

中国学术期刊（网络版）收录期刊  
中国核心期刊（遴选）数据库收录期刊  
中国科技论文统计源收录期刊  
RCCSE 中国学术期刊收录期刊

ISSN 2095-2163

# 智能计算机与应用

## INTELLIGENT COMPUTER AND APPLICATIONS



0 1 0 0 1 0 0 1  
0 1 0 0 1 1 1 0  
0 1 0 1 0 1 0 0  
0 1 0 0 0 1 0 1  
0 1 0 0 1 1 0 0  
0 1 0 0 1 1 0 0  
0 1 0 0 1 0 0 1  
0 1 0 0 0 1 1 1  
0 1 0 0 0 1 0 1  
0 1 0 0 1 1 1 0  
0 1 0 1 0 1 0 0  
0 0 1 0 0 0 0 0  
0 1 0 0 0 0 1 1  
0 1 0 0 1 1 1 1  
0 1 0 0 1 1 0 1  
0 1 0 1 0 0 0 0  
0 1 0 1 0 1 0 1  
0 1 0 1 0 1 0 0  
0 1 0 0 0 1 0 1  
0 1 0 1 0 0 1 0  
0 0 1 0 0 0 0 0  
0 1 0 0 0 0 0 1  
0 1 0 0 1 1 1 0  
0 1 0 0 0 1 0 0  
0 0 1 0 0 0 0 0  
0 1 0 0 0 0 0 1  
0 1 0 1 0 0 0 0  
0 1 0 1 0 0 0 0  
0 1 0 0 1 1 0 0  
0 1 0 0 1 0 0 1  
0 1 0 0 0 0 1 1  
0 1 0 0 0 0 0 1  
0 1 0 1 0 1 0 0  
0 1 0 0 1 0 0 1  
0 1 0 0 1 1 1 1  
0 1 0 0 1 1 1 0  
0 1 0 1 0 0 1 1

ISSN 2095-2163



9 772095 216208

万方数据



# 2020.8

第10卷 第8期 Vol.10 No.8

# 智能计算机与应用

第 10 卷 第 8 期

2020 年 8 月 1 日出版

## 目 次

### · 学术研究与应用 ·

基于学习的弱监督和半监督图像语义分割算法	汪 磊, 左旺孟 ( 1 )
非线性系统双未知输入自校准滤波方法	傅惠民, 崔 轶 ( 4 )
基于深度神经网络的文本问题生成技术综述	周青宇, 周 明 ( 10 )
基于隐写和 VSS 的二维码安全认证技术研究	燕雨薇, 余 粟 ( 14 )
铝电解车间多功能机组调度的博弈模型研究	李 雪, 曹 斌 ( 19 )
基于深度神经网络的手写数字识别方法研究	徐英卓, 梁学斌 ( 24 )
基于改进 SSD 算法的濒危动物检测	蒋 飞, 王 霄 ( 26 )
基于多头注意机制的用户评论情感可视分析	陈艳君, 周 欣, 卿粼波, 王正勇 ( 33 )
参数变化的永磁同步电机 MTPA 控制仿真	陈婷婷, 吴钦木 ( 37 )
基于 AES 和混沌加密的红外测温图像混合加密系统的研究与设计	吴沐阳, 姚亚峰, 唐 义 ( 41 )
基于三维重建的形象定制仪的研究与应用	李林泽, 付新禹, 方大甲, 谭振江 ( 45 )
基于支持向量机的无人机避障方法研究	卫寿伟, 陈善鹏, 余小燕, 陆喆俊 ( 48 )
精英反向学习带扰动因子的混沌蚁狮算法	王 茜, 何 庆, 林 杰, 杨荣莹 ( 51 )
基于神经网络的遥感图像分割方法研究	丁婷婷, 于晓鹏, 李紫薇 ( 58 )
基于复合特征提取的大功率逆变器状态识别方法研究	陆朱剑, 李小波, 程岳梅, 田世贺 ( 62 )
精密集成运算放大器综述	孙婧雯, 马 奎, 杨发顺 ( 67 )

