

# **2022 2nd International Conference on Algorithms, High Performance Computing and Artificial Intelligence (AHPCAI 2022)**

**Guangzhou, China  
21-23 October 2022**



**IEEE Catalog Number: CFP22DH1-POD  
ISBN: 979-8-3503-3479-1**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22DH1-POD
ISBN (Print-On-Demand):	979-8-3503-3479-1
ISBN (Online):	979-8-3503-3478-4

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Table of Contents

<b>Evaluating Hyper-Parameter Optimization On Remote Sensing Object Detection</b>	1
Shuaiheng Li, Yang Bai, Tong Zhang, Haixin Wang	
<b>Wasserstein Distance Transfer Learning Algorithm based on Matrix-norm Regularization</b>	8
Xiaoshun Wang, Yajing Yu	
<b>Slam Algorithm based on Semi-Direct Visual Odometry</b>	14
Dongyang Zhang, Yingyu Liu, Hualiang Zhang	
<b>Research on the ICP and NDT algorithm based on laser point cloud registration</b>	19
Dongyang Zhang, Jingyi Lu, Hualiang Zhang	
<b>Continuum Robot Path Planning Based on Improved Genetic Algorithm</b>	23
Haoyu Wang	
<b>Research on the quality detection method of infiltration and drip irrigation belt holes based on machine vision and deep learning edge detection algorithm DexiNed</b>	30
Bing Lv, Yuanfa Wang, Yuanzheng Ma, Zekun Ren	
<b>Study on a NURBS surface fitting algorithm</b>	35
Zhibing Lu, Lidong Bai, Zhongyuan Guo, Jiaqi Yan, Zhe Wang, Weiwei Sun	
<b>Traffic scene object detection algorithm based on improved SSD</b>	41
Jiaming Mao, Hongwei Gao	
<b>Inertial Vision Integrated Pedestrian Navigation Algorithm Based on Zero Velocity Update and Binocular Vision</b>	45
Shaowu Dai, Yufeng Ma, Hongde Dai, Pengsen Hou	
<b>Recognition of Fixed Shape Boxes Based on the Improved YOLOv5 Algorithm</b>	54
Huiming Li, Yuhao Wang, Yuyuan Du, Qingliang Zou, Shoufeng Tang	
<b>Early warning of tobacco production quality based on deep learning algorithm</b>	58
Qiande Sun, Xiaoshan Si, Zhixin Zhao, Yue Wu, Xiaoxia Li	
<b>Research on pedestrian detection algorithms combined with lightweight networks</b>	62
Shuaitong Zhao, Xianzhao Yang, Yang Chen, Xiongbiao Liu	
<b>Using Automatic Code Generation to Accelerate Control Algorithm Design for FPGAs</b>	68
Yong Zhang, Yu Zhang, Yongming Zhang	
<b>Intelligent vehicle path planning based on fusion algorithm</b>	73
Jinmin Zhang, Li Jing, Lihong Wang	
<b>Multi-objective multimodal transport path optimization model and algorithm considering carbon emissions</b>	80
Zijian Zhang, Decang Li, Jianjun Meng, Minghe Jiang	
<b>Detection of low, small, and slow targets in the air based on improved YOLOv5</b>	85
Jinheng Li, Bifeng Cui, Yanxu Zhu, Zhibin Liu	
<b>Bi-level scheduling optimization model and solving algorithm for virtual power plants considering externalities</b>	90
Ai Wang, Yan Liang, Yao Wang, Zhe Ji, Yuehua Feng	
<b>Ghostwriting-A Study on the Resource Allocation Method of Power IoT Access Terminal Based on Edge Computing</b>	94
Yabin Gao, Ying Chen, Yue Fu, Wanjiang Jia, Liang Zhang	

