8590 |
| A New Distribution of Stock Market Return by Schrödinger Equation ....                                                          | LIU Haijun, REN Guobiao 8595                                               |
| Evolution of International Trade and Investment from a Complex Network Perspective                                              |                                                                            |
| .....                                                                                                                           | ZHANG Shuhong, WANG Lin 8600                                               |
| Analysis of Chinese Stock Market from a Complex Network Perspective: Better to Invest in the Central                            |                                                                            |
| .....                                                                                                                           | MA Jun, YANG Jiajun, ZHANG Xiaoqiang, HUANG Ying 8606                      |
| Why Not Private Bailouts? .....                                                                                                 | ZHOU Changli, CAO Zhigang, QU Xinglong, YANG Xiaoguang 8612                |
| How to Invest in Uncertain Markets .....                                                                                        | KHADEMI Iman, ZHOU Kemin 8617                                              |
| China's Inspiration and Suggestions on US National Network of Manufacturing Innovation                                          |                                                                            |
| .....                                                                                                                           | DING MingLei, CHEN Baoming 8628                                            |

### **Industrial Systems and Manufacturing**

|                                                                                                                                            |                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Position Control of Proportional Electro-hydraulic Valves: an Embedded Model Control Solution                                              |                                                                              |
| .....                                                                                                                                      | ACUNA-BRAVO Wilber, MA Yun, CANUTO Enrico 8647                               |
| Multi-objective Optimization of Rolling Schedules for Aluminum Hot Tandem Rolling Based on Improved NSGA-II .....                          | CHE Haijun, HU Ziyu, YANG Jingming 8662                                      |
| Kinematics Analysis of a High Dynamic Serial-Parallel Hybrid Flight Simulator                                                              |                                                                              |
| .....                                                                                                                                      | WANG Xiaochen, CHEN Weishan 8667                                             |
| High-precision NURBS Interpolation Algorithm Based on the Bisection Method                                                                 |                                                                              |
| .....                                                                                                                                      | ZHENG Zhongyi, YANG Chao, JING Fengshui, YANG Guodong 8673                   |
| Integrated Design of Speed Sensorless Control Algorithms for Induction Motors                                                              |                                                                              |
| .....                                                                                                                                      | ZHANG Jian, WANG Yebin, BORTOFF Scott, SATAKE Akira, FURUTANI Shinichi, 8678 |
|                                                                                                                                            | DENG Xinyan, YAO Bin                                                         |
| Design and Implementation of a Rapid Automated Defects Inspection System for Resistive Touch Panels with a PID-like Fuzzy Controller ..... | WANG Yuan-Jay 8685                                                           |
| Design of Human Machine Interface of Metal Detector Machine Based on $\mu C / OS-III$ and emWin                                            |                                                                              |
| .....                                                                                                                                      | WANG Yuesheng, GU Xiaolei, WANG Liang 8692                                   |

### **Systems Engineering Theory and Method**

|                                                                                                                          |                                                      |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Trajectory Online Planning for UCAV Air to Ground Attack                                                                 |                                                      |
| .....                                                                                                                    | DU Hai-wen, TANG Chuanlin, DING Dali, WANG Yong 8701 |
| A Container Terminal Logistics Computational Architecture with MPSoC Distributed Cooperative Computing Perspective ..... | LI Bin 8709                                          |
| Density of Superheated Stream Based on Iterative Reweighted Least Squares Method                                         |                                                      |
| .....                                                                                                                    | CHENG Yun, GAO Zhifeng, GUO Nan 8715                 |
| Price Discount Contract of Supply Chain Coordination under Demand Uncertainty                                            |                                                      |
| .....                                                                                                                    | DU Wenyi, TANG Xiaowo, AI Xingzheng 8719             |

|                                                                                                                     |                                                     |      |
|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------|
| Research on Ordering Policy under the Revenue Sharing Contract with Loss-averse Retailer                            | LIU Xiaojing, TANG Xiaowo, AI Xingzheng             | 8723 |
| Improved Quantitative Analysis Method of FMECA with Monte Carlo Simulation                                          | CHANG Wen-bing, GUO Ya-bing, ZHOU Sheng-han         | 8728 |
| Equivalence Design for Instantaneous Availability of a Repairable Parallel-Series System Based on Different Methods | HU Linmin, LI Jiandong                              | 8744 |
| A Strategy of Membrane Cleaning and Replacement Schedule for Spiral-wound SWRO System                               | JIANG Aipeng, CHENG Wen, JIANGZHOU Shu, LIN Yinghui | 8750 |

