

## 目 次

### 研究论文

- 基于 CEEMDAN 排列熵和 LS-SVM 的滚动轴承状态分类…………… 边 杰, 陈亚农, 徐友良, 唐 广(1267)
- 基于改进 SVM 响应面法与 NSAG-II 的多功能救援属具抱抓机构优化设计  
…………… 王春荣, 赵 京, 夏尔冬, 陈 映(1275)
- 对流换热边界下 2D-FGM 板稳态温度场精确解 …………… 许杨健, 李祥瑞, 杨秋足, 刘 硕(1284)
- 适用于具有多分类器的卷积神经网络训练方法…………… 李建更, 李立杰, 张 岩, 王朋飞, 左国玉(1291)
- 基于加权  $l_1$  范数稀疏信号表示的 DOA 估计 …………… 窦慧晶, 高立菁, 朱子云(1297)
- 基于 Zynq 和 IEEE 1451.2 的室内环境监控系统 …………… 任柯燕, 马松松, 王书龙, 侯义斌(1303)
- 高掺量废旧橡胶改性环氧树脂混凝土力学性能与路用性能 …………… 舒兴旺(1314)
- 磷酸盐基隧道快速修复材料的长期性能与耐久性…………… 寿柳嫣, 温小栋, 陈 立, 陆 涛, 张振亚(1321)
- 芽孢杆菌活性污泥的好氧反硝化特性…………… 李 军, 王思宇, 王秀杰, 王维奇, 王伟伟(1327)
- 三元 18650 电池低温放电特性的实验研究 …………… 纪常伟, 孙洁洁, 汪硕峰, 王 兵(1335)
- 单螺杆膨胀机内有机工质泄漏特性的数值研究 …………… 沈丽丽, 王 伟, 吴玉庭, 马重芳(1340)
- 焊接速度对钢/铝异种金属激光深熔焊接头特性的影响  
…………… 崔 丽, 钱 伟, 潘 峰, 贺定勇, 王智慧(1347)

### 研究述评

- 基于深度图像的人体行为识别综述 …………… 孙 彬, 孔德慧, 张雯晖, 贾文浩(1353)

执行编辑: 梁 洁 责任编辑: 吕小红 杨开英 张 蕾 梁 洁

本期基本参数: CN11-2286/T \* 1974 \* m \* A4 \* 102 \* zh \* P \* ¥20.00 \* 1 000 \* 13 \* 2018-10

**CONTENTS**

**Articles**

- Condition Classification of Rolling Bearings Based on CEEMDAN Permutation Entropy and LS-SVM  
..... *BIAN Jie, CHEN Yanong, XU Youliang, TANG Guang*(1267)
- Grabbing Mechanism of Multi-function Rescue Attachment Optimization Design Based on Improved SVM  
Response Surface Method and NSAG- II  
..... *WANG Chunrong, ZHAO Jing, XIA Erdong, CHEN Ying*(1275)
- Accurate Solution of Steady State Temperature Field of 2D-FGM Plate Under Convective Heat Transfer  
Boundary ..... *XU Yangjian, LI Xiangrui, YANG Qiuzu, LIU Shuo*(1284)
- Method for Training Convolution Neural Network With Multiple Classifiers  
..... *LI Jiangeng, LI Lijie, ZHANG Yan, WANG Pengfei, ZUO Guoyu*(1291)
- DOA Estimation Based on Weighted  $l_1$  Norm Sparse Signal Representation  
..... *DOU Huijing, GAO Lijing, ZHU Ziyun*(1297)
- Indoor Environment Monitoring System Based on Zynq and IEEE 1451. 2  
..... *REN Keyan, MA Songsong, WANG Shulong, HOU Yibin*(1303)
- Mechanical Properties and Pavement Performance of Modified Epoxy Concrete With High Content of  
Waste Rubber ..... *SHU Xingwang*(1314)
- Durability of Phosphate-based Rapid Repairing Material for Tunnel Engineering  
..... *SHOU Liuyan, WEN Xiaodong, CHEN Li, LU Tao, ZHANG Zhenya*(1321)
- Aerobic Denitrification Characteristics of Bacillus Activated Sludge  
..... *LI Jun, WANG Siyu, WANG Xiujie, WANG Weiqi, WANG Weiwei*(1327)
- Experimental Study of Discharge Characteristics of NCM 18650 Batteries at Low-temperature Environment  
..... *JI Changwei, SUN Jiejie, WANG Shuofeng, WANG Bing*(1335)
- Numerical Study of Leakage Characteristics of Organic Fluids in Single Screw Expander  
..... *SHEN Lili, WANG Wei, WU Yuting, MA Chongfang*(1340)
- Effects of Welding Speed on Characteristics of Dissimilar Steel/Al Joints Produced by Laser  
Keyhole Welding ..... *CUI Li, QIAN Wei, PAN Feng, HE Dingyong, WANG Zhihui*(1347)

**Review**

- Survey on Human Action Recognition From Depth Maps  
..... *SUN Bin, KONG Dehui, ZHANG Wenhui, JIA Wenhao*(1353)

**Executive Editor:** LIANG Jie

**Responsible Editors:** LÜ Xiaohong, YANG Kaiying, ZHANG Lei, LIANG Jie