

第 37 卷 第 4 期 2020 年 4 月  
Vol. 37 No. 4 Apr. 2020

ISSN 1000-8152  
CODEN KLYYEB

# 控制理论与应用

Control Theory & Applications



万方数据

主办 华南理工大学  
中国科学院数学与系统科学研究院

# 控制理论与应用

第37卷 第4期 2020年4月

## 目次

### 论文与报告

关于新型冠状病毒肺炎一类基于CCDC统计数据的随机时滞动力学模型

邵年, 陈瑜, 程晋, 陈文斌 (697)

基于Hammerstein-Wiener逆模型补偿的预测控制非线性变换策略 ··· 孙浩杰, 邹涛, 张鑫, 惠存万 (705)

航空发动机的健康指标构建与剩余寿命预测 ··· 彭开香, 皮彦婷, 焦瑞华, 唐鹏 (713)

基于气泡稳定性分析的锌浮选泡沫图像时空联合去噪 ··· 肖文辉, 唐朝晖, 刘金平, 谢永芳 (721)

基于深度编码-解码器的图像模糊核估计 ··· 余孝源, 谢巍 (731)

基于非线性状态依赖Riccati方程的直线倒立摆一致性控制 ··· 王志晟, 张雪敏, 梅生伟 (739)

基于干扰观测器的一类不确定仿射非线性系统有限时间收敛backstepping控制

张强, 许慧, 许德智, 王晨光 (747)

DoS攻击下基于切换Luenberger观测器的冗余控制 ··· 赖绍禹, 陈博, 俞立 (758)

动态迟滞Hammerstein系统的改进卡尔曼状态估计 ··· 李海芬, 谭永红, 董瑞丽, 程冉冉 (767)

无人机认知防碰撞系统安全边界研究 ··· 许卓凡, 魏瑞轩, 周凯, 张启瑞 (776)

倾转式三旋翼无人机的自适应鲁棒容错控制 ··· 王栋, 鲜斌 (784)

基于鲁棒容积卡尔曼滤波的自适应目标跟踪算法 ··· 彭美康, 郭蕴华, 汪敬东, 牟军敏, 胡义 (793)

陀螺仪系统同步控制的参数自适应滑模控制 ··· 杜肖丰, 曾喆昭, 程婷, 程启芝, 王风琴 (801)

柔性自激异步发电系统反演自适应滑模控制 ··· 谷志锋, 孙晓云, 朱长青, 刘文康, 葛孟超, 单锁兰 (809)

具有预设性能的切换系统输出反馈自适应动态面控制 ··· 师路欢, 张天平, 夏晓南 (818)

一类非线性多变量系统的多模型自适应控制 ··· 黄帅, 王昕, 王振雷 (829)

基于自适应迭代学习算法的一类非线性系统故障检测与估计 ··· 陈政权, 韩路, 侯彦东 (837)

基于分块核主成分分析和支持向量机的故障检测

李锦冰, 韩冰, 冯守渤, 张佳冬, 李宇, 钟凯, 韩敏 (847)

基于增量式最大方差展开的水下控制系统故障诊断 ··· 贾创, 左信, 高小永 (855)

欺骗攻击环境下具有执行器故障的跳变耦合信息物理系统的同步控制 ··· 王士贤, 李军毅, 张斌 (863)

基于介电弹性体驱动器的软体机器人建模与跟踪控制(英文)

王亚午, 叶雯珺, 张一龙, 赖旭芝, 吴敏, 苏春翌 (871)

无线网络化控制系统的功率感知事件触发策略及其闭环稳定性 ··· 赵云波, 袁征, 朱创 (881)

基于节点状态一致的路网边界控制 ··· 王力, 李敏, 何忠贺, 张玲玉, 李正熙 (888)

应用模型预测控制的混合动力汽车模式切换动态协调控制 ··· 林歆悠, 苏炼, 郑清香 (897)

考虑市场因素的电力系统供需互动混合博弈强化学习算法 ··· 包涛, 李昊飞, 余涛, 张孝顺 (907)

基于互补滑模控制和迭代学习控制的永磁直线同步电动机速度控制 ··· 金鸿雁, 赵希梅 (918)

宏微复合运动平台的自抗扰控制研究 ··· 何耀滨, 杨志军, 孙晗, 彭皓 (925)

双质量弹簧基准问题自抗扰控制研究 ··· 李健, 张彬文, 谭文 (933)

