

激光与光电子学进展

第 59 卷
第 8 期

Laser & Optoelectronics Progress

[总第715期]

2022.4(下)



QK2218431



ISSN 1006-4125



9 771006 412227
万方数据

DOI: 10.3788/LOP202259.0800001

中国科学院上海光学精密机械研究所 主办

激光与光电子学进展

—— 先进成像 ——

第 59 卷 第 8 期 2022 年 4 月 25 日

(总第 715 期)

目 次

· 综述 ·

精准光遗传学的关键技术及进展(封面文章,特邀综述) 王一帆,郑瑶,朱玥,等 0800001

卷积神经网络在甲状腺结节诊断中的应用 王选齐,杨锋,曹斌,等 0800002

反射变换成像技术应用进展 徐少良,郭威,韩雨彤,等 0800003

· 光纤光学与光通信 ·

基于深度学习的 Φ -OTDR 输油管道入侵监测研究 杨震,封皓 0806001

· 图像处理 ·

基于形态学增强型 HOG 特征的 InSAR 地形匹配算法 杨庆,张力,李然,等 0810001

基于快速双分支密集连接网络和双注意力机制的高光谱图像分类 杨国亮,樊家仁,习浩,等 0810002

基于对称平面的三维人脸点云姿态估计 马泽齐,石志良,李晓焱,等 0810003

外周神经母细胞性肿瘤病理切片 MKI 的计算机辅助预后评估 万真真,韩帅,施宁,等 0810004

基于 U-Net 的复杂环境军事人员图像分割方法 陶志文,牛福 0810005

针对弱小无人机目标的轻量级目标检测算法 蒋榕圻,叶泽聪,彭月平,等 0810006

基于改进 YOLOv4 的行人鞋部检测算法 杨智雄,唐云祁,张家钧,等 0810007

基于鲁棒背景估计的船舶显著性检测 姚婷婷,张波,李鹏飞,等 0810008

一种基于差异特征螺旋线映射的红外中长波图像彩色融合方法 张润琦,赵灿兵,洪闻青,等 0810009

融合注意力机制的多损失联合跨模态行人重识别方法 王凤随,刘芙蓉,陈金刚,等 0810010

基于改进 Census 变换与多特征融合的立体匹配算法 虞文杰,叶嵩,郭毓,等 0810011

基于时空流量的监控视频运动片段分割 张云佐,李汶轩,杨攀亮 0810012

基于改进 FAST 和 BRIEF 的双目视觉测量方法 宋超群,许四祥,杨宇,等 0810013

基于雾线暗通道先验改进的图像去雾算法 袁小平,陈艳宇,石慧 0810014

基于八度卷积设计的实时语义分割网络	王鑫,吴开军	0810015
基于NDT和特征点检测的点云配准算法研究	杨宜林,李积英,王燕,等	0810016
基于随机Hough变换的圆心三维坐标提取研究	许海英,宋伟鹏,邓启志,等	0810017
基于Boosting回归的单帧图像超分辨率重建	罗爽,黄辉,张凯兵	0810018
· 成像系统 ·		
基于统计特性的DIBR图像的无参考质量评价	李艳莉,徐若锋	0811001
一种基于二阶灵敏度矩阵的离轴望远镜装调法	刘柱,彭起,任戈,等	0811002
基于压缩感知的红外大视场高分辨成像系统设计	姜来,霍娟,杨静琦,等	0811003
天基空间目标场景成像仿真研究	杨晋生,李天骄	0811004
基于长短期记忆网络的红外人体步态识别方法研究	梅建华,云利军,朱小鹏	0811005
基于三维光声层析系统的信号智能去噪算法	秦泽政,孙明健,马一鸣,等	0811006
基于RGB颜色空间椭球模型的去雾算法研究	焦子航,范之国,钱立进,等	0811007
基于图像全序列特征权重的多曝光图像融合方法	刘卫华,马碧燕	0811008
基于双向深度编码网络的短视频流行度预测	井佩光,叶徐清,刘昱,等	0811009
联合双通道对比度和 L_0 正则化强度及梯度先验的模糊图像盲复原	夏成权,梁建娟,刘洪,等	0811010
· 仪器,测量与计量 ·		
分段线性Morse理论下的地表拓扑特征提取与简化	吉雨田,张春亢,尹耀	0812001
· 机器视觉 ·		
基于抗遮挡目标模型的跟踪算法综述	谢郭蓉,曲毅,蒋榕圻	0815001
基于多模态信息融合的多目标检测算法	刘通,高思洁,聂为之	0815002
基于三角剖分与超像素结构的3D标签优化方法	李萌昊,葛宝臻,权佳宁,等	0815003
激光驱鸟机器人系统中的稳瞄算法研究	赵凡,邵思迪,惠凯迪,等	0815004
针对遮挡目标的阵列式光学测量方法及系统	卢瀚,马沁巍,马少鹏	0815005
基于计算机视觉的四足动物行走步态参数自动提取方法	陈瑶,张云伟,雷金辉,等	0815006
基于激光投射和视觉的无人机姿态角测量方法	张佳宝,傅晓,段发阶,等	0815007
空间约束标识点过程的机载激光雷达景观树提取	陈红月,赵泉华,李玉,等	0815008
基于离散-连续特征耦合的图像异常检测算法	刘洋,侯春萍,葛棒棒,等	0815009
融合边缘特征的自适应滤波立体匹配算法	潘卫华,门媛媛,苏攀	0815010