### System Simulation, Integration and Evaluation

|                                                                                                                  |                                                                        |      |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------|
| On Control Law of Aero Balanced-Autopilot Control System                                                         | QU Dongcai, SHI Xianjun, CHENG Jihong, DONG Cao                        | 8756 |
| On Aero Glide Downwards Beam Guidance Control System                                                             | QU Dongcai, MA Pingyuan, SHI Xianjun                                   | 8760 |
| Research on Hybrid Location Algorithm with High Accuracy in Indoor Environment                                   | ZHANG Lan, FENG Chen, YU Yao                                           | 8764 |
| Missile Stage Separation Simulation Considering Complex Factors                                                  | LI Huitong, ZHAO Yang, HUANG Yixin                                     | 8768 |
| A Dynamic Segmentation Method of Power Customer Based on Rough Clustering                                        | HU Xiaoxue, ZHAO Songzheng                                             | 8773 |
| Dynamic Simulation of Meshing Force in Broken Tooth Involute Gear Meshing Process Based on ADAMS                 | CHEN Cai, SHI Quan, WANG Guangyan, GE Hongyu, HE Zewen                 | 8785 |
| Regional Coupling Based Synchronization Control of Multi-motor Driving TBM Cutterhead System                     | HU Tao, WANG Jingcheng, ZHANG Langwen                                  | 8789 |
| Terrain Simulation for Crustal Movement Simulation System Based on Contour Lines                                 | MA Qingzeng, LI En, YANG Guodong, LIANG Zize                           | 8795 |
| Integration Weights Determination of Launch Equipment Hydraulic System Based on Indexes Coupling Characteristics | CHEN Chen, WANG Yun, TIAN Zhimin                                       | 8801 |
| Reliability Evaluation Methods for RF Guided HILS System with Uncertain Index Values                             | WANG Yuxiao, CHAO Tao, WANG Songyan, YANG Ming                         | 8813 |
| Simulation Model of Supermarket Queuing System                                                                   | XING Wenjie, LI Senbiao, HE Lihong                                     | 8819 |
| CFD Simulations to Research the Control Rules with Gate Leaves in SCR-DeNOx Facility for Marine Diesel Engines   | LIANG Xunquan, XIAO Jianmei, XU Yuanyuan, LIU Shuangshuang, MEN Xiuyan | 8829 |
| The Evaluating Simulation System of Ship Anchoring Operation                                                     | FANG Cheng, REN Hongxiang                                              | 8834 |
| Agility Evaluation and Visualizing Simulation of Fighter Post-Stall Maneuver Missions                            | OUYANG Guang, ZHAO Deming, ZHANG Ping                                  | 8838 |
| Performance Cycle Analysis on Turbo Fan Engine PW4000                                                            | WANG Jiqiang                                                           | 8844 |
| Robust Decentralized Control of Web-winding Systems without Tension Sensor                                       | HOU Hai-Liang, WANG Zhong, NIAN Xiaohong, SHANG Jing                   | 8850 |
| Data Mining and Event Playback on Networked Information Simulation System                                        | ZHANG Xiaotian, CHEN Chen                                              | 8855 |
| Dynamic Obstacle Avoidance Path Planning of UAVs                                                                 | XUE Qian, CHENG Peng, CHENG Nong, ZOU Xiang                            | 8860 |
| Four-axis Gimbal System Application Based on Gimbal Self-adaptation Adjustment                                   | MA Jie, XU Qinbei                                                      | 8866 |