基于改进蝗虫优化算法的最大 2 维熵图像分割	周 娇, 王 力, 陈小青 ( 71 )
面向观测任务的无人艇路径规划策略	孟祥根 ( 76 )
基于改进小波变换的图像信噪比提高	董广凯, 娄 莉 ( 84 )
基于激光雷达和深度相机融合的视觉 SLAM 研究	李陆君, 张 智, 韩 蕊, 李晨阳, 丁亚男 ( 87 )
无人机图像拼接技术的应用与探究	陈小青, 王 力, 周 娇 ( 93 )
<b>· 系统开发与应用 ·</b>	
基于 IPv6 的模拟集成 DDoS 攻击平台的设计与实现	周芑玮, 谭振江, 周 伟, 方大甲 ( 97 )
基于深度学习的协同过滤推荐算法	刘 航, 李锡祚 ( 100 )
基于改进人工鱼群的信号盲源分离方法	方 宇, 余晨钟 ( 105 )
个性化推荐算法综述	石 媛 ( 110 )
城市轨道交通线网应急预警分级模型	刘滋曼, 黄远春, 刘志钢, 庄异凡 ( 113 )
基于深度学习的第三代基因测序一致性序列生成	王水介, 周 倩, 刘贤明 ( 118 )
一种中值滤波和改进阈值函数的图像去噪算法	邹 倩, 陆安江, 李春红 ( 124 )
基于决策树的数据挖掘学生行为分析	陈馨瑶 ( 127 )
基于可视图模式的黄金价格波动性趋势预测	赵元英, 许洁林, 顾长贵 ( 131 )
长链非编码 RNA 与疾病关联关系的预测方法研究	阳金豆, 袁 静, 许 敏 ( 135 )
泛在电力物联网的多项式密钥管理算法研究	陈虹旭, 李晓坤, 徐 龙, 董潍赫, 刘清源, 付文香 ( 140 )
基于模糊 C 均值与改进布谷鸟优化的医学图像分割	易天源, 贺 松, 郑光敏 ( 144 )
基于 K 均值聚类算法与 RBF 神经网络的交通流预测方法	张天逸, 孙毅然, 刘凡琪, 梁悦祺, 林永杰, 马明辉 ( 148 )
基于 DSPic30F 的洒水车信息监测系统	张慧楠, 孙 宁 ( 152 )

基于光流预测的文本校正算法的研究	张文强, 张亚博, 左旺孟 (157)
基于 SIR 模型对 2019 年重庆市手足口病防控效果的分析	周 静 (161)
基于雷达路面勘测的智能悬架控制系统	杨靖莹, 吴云轩, 肖广兵 (164)
基于 AHP 的淳安县古树名木景观价值评价	闻瑞鹏 (167)
基于协同交互与激光测距的井下智能车辆定位系统	王蓝仪, 刘欣雨, 李 爱 (171)
人脸表情识别技术在服装领域的应用	于存江, 丁笑颖, 杨龙标, 施 浩 (176)
<b>· 专题设计与应用 ·</b>	
基于深度学习的智能交通视频多目标检测研究	左国才, 陈明丽, 匡林爱, 吴小平, 刘 君 (180)
智能革命下数据驱动的智慧图书馆建设分析	郑智泉, 杨 楠 (183)
两相位信号交叉口反馈控制方法研究	焦振坤, 严 凌, 于本琪, 王嘉文, 徐明杰 (186)
面向老年人精神需求的人工智能机器人系统设计研究	刘倩倩 (192)
网络报修 APP 的研究与实现	郭 涛, 刘长龙, 祖宏权, 栾美生 (194)
体医养结合服务需求影响因素分析——基于 Logistic 回归模型	吴斯婷 (199)
基于 Lingo 的发动机装配线建模优化研究	姜晨光, 严广乐 (202)
基于 PID 算法的水下机器人路径及轨迹规划研究	Abdou Yahouza M. Sani, 王 京 (206)
基于树莓派和 CC2430 的智能电子水尺	赵风财, 肖广兵, 张 涌 (212)
互联网+环境下提高学生数字素养的探索与研究	浦慧忠 (217)
基于 AHP 的互联网+智慧养老服务发展制约因素分析	王欢欢 (221)
基于树莓派的十字路口车辆调度系统	张 敏, 孙 宁, 张 涌 (224)
基于 TOPSIS-RSR 模糊联合的山东省基层医疗机构实效评价研究	李晚倩 (227)
万方数据	