基于RDM-YOLOv3的头部检测 刘峻文,张永军,李智,等 0815011

金属疲劳损伤过程中表面形貌的多分辨特征提取 刘涛,尹志强,雷经发,等 0815012

· 医用光学与生物技术 ·

手持偏振光声计算层析成像探头设计及应用研究 张迎,吴晓君,何宏辉,等 0817001

基于多方向滤波的视网膜血管图像分割算法 王彩云,关志玉,吴钊达,等 0817002

基于双边融合的医学图像分割算法 梁礼明,尹江,吴媛媛,等 0817003

· 光计算 ·

基于改进时间卷积网络的光伏发电功率预测 李桂兰,杨杰,周满国 0820001

基于点云法线与投影融合的三维圆孔识别算法 李皓宇,杨蕴杰,杨皓,等 0820002

· 遥感与传感器 ·

基于遥感图像序列的运动去模糊算法研究 刘晨辉,尹增山,高爽 0828001

基于变尺寸栅格地图的船载激光雷达目标检测 李立刚,郭玉杰,李林,等 0828002

结合空间注意力与形状特征的三维点云语义分割 郝雯,王红霄,汪洋 0828004

基于回归克里金的高分-1影像融合 王书涛,康旺,孔德明,等 0828005

一种隧道点云三维中轴线与横断面提取方法 景冬,张光煜,刘如飞,等 0828006

多尺度特征增强的ResUNet+遥感影像建筑物提取 罗松强,李浩,陈仁喜 0828007

· 光谱学 ·

基于荧光光谱和堆栈自编码器的食用油快速无损检测 周孟然,戴荣英,杨晨,等 0830001

基于二维相关近红外光谱术的小米含水率检测 何国康,袁凯,张志勇,等 0830002

封面解读

封面下方延伸的神经元展现了小鼠脑区的微观情况,通过精准光遗传手段在单细胞水平激活小鼠脑神经元,可控制小鼠产生“摄食”行为。光遗传学是研究神经网络最有力的工具,极大地推动了脑科学的发展,为未来的智能时代开拓道路。光遗传学,一项终会将诺奖收入囊中的革命性技术!

III

万方数据

Laser & Optoelectronics Progress

— Advanced Imaging —

Vol. 59, No. 8 (Series No. 715) April 25, 2022

CONTENTS

Reviews

Key Technologies and Progress of Precision Optogenetics(Cover Paper, Invited)
.....Wang Yifan, Zheng Yao, Zhu Yue, et al. 0800001

Application of Convolution Neural Network in Diagnosis of Thyroid Nodules
.....Wang Xuanqi, Yang Feng, Cao Bin, et al. 0800002

Application Progress of Reflectance Transformation ImagingXu Shaoliang, Guo Wei, Han Yutong, et al. 0800003

Fiber Optics and Optical Communications

Oil Pipeline Intrusion Monitoring Based on Deep Learning of Φ -OTDRYang Zhen, Feng Hao 0806001

Image processing

InSAR Terrain Matching Algorithm Based on Morphologically Enhanced HOG Features
.....Yang Qing, Zhang Li, Li Ran, et al. 0810001

Hyperspectral Image Classification Based on Fast Double Branch Dense Connection Network and
Double Attention MechanismYang Guoliang, Gong Jiaren, Xi Hao, et al. 0810002

Pose Estimation of Three-Dimensional Face Point Cloud Based on Symmetry Plane
.....Ma Zeqi, Shi Zhiliang, Li Xiaoyao, et al. 0810003