|                                                                                                                                |                                                        |      |
|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|------|
| Multi-ELM-based Real-time Simulation Credibility Assessment Method and Tested on Ship Electric Propulsion System .....         | LIU Sheng, ZHI Pengfei, ZHANG Lanyong, XING Bowen      | 8872 |
| A New Grey Relational Degree Model for Panel Data and Its Application .....                                                    | WU Honghua, DENG Lixia, LIU Hui                        | 8878 |
| Simulating Driving Feel for Virtual Driving Simulator Based on Semi-physical Simulation .....                                  | XIAO Shuxian, ZHANG Linxuan                            | 8882 |
| Researches on DC Sysrem Relay Misoperation with RT-LAB .....                                                                   | WANG Qi, LIU Zhenxing                                  | 8888 |
| Three Dimensional Hoisting Simulation System Based on Virtual Reality for Truck Crane .....                                    | AN Jianqi, CHEN Fang, CHEN Xin, WU Min                 | 8892 |
| A Hierarchical Scheme for Integrating Process Design and Control Using Optimal PID Control .....                               | ZHOU Mengfei, LI Long, TAO Fei, CAI Yijun, PAN Haitian | 8898 |
| Hybrid Formal Verification of Greenhouse Temperature-Humidity System Based on MLD Model .....                                  | MA Guoqi, QIN Linlin, CHU Zhudong, SHI Chun, WU Gang   | 8904 |
| Chaotic Synchronization of Permanent Magnet Synchronous Motors with Non-smooth-air-gap Up to an Arbitrary Scaling Matrix ..... | LIN Lixiong, PENG Xiafu, ZHONG Xunyu                   | 8909 |
| The Parameters Selection of Simulation Environment Device in the Hardware-in-the-Loop System .....                             | YU Tianpeng, ZHANG Siyu, LI Jinliang                   | 8914 |

### Control in Intelligent Power Systems

|                                                                                                                      |                                                                 |      |
|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------|
| Transient Stability Model and Preventive Control Based on Phase Shifting Transformer in Power System .....           | CHAI Yi, FENG Xiaohui, ZHANG Ke, SUN Jian                       | 8926 |
| Study on the Novel Power Optimizer Based on SST .....                                                                | YAN Shaomin, ZHANG Aimin, ZHANG Hang, WANG Jianhua, BHAN Pervez | 8931 |
| Optimal Operation for Energy-efficient Building Mico-grid .....                                                      | ZHANG Yuanming, JIA Qing-Shan                                   | 8936 |
| Optimal Scheduling for Wind Farms Power Generation Based on Partial Information .....                                | YU Jian, LIU Feng, LI Peng, SONG Yongduan                       | 8941 |
| Wide Area Measurement-based Coherency Identification for Real-time Transient Stability Assessment .....              | SU Fu, ZHANG Baohui, YANG Songhao, WANG Huaiyuan                | 8947 |
| WAMS-based Dynamic Output-feedback Control of Power Systems with Network-induced Delay and Random Data Missing ..... | ZHANG Yunning, YUE Dong, HU Songlin                             | 8953 |
| Hierarchical Control Strategy for Inverter in Micro-grid Based on MAS .....                                          | DOU Chunxia, LI Na, AN Xiaogang, ZHANG Xingzhong                | 8959 |
| The Strategy of the Voltage Control in Smart Grid Based on Modern Control Method and FPGA .....                      | LI Miao, GAO Wei, XU Fang, JIAO Risheng                         | 8964 |
| Robust Load Frequency Control of Multi-area Interconnected Power System with Time Delay .....                        | ZHAO Xuemao, SUN Yonghui, YUAN Chao, WEI Zhinong, SUN Guoqiang  | 8969 |
| A Novel Decomposition of Power Systems for PMU Placement .....                                                       | LI Xiaoqin, WU Jing, LONG Chengnian, LI Shaoyuan                | 8975 |
| Phase-shift Selective Harmonic Elimination Pulse Width Modulation for Multilevel Converter .....                     | YUAN Zhibao, ZHANG Jianjun, HAO Jun, LU Danying                 | 8981 |
| Study of Coordination Mechanism Between Protection and Control of Regional Power Grid .....                          | LI Jungang, ZHANG Aimin, ZHANG Hang, GENG Yingsan               | 8986 |
| Distributed Secondary Control for Reactive Power Sharing of Inverter-based DGs in Microgrids .....                   | LAI Jingang, ZHOU Hong, HU Wenshan, LU Xiaoqing                 | 8990 |