基于改进的 SIFT 特征的图像匹配算法研究	胡 柳, 邓 杰, 肖瑶星, 卢艳芝, 曾 蒸 (231)
物联网+的应用技术对社区居家养老服务模式优化研究	尹 钺 (234)
KVM 桌面虚拟化技术在高校实训室建设中的研究与实践	杨晓英, 王 馨 (237)
“互联网+”背景下家庭医生签约服务模式探究	张晶育 (239)
基于 LSTM 的《红楼梦》文本风格分界点识别方法	朱东旭, 严广乐 (242)
<b>· 科技创见与应用 ·</b>	
珠三角先进制造业集聚水平及影响因素实证分析	苟富华, 周 敏 (249)
自平衡二轮电动车直立控制研究	刘欣雨, 赵凤财, 陈佳妮, 孙 宁 (254)
“互联网+”背景下的医院健康管理模式应用	张至柔 (259)
基于智能算法的水系化学污染物预测模型研究	陈 岑, 田晓丹, 武文星 (261)
“智慧社区”建设与老年人精神慰藉供给研究	贾振振 (266)
移动 AD Hoc 网络分层路由算法及路径维护机制的设计与研究	陈 晔 (268)
老年人智能医疗服务模式的探索及实践路径	唐佳雯 (272)
基于 Python+Matplotlib 的成绩统计设计与实现	陈 路, 陈道喜, 陆卫忠, 顾敏明 (275)
农村“互联网+居家养老”模式探究	齐 娜, 刘 芳 (277)
基于 GPS 的 LVTAS 定位视频录音追踪系统设计	陈卓然, 王晨冉, 满天娇 (281)
郑州市城乡老年人居住意愿满足程度及其影响因素	邓佩云, 王 丹, 简雪萍, 潘 苹, 王兵兵 (282)
基于大数据的校园舆情热点话题跟踪研究	骆梅柳 (287)
基于“互联网+”背景下人口出生率灰色关联分析	龚蕙子, 李红艳 (290)

# Intelligent Computer and Applications

Vol.10 No.8 2020-8-1

---

## CONTENTS

### · Academic research and application ·

- Learning-based weakly- and semi-supervised for image semantic segmentation  
..... *WANG Lei, ZUO Wangmeng* ( 1 )
- Nonlinear system dual-unknown-input self-calibration filtering methods  
..... *FU Huimin, CUI Yi* ( 4 )
- Research on text question generation based on deep neural networks; a literature review  
..... *ZHOU Qingyu, ZHOU Ming* ( 10 )
- Research on security and authentication technology of two-dimensional code based on steganography and visual secret sharing  
..... *YAN Yuwei, YU Su* ( 14 )
- Research on game model of multi-function unit scheduling in aluminum electrolysis workshop  
..... *LI Xue, CAO Bin* ( 19 )
- Research on handwritten digit recognition method based on deep neural network  
..... *XU Yingzhuo, LIANG Xuebin* ( 24 )
- Endangered animal detection based on improved SSD algorithm  
..... *JIANGFei, WANG Xiao* ( 26 )
- Sentimentvisual analysis of user comments based on multi-head attention  
..... *CHEN Yanjun, ZHOU Xin, QING Linbo, WANG Zhengyong* ( 33 )
- MTPAcontrol simulation of permanent magnet synchronous motor considering parameters variation  
..... *CHEN Tingting, WU Qinmu* ( 37 )
- The research and design of encryption of electric infrared image based on a mixture of AES and chaotic encryption theory  
..... *WU Muyang, YAO Yafeng, TANG Yi* ( 41 )
- Research and application of image customization instrument based on 3D reconstruction  
..... *LI Linze, FU Xinyu, FANG Dajia, TAN Zhenjiang* ( 45 )
- Research on UAV obstacle avoidance method based on support vector machine  
..... *WEI Shouwei, CHEN Shanpeng, YU Xiaoyan, LU Zhejun* ( 48 )
- Chaos ant lion optimizer based on elite opposition-based learning with perturbation factor  
..... *WANG Qian, HE Qing, LIN Jie, YANG Rongying* ( 51 )
- A review of remote sensing image segmentation methods based on neural network  
..... *DING Tingting, YU Xiaopeng, LI Ziwei* ( 58 )
- Research on state recognition method of high power inverter based on compound feature extraction  
..... *万方数据 LU Zhujian, LI Xiaobo, CHENG Yuemei, Tian Shihe* ( 62 )