Computer-Aided Prognosis Evaluation for MKI of Pathological Slices of Peripheral Neuroblastic Tumors
.....Wan Zhenzhen, Han Shuai, Shi Ning, et al. 0810004

Image Segmentation Method of Military Personnel in Multiple Complex Environments Based on U-Net
.....Tao Zhiwen, Niu Fu 0810005

Lightweight Target Detection Algorithm for Small and Weak Drone Targets
.....Jiang Rongqi, Ye Zecong, Peng Yueping, et al. 0810006

Detection Algorithm of Pedestrian Shoe Area Based on Improved YOLOv4
.....Yang Zhixiong, Tang Yunqi, Zhang Jiajun, et al. 0810007

Salient Ship Detection Based on Robust Background EstimationYao Tingting, Zhang Bo, Li Pengfei, et al. 0810008

Color Fusion Method of Infrared Medium and Long Wave Images Based on Helix Mapping of Differential Features
.....Zhang Runqi, Zhao Canbing, Hong Wenqing, et al. 0810009

Multi-Loss Joint Cross-Modality Person Re-Identification Method Integrating Attention Mechanism
.....Wang Fengsui, Liu Furong, Chen Jingang, et al. 0810010

Stereo Matching Algorithm Based on Improved Census Transform and Multi-Feature Fusion
.....Yu Wenjie, Ye Song, Guo Yu, et al. 0810011

Segmentation of Surveillance Video of Motion Segments Based on Spatiotemporal Flow
.....Zhang Yunzuo, Li Wenxuan, Yang Panliang 0810012

Binocular Vision Measurement Method Using Improved FAST and BRIEF
.....Song Chaoqun, Xu Sixiang, Yang Yu, et al. 0810013

Improved Image Dehazing Algorithm Based on Haze-line and Dark Channel Prior
.....Yuan Xiaoping, Chen Yanyu, Shi Hui 0810014

Real-Time Semantic Segmentation Network Based on Octave ConvolutionWang Xin, Wu Kaijun 0810015

Point Cloud Registration Algorithm Based on NDT and Feature Point Detection
.....Yang Yilin, Li Jiying, Wang Yan, et al. 0810016

Three-Dimensional Coordinate Extraction of Circular Center Based on Random Hough Transform
.....Xu Haiying, Song Weipeng, Deng Qizhi, et al. 0810017

Boosting Regression-Based Single-Image Super-Resolution Reconstruction
.....Luo Shuang, Huang Hui, Zhang Kaibing 0810018

Imaging systems

No-Reference Image Quality Assessment of DIBR-Synthesized Images Based on Statistical Characteristics
.....Li Yanli, Xu Ruofeng 0811001

Second-Order Sensitivity Matrix Method for Aligning Off-Axis TelescopesLiu Zhu, Peng Qi, Ren Ge, et al. 0811002

Design of Infrared Imaging System with Wide Field of View and High Resolution Based on Compression Sensing
.....Jiang Lai, Huo Juan, Yang Jingqi, et al. 0811003

Simulation of Space-Based Space Target Scene Imaging.....Yang Jinsheng, Li Tianjiao 0811004

Infrared Human Gait Recognition Method Based on Long and Short Term Memory Network
.....Mei Jianhua, Yun Lijun, Zhu Xiaopeng 0811005

Intelligent Denoising Algorithm for Signals Based on Three-Dimensional Photoacoustic Tomography System
.....Qin Zezheng, Sun Mingjian, Ma Yiming, et al. 0811006

Dehazing Algorithm Based on RGB Color Space Ellipsoid ModelJiao Zihang, Fan Zhiguo, Qian Lijin, et al. 0811007

Multiscale Image Fusion Method Based on Feature Weight of Image SequenceLiu Weihua, Ma Biyan 0811008

Micro-Video Popularity Prediction with Bidirectional Deep Encoding Network
.....Jing Peiguang, Ye Xuqing, Liu Yu, et al. 0811009

Blind Restoration of Blurred Images Combining Dual-Channel Contrast, L_0 Regularization Intensity, and Gradient Prior
.....Xia Chengquan, Liang Jianjuan, Liu Hong, et al. 0811010

Instrumentation, Measurement and Metrology

Extraction and Simplification of Terrain Surface Topological Features Based on PiecewiseLinear Morse Theory
.....Ji Yutian, Zhang Chunkang, Yin Yao 0812001

Machine vision

Tracking Algorithms Based on Antiocclusion Object ModelsXie Guorong, Qu Yi, Jiang Rongqi 0815001