## Droop Control of Microgrids Based on Distributed Optimization

- ..... YI Peng, LIU Feng, HONG Yiguang 9002
- Distributed Secondary Control for Droop-Controlled Autonomous Microgrid  
..... CHEN Gang, GUO Zhijun 9008
- Charging Station Selection and Charging Price Decision for PEV: A Two Level Game Approach  
..... CHEN Jie, YANG Bo, ZHOU Hongbin, CHEN Cailian, GUAN Xinping 9014
- An Adaptive Load Shedding Method Based on the Underfrequency and Undervoltage Combined Relay  
..... LI Ye, ZHANG Baohui, BO Zhiqian, LEI Junzhe 9020
- A Scalable Coordinated Approach Towards Optimal Reactive Power Compensation in Distribution Network with DGs ..... YE Lihong, YANG QIANG, YAN Wenjun 9025
- Vehicle to Grid Technology:A Review ..... ZHOU Yimin, LI Xiaoyun 9031
- An Improved Power Control with Virtual Impedance Based on a Second-Order General-Integrator  
..... SU Yang, LIU Shirong, ZHAO Xiaodan, CHEN Xueting 9037
- A Generator Tripping Control Method Based on Trajectory Sensitivity Analysis and Pattern Search  
..... ZHANG Xing, JIANG Han, YU Zhihong, ZHOU Xiaoxin 9043
- An ADMM + Consensus Based Distributed Algorithm for Dynamic Economic Power Dispatch in Smart Grid ..... XING Hao, LIN Zhiyun, FU Minyue 9048
- Resident Electric Vehicles Charging Optimization Strategy in the Smart Grid  
..... DUAN Ruiqin, MA Zhongjing 9054
- Economic Dispatch of Distribution Network with Multi-Microgrid  
..... ZHAO Qiongyao, LIU Shirong, ZHENG Ying, CHEN Xueting, ZHENG Lingwei 9060
- Control Strategy of Negative Sequence Current for the Grid-connection Converter under the Unbalanced Grid Condition ..... DU Xiaodong, WANG Rongyu 9066

## Smart City and Infrastructure

### Smart Home Implementation Based on Internet and WiFi Technology

- ..... YAN Wenbo, WANG Quanyu, GAO Zhenwei 9072

## Cloud computing and Service

### The Improvement and Implementation of Distributed Item-based Collaborative Filtering Algorithm on Hadoop

- ..... FAN Lu, LI Hong, LI Changfeng 9078
- Resource Management in Multi-Cloud Scenarios via Reinforcement Learning  
..... PIETRABISSA Antonio, BATTILOTTI Stefano, FACCHINEI Francisco, GIUSEPPI Alessandro, ODDI Guido, PANFILI Martina, SURACI Vincenzo 9084

## Game Theory and Social Network

### Dynamics and Stability of Potential Hyper-networked Evolutionary Games

- ..... LIU Ting, WANG Yuanhua, CHENG Daizhan 9090
- Fluctuation Strength Analysis of A Long-Range Opinion Model  
..... ZHANG Jiangbo, HONG Yiguang 9098
- Probabilistic Punishment on Free Riders in Threshold Public Goods Games  
..... ZHANG Chunyan, LIU Zhongxin, SUN Qinglin, CHEN Zengqiang 9110
- An Approach to Sentiment Analysis for Short Chinese Texts Based on SVMs  
..... LU Xing, LI Yuan, WANG Qinglin, LIU Yu 9115

|                                                                                                               |                                       |      |
|---------------------------------------------------------------------------------------------------------------|---------------------------------------|------|
| Game Theoretic Approach to Global Climate Control .....                                                       | DU Jinming, WANG Long                 | 9121 |
| Random-attack Median Fortification Problems with Different Attack Probabilities .....                         | GONG Xianglin                         | 9127 |
| Biased Imitation in Coupled Evolutionary Games .....                                                          | FU Shihua, WANG Yuzhen                | 9134 |
| Strategy Detection of Noncooperative Dynamic Games .....                                                      | ZHANG Kuize                           | 9140 |
| Dual Expressions of Decomposed Subspaces of Finite Games .....                                                | LIU Ting, QI Hongsheng, CHENG Daizhan | 9146 |
| Opinion Fluctuation and Fashion Phenomena of A Long-Range Opinion Dynamics .....                              | CHEN Zihan                            | 9152 |
| Equilibrium in repeated Stackelberg Public Goods Game with two-leaders-one-follower and one-step-memory ..... | MU Yifen                              | 9157 |