Overview of precision integrated operational amplifier .....	<i>SUN Jingwen, MA Kui, YANG Fashun</i> ( 67 )
Image segmentation of 2-D maximum entropy based on the improved grasshopper optimization algorithm .....	<i>ZHOU Jiao, WANG Li, CHEN Xiaoqing</i> ( 71 )
Unmanned surface vessel path planning strategy for observation task .....	<i>MENG Xianggen</i> ( 76 )
The image signal-to-noise ratio improvement based on the improved wavelet transform .....	<i>DONG Guangkai, LOU Li</i> ( 84 )
Research on visual SLAM based on fusion of lidar and depth camera .....	<i>LI Lujun, ZHANG Zhi, HAN Rui, LI Chenyang, DING Yanan</i> ( 87 )
Application and research of UAV image mosaic technology .....	<i>CHEN Xiaoqing, WANG Li, ZHOU Jiao</i> ( 93 )
<b>· System development and application ·</b>	
Design and implementation of simulated integrated DDoS attack platform based on IPv6 .....	<i>ZHOU Pengwei, TAN Zhenjiang, ZHOU Wei, FANG Dajia</i> ( 97 )
Collaborative filtering recommendation algorithm based on deep learning .....	<i>LIU Hang, LI Xizuo</i> ( 100 )
Blind source separation method of signal based on improved artificial fish swarm .....	<i>FANG Yu, YU Chenzhong</i> ( 105 )
A survey of personalized recommendation algorithms .....	<i>SHI Yuan</i> ( 110 )
Emergency warning hierarchical model of urban rail transit network .....	<i>LIU Ziman, HUANG Yuanchun, LIU Zhigang, ZHUANG Yifan</i> ( 113 )
DLCC: Deep-Learning-Based Consensus Construction from long error-prone reads .....	<i>WANG Shuijie, ZHOU Qian, LIU Xianming</i> ( 118 )
An image denoising algorithm based on median filtering and improved threshold function .....	<i>ZOU Qian, LU Anjiang, LI Chunhong</i> ( 124 )
Analysis of student behavior in data mining based on decision tree .....	<i>CHEN Xinyao</i> ( 127 )
Trend forecast of gold price volatility based on visibility graph pattern .....	<i>ZHAO Yuanying, XU Jielin, GU Changgui</i> ( 131 )
Research on the prediction method of the association between long-chain non-coding RNA and disease .....	<i>YANG Jindou, YUAN Jing, XU Min</i> ( 135 )
Research on polynomial key management algorithm ubiquitous in power Internet of Things .....	<i>CHEN Hongxu, LI Xiaokun, XU Long, DONG Weihe, LIU Qingyuan, FU Wenxiang</i> ( 140 )
Segmentation of medical image based on fuzzy C-means and improved cuckoo optimization .....	<i>YI Tianyuan, HE Song, ZHENG Guangmin</i> ( 144 )
Traffic flow prediction method based on K-Means clustering algorithm and radial basis function .....	<i>ZHANG Tianyi, SUN Yiran, LIU Fanqi, LIANG Yueqi, LIN Yongjie, MA Minghui</i> ( 148 )