# CONTROL THEORY & APPLICATIONS

Vol. 37 No. 4 Apr. 2020

## CONTENTS

### Papers and Reports

- Some novel statistical time delay dynamic model by statistics data from CCDC on novel coronavirus pneumonia  
..... SHAO Nian, CHEN Yu, CHENG Jin, CHEN Wen-bin (697)
- Nonlinear transformation strategy of predictive control based on Hammerstein-Wiener inverse model compensation  
..... SUN Hao-jie, ZOU Tao, ZHANG Xin, HUI Cun-wan (705)
- Health indicator construction and remaining useful life prediction for aircraft engine  
..... PENG Kai-xiang, PI Yan-ting, JIAO Rui-hua, TANG Peng (713)
- Stability characteristics-based zinc-flotation froth image denoising fusing spatial-temporal information  
..... XIAO Wen-hui, TANG Zhao-hui, LIU Jin-ping, XIE Yong-fang (721)
- Blur kernel estimation method based on deep encoder-decoder network ..... YU Xiao-yuan, XIE Wei (731)
- Consistent nonlinear state-dependent Riccati equation control on the inverted pendulum  
..... WANG Zhi-sheng, ZHANG Xue-min, MEI Sheng-wei (739)
- Finite-time convergence backstepping control for a class of uncertain affine nonlinear systems based on disturbance observer  
..... ZHANG Qiang, XU Hui, XU De-zhi, WANG Chen-guang (747)
- Switching-Luenberger-observer-based redundant control under DoS attacks ..... LAI Shao-yu, CHEN Bo, YU Li (758)
- Modified Kalman filtering for Hammerstein systems with dynamic hysteresis  
..... LI Hai-fen, TAN Yong-hong, DONG Rui-li, CHENG Ran-ran (767)
- Study on safety boundary of cognitive anti-collision system for unmanned aerial vehicle  
..... XU Zhuo-fan, WEI Rui-xuan, ZHOU Kai, ZHANG Qi-rui (776)
- Adaptive robust fault tolerant control of the tilt tri-rotor unmanned aerial vehicle ..... WANG Dong, XIAN Bin (784)
- Adaptive target tracking algorithm based on robust cubature Kalman filter  
..... PENG Mei-kang, GUO Yun-hua, WANG Jing-dong, MOU Jun-min, HU Yi (793)
- Parameter adaptive sliding mode control for synchronous control of gyroscope system  
..... DU Xiao-feng, ZENG Zhe-zhao, CHENG Ting, CHENG Qi-zhi, WANG Feng-qin (801)
- Back-stepping adaptive sliding mode control for flexible self-excitation cage asynchronous generation system  
..... GU Zhi-feng, SUN Xiao-yun, ZHU Chang-qing, LIU Wen-kang, GE Meng-chao, SHAN Suo-lan (809)
- Adaptive output feedback dynamic surface control for switched systems with prescribed performance  
..... SHI Lu-huan, ZHANG Tian-ping, XIA Xiao-nan (818)
- Multiple model adaptive control for a class of nonlinear multivariable systems  
..... HUANG Shuai, WANG Xin, WANG Zhen-lei (829)
- Fault detection and estimation based on adaptive iterative learning algorithm for nonlinear systems  
..... CHEN Zheng-quan, HAN Lu, HOU Yan-dong (837)
- Fault detection based on block kernel principal component analysis and support vector machine  
..... LI Jin-bing, HAN Bing, FENG Shou-bo, ZHANG Jia-dong, LI Yu, ZHONG Kai, HAN Min (847)
- Fault diagnosis of the subsea control system based on incremental maximum variance unfolding  
..... JIA Chuang, ZUO Xin, GAO Xiao-yong (855)
- Synchronization control of jumping coupled cyber physical system with actuator failures under deception attacks  
..... WANG Shi-xian, LI Jun-yi, ZHANG Bin (863)
- Modeling and tracking control for soft robots of dielectric elastomer actuators  
..... WANG Ya-wu, YE Wen-jun, ZHANG Yi-long, LAI Xu-zhi, WU Min, SU Chun-Yi (871)
- Power-aware event triggering for wireless networked control systems and its closed-loop stability  
..... ZHAO Yun-bo, YUAN Zheng, ZHU Chuang (881)
- Consensus-based approach for perimeter control of road network  
..... WANG Li, LI Min, HE Zhong-he, ZHANG Ling-yu, LI Zheng-xi (888)
- Dynamic coordination control of mode transition using model predictive control for hybrid electric vehicle  
..... LIN Xin-you, SU Lian, ZHENG Qing-xiang (897)
- Mixed game reinforcement learning of supply-demand interaction in power system dis-patch on electricity market  
..... BAO Tao, LI Hao-fei, YU Tao, ZHANG Xiao-shun (907)
- Speed control of permanent magnet linear synchronous motor based on complementary sliding mode control and iterative learning control ..... JIN Hong-yan, ZHAO Xi-mei (918)
- On active disturbance rejection control of macro-micro composite motion platform  
..... HE Yao-bin, YANG Zhi-jun, SUN Han, PENG Hao (925)
- Re-visit the active disturbance rejection control approach for the two-mass-spring benchmark problem  
..... LI Jian, ZHANG Bin-wen, TAN Wen (933)