Multitarget Detection Algorithm Based on Multimodal Information FusionLiu Tong, Gao Sijie, Nie Weizhi 0815002

3D Label Optimization Based on Triangulation and Superpixel Structures
.....Li Menghao, Ge Baozhen, Quan Jianing, et al. 0815003

Stabilized Sighting Algorithm in Laser Bird-Repelling Robot SystemZhao Fan, Shao Sidi, Hui Kaidi, et al. 0815004

Camera Array-Based Optical Measurement Approach and System for Occluded Targets
.....Lu Han, Ma Qinwei, Ma Shaopeng 0815005

Automatic Extraction Method for Gait Parameters of Quadruped Walking Based on Computer Vision
.....Chen Yao, Zhang Yunwei, Lei Jinhui, et al. 0815006

Unmanned Aerial Vehicle Attitude Angle Measurement Method Based on Laser Projection and Vision
.....Zhang Jiabao, Fu Xiao, Duan Fajie, et al. 0815007

Landscape Tree Extraction Based on the Marked Point Process with Spatial Constraints from Light Detection and Ranging
.....Chen Hongyue, Zhao Quanhua, Li Yu, et al. 0815008

Image Anomaly Detection Algorithm Based on Discrete-Continuous Feature Coupling
.....Liu Yang, Hou Chunping, Ge Bangbang, et al. 0815009

Adaptive Filtering Stereo Matching Algorithm for Fusion of Edge Features	
.....	<i>Pan Weihua, Men Yuanyuan, Su Pan</i> 0815010
Head Detection Based on RDM-YOLOv3	 <i>Liu Junwen, Zhang Yongjun, Li Zhi, et al.</i> 0815011
Multiresolution Feature Extraction of Surface Topography in Metal Fatigue Damage Process	
.....	<i>Liu Tao, Yin Zhiqiang, Lei Jingfa, et al.</i> 0815012
Medical Optics and Biotechnology	
Design and Application of Handheld Polarized Photoacoustic Computational Tomography Probe	
.....	<i>Zhang Ying, Wu Xiaojun, He Honghui, et al.</i> 0817001
Retinal Blood Vessel Segmentation Algorithm Based on Multidirectional Filtering	
.....	<i>Wang Caiyun, Guan Zhiyu, Wu Yida, et al.</i> 0817002
Medical Image Segmentation Algorithm Based on Bilateral Fusion	
.....	<i>Liang Liming, Yin Jiang, Wu Yuanyuan, et al.</i> 0817003
Optics in Computing	
Power Prediction of Photovoltaic Generation Based on Improved Temporal Convolutional Network	
.....	<i>Li Guilan, Yang Jie, Zhou Manguo</i> 0820001
Three-Dimensional Circular Hole Recognition Algorithm Based on Point Cloud Normal and Projection Fusion	
.....	<i>Li Haoyu, Yang Yunjie, Yang Hao, et al.</i> 0820002
Remote Sensing and Sensors	
Motion Deblurring Algorithm Using Remote Sensing Image Sequence	
.....	<i>Liu Chenhui, Yin Zengshan, Gao Shuang</i> 0828001
Target Detection of Shipborne Lidar Based on Variable Size Grid Map	 <i>Li Ligang, Guo Yujie, Li Lin, et al.</i> 0828002
Semantic Segmentation of Three-Dimensional Point Cloud Based on Spatial Attention and Shape Feature	
.....	<i>Hao Wen, Wang Hongxiao, Wang Yang</i> 0828004
GF-1 Image Fusion Based on Regression Kriging	
.....	<i>Wang Shutao, Kang Wang, Kong Deming, et al.</i> 0828005
A Method for Extracting the 3D Axis and Cross-Sections of Tunnel Point Cloud	
.....	<i>Jing Dong, Zhang Guangyu, Liu Rufei, et al.</i> 0828006
Building Extraction of Remote Sensing Images Using ResUNet+ with Enhanced Multiscale Features	
.....	<i>Luo Songqiang, Li Hao, Chen Renxi</i> 0828007
Spectroscopy	
Fast Nondestructive Detection of Edible Oil Based on Fluorescence Spectrum and Stack Autoencoder	
.....	<i>Zhou Mengran, Dai Rongying, Yang Chen, et al.</i> 0830001
Millet Moisture Content Detection Based on Two-Dimensional Correlation Near Infrared Spectroscopy	
.....	<i>He Guokang, Yuan Kai, Zhang Zhiyong, et al.</i> 0830002



激光与光电子学进展

Laser & Optoelectronics Progress

特别专辑

“先进成像”封面文章

2021年