Design of sprinkler information monitoring system based on DSPic30F .....	<i>ZHANG Huinan, SUN Ning</i> (152)
A text rectification method based on optical flow field prediction .....	<i>ZHANG Wenqiang, ZHANG Yabo, ZUO Wangmeng</i> (157)
Prevention and control of hand-foot-and-mouth disease in Chongqing city in 2019 based on SIR model .....	<i>ZHOU Jing</i> (161)
Smart suspension control based on radar pavement survey .....	<i>YANG Jingying, WU Yunxuan, XIAO Guangbing</i> (164)
Landscape value evaluation of ancient and famous trees in Chun'an County based on AHP .....	<i>WEN Ruipeng</i> (167)
Underground intelligent vehicle positioning system based on cooperative interaction and laser ranging .....	<i>WANG Lanyi, LIU Xinyu, LI Ai</i> (171)
Application of facial expression recognition technology in the field of clothing .....	<i>YU Cunjiang, DING Xiaoying, YANG Longbiao, SHI Hao</i> (176)
<b>· Specialized design and application ·</b>	
Research on multi-target detection of intelligent transportation video based on deep learning .....	<i>ZUO Guocai, CHEN Mingli, KUANG Linai, WU Xiaoping, LIU jun</i> (180)
Analysis of the construction of the data-driven smart library against intelligent revolution .....	<i>ZHENG Zhiquan, YANG Nan</i> (183)
Research on signal feedback control method for two-phase intersection .....	<i>JIAO Zhenshen, YAN Ling, YU Benqi, WANG Jiawen, XU Mingjie</i> (186)
Research on the design of artificial intelligence robot system for the spiritual needs of the elderly .....	<i>LIU Qianqian</i> (192)
Research and implementation of campus network operation and maintenance app .....	<i>GUO Tao, LIU Changlong, ZU Hongquan, LUAN Meisheng</i> (194)
Analysis of the demand and influencing factors for integrated services of sports, medical treatment and care—based on logistic regression model .....	<i>WU Siting</i> (199)
Research on modeling and optimization of engine assembly line based on Lingo .....	<i>JIANG Chenguang, YAN Guangle</i> (202)
Research on path and trajectory planning of underwater robot based on PID algorithm .....	<i>Abdou Yahouza M. Sani, WANG Jing</i> (206)
Smart electronic waterscale based on Raspberry PI and CC2430 .....	<i>ZHAO Fengcai, XIAO Guangbing, ZHANG Yong</i> (212)
Exploration and research on improving students' digital literacy in the Internet + environment .....	<i>PU Huizhong</i> (217)
Analysis of the constraints of Internet plus intelligent pension service development .....	<i>WANG Huanhuan</i> (221)
Cross-road vehicle scheduling system based on Raspberry Pie .....	<i>ZHANG Min, SUN Ning, ZHANG Yong</i> (224)



Study onevaluation of primary medical institutions in Shandong province based on TOPSIS–RSR fuzzy combination .....	<i>LI Xiaoqian</i> (227)
Research onimage matching algorithm based on improved SIFT fseatures .....	<i>HU Liu, DENG Jie, XIAO Yaoxing, LU Yanzhi, ZENG Zheng</i> (231)
Research onapplication technology design of Internet of Things + optimization of community home–based pension service model——taking Shanghai as an example .....	<i>YIN Fan</i> (234)
Research andpractice of KVM desktop virtualization technology in college training room construction .....	<i>YANG Xiaoying, WANG Xin</i> (237)
]Research on the servicemodel of family doctor contract under the background of Internet + .....	<i>ZHANG Jingyu</i> (239)
A method of identifying the style demarcation point of A Dream of Red Mansions based on deep learning .....	<i>ZHU Dongxu, YAN Guangle</i> (242)
<b>· Scientific achievement and application ·</b>	
Anempirical analysis of the agglomeration level and influencing factors of advanced manufacturing industry in the Pearl River Delta .....	<i>GOU Fuhua, ZHOU Min</i> (249)
Research onupright control of the two–wheeled self–balancing electrical vehicle .....	<i>LIU Xinyu, ZHAO Fengcai, CHEN Jiani, SUN Ning</i> (254)
Hospital health management model application under the background of Internet+ .....	<i>ZHANG Zhirou</i> (259)
Study on the prediction model of water chemical pollutants based on Intelligent Algorithm .....	<i>CHEN Cen, TIANXiaodan, WU Wenxing</i> (261)
Study on the construction of intelligent community and the supply of spiritual comfort for the elderly .....	<i>JIA Zhenzhen</i> (266)
Design and research of hierarchical routing algorithm and path maintenance mechanism in mobile AD Hoc network .....	<i>CHEN YE</i> (268)
Exploration and practice of intelligent medical service mode for the elderly .....	<i>TANG Jiawen</i> (272)
Design and realization of score statistics system based on Python + Matplotlib .....	<i>CHEN Lu, CHEN Daoxi, LU Weizhong, GU Minming</i> (275)
Study on thepath of realizing the mode of Internet + home care for the aged .....	<i>QI Na, LIU Fang</i> (277)
Design oflvtas video recording and tracking system based on GPS positioning .....	<i>CHEN Zhuoran, WANG Chenran, MAN Tianjiao</i> (281)
Degree of satisfaction of urban and rural elderly residents’ willingness to live in Zhengzhou and its influence factors .....	<i>DENG Peiyun, WANG Dan, JIAN Xueping, PAN Ping, WANG Bingbing</i> (282)
Tracking research on Hot topics of Campus Public opinion based on big data .....	<i>LUO Meiliu</i> (287)
Grey correlation analysis of China’s birth rate under "Internet +" .....	<i>GONG Huizi, LI Hongyan</i> (290)