<b>Research on Distortion Algorithm of Panoramic Image Unfolding Map</b>	98
Chao Xue, Jiayi Zhang, Yongping Hao, Junhao Zhang	
<b>An adaptive SOM algorithm for PCB NC drilling path planning</b>	103
Kai Huang, Rui Xu, Qiuyan Dong, Chao Fu	
<b>Welding Trajectory Optimization Based on the K-means Algorithm in Welding Robot</b>	109
Weixiang Ding, Zhiqi Yan, Pan Zhang	
<b>A Power Theft Detection Algorithm based on Electricity Usages</b>	115
Qiuyan Zhang, Jiyulei Dai, Bin Liu, Zhoubo Wu, Honbo Zhou	
<b>Indoor Visual Odometry Algorithm Based on Adaptive Feature Fusion</b>	121
Qi Mu, Yuhao Wang, Shuai Guo, Zhanli Li	
<b>A Novel Ramp Metering Algorithm based on Deep Reinforcement Learning</b>	128
Qian Xu, Zhiguang Liu, Zhigang Xu	
<b>The Influence of Geometric Parameters on the Workspace of the 4-SPS TBPM</b>	134
Xiaodong Yuan, Min Lin, Zhengyin Du, Mingxiang Zheng, Hui Lei, Qingzhu Chen, Zhifei Ji	
<b>Research on the joint clearing model of electricity energy market and AGC market based on Stackelberg game</b>	139
Ran Chen, Bingni Chen	
<b>Memory Efficient Network Embedding Algorithm with Text Information</b>	143
Shaoci Xie, Zhiming Ji, Huanhuan Fan, Kerui Cao, Yongjie Liao, Wenxiong Dai	
<b>Research on Trajectory Tracking Control of Intelligent Vehicle Based on PSO-MPC Algorithm</b>	148
Ran Li, Haibo Dong, Jinwei Guo, Xiaoyan Huang, Ziyang Li, Ning Sun	
<b>Aerial target motion feature selection based on improved grey wolf optimization algorithm</b>	154
Chenhao Zhang, Yan Zhou, Yu Bi, Jing Wang, Futai Liang, Zihao Song	
<b>Improved YOLOv4-Tiny Lightweight Country Road Pavement Damage Detection Algorithm</b>	160
Yang Zhou, Yan Wei, Jintao Chen	
<b>Theoretical and numerical study on post-buckling behavior of tubing string in ultra-deep wells</b>	164
Hongtao Liu, Hongtao Jing, Nu Zeng, Chang'E Kong, Xiaotong Yu, Zhixiong Tu	
<b>AGLGCN: Graph Convolution Recommendation Algorithm based on Multi-Head Attention and Gated Recurrent Unit</b>	170
Shaoguo Cui, Zetian Yang, Haoming Wan, Haokun Liu	
<b>Based On Improved Yolov5 Mine Infrared Target Detection Algorithm</b>	176
Qihua Li	
<b>A Multi-Objective Learning Noise Suppression Algorithm Based on CNN-2TCN for Environmental Sound</b>	181
Ruibin He, Liyan Luo, Mei Wang, Zou Zhou, Dinghao Zhao, Hanyue Yang	
<b>Dense crowd detection algorithm for YOLOv5 based on Coordinate attention mechanism</b>	187
Jintao Chen, Yan Wei, Yang Zhou	
<b>Virtual Synchronous Generator Control Based on Fruit Fly Optimization Algorithm</b>	191
Wenshan Nie, Xihuai Wang, Jianmei Xiao	
<b>An Integer-type Planning-based Optimization Algorithm for Senseless Orderly Charging of Charging Piles in Station Areas</b>	196
Wen Wang, Ye Yang, Chun Xiao, Yibo Liu, Junfeng Yao, Chenyang Bi, Anqi Zhao, Wenjie Jia, Baomin Qiu	

<b>Segmentation Algorithm Based on Multi-Path Refinement Feature Fusion</b>	201
Yukai Wu, Xujun Chen, Ke Fang	
<b>Detection Algorithm of Known Road Signs in Unknown Environment Based on Loop Detection</b>	208
Hefei Huang, Baichun Gong	
<b>An adaptive algorithm for non-uniform illumination in large-size workpieces online detection</b>	213
Guangqiu Chen, Kaizhi Shang, Yong Zhu	
<b>Simulation Study of Fuzzy Neural Control Fire Alarm System Based on Clustering Algorithm</b>	217
Yijun Wang	
<b>Integrated attention mechanism for GBDT building energy consumption prediction algorithm</b>	222
Dongrui Chen, Biao Wang, Muhammad Adeel, Yuyi Yang, Ji Ke	
<b>Mechanical Modeling and Analysis of Flexible Cavity Fishtail</b>	228
Lihong Liu, Yongping Hao, Jiajun Li	
<b>Research on electricity demand forecasting based on LSTM-SVR</b>	233
Huixuan Li, Peng Li, Yihan Zhang, Wenjing Zu, Yongle Zheng	
<b>Research on full-process product defect traceability analysis technology based on workshop big data</b>	240
Jianquan Zhang, Shiqing Lan, Lei Liu, Ru He	
<b>Design of Monocular Distance Measurement System based on Face Recognition</b>	247
Dongyang Zhang, Yihu Zhang, Hualiang Zhang	
<b>Design and optimization of the large-aperture wide-spectrum optical detection system</b>	251
Zhaohang Jiao, Wenjing Chen, Yu Feng, Hongda Li	
<b>Network Intrusion Detection Method of Power Monitoring System Based on Data Mining</b>	255
Jiabo Chen, Yuanhu Guo, Kaiyuan Shi, Mingda Yang	
<b>Research on Indoor Mobile Robot Navigation System Technology</b>	260
Xin Zhang, Xuyang Zhang, Wenhui Zhu, Jinchu You, Suo Li	
<b>Research on In-System Programming IP of RISC-V Processor</b>	264
Hui Wang, Yuyuan Du, Xiangcheng Mu	
<b>Research on Closed-Loop Supply Chain Based on Digital Twin</b>	270
Haifeng Guo, Yu Han	
<b>Numerical Simulation of the Tobacco Flavoring Nozzle by CFD</b>	274
Jun Zhu, Min Xu, Lihui Mao, Guanghui Chen, Xiaobai Zhang, Ronghua Xu, Qianyun Ren	
<b>Design and application of intelligent auxiliary material conveying system based on IGV in cigarette industry</b>	281
Xiao Zhou, Hai Feng, Ronghua Xu, Zhijin Liu, Hui Wang, Yi Zhang, Junhui Wang	
<b>Research progress on numerical simulation of temperature field in friction stir welding of dissimilar alloys</b>	290
Zeping Han, Lijie Cao	
<b>Distributed Dual-layer Differential Privacy Protection in Smart Meter Bigdata Mining</b>	297
Zhihao Li, Junling Wang, Yan Cai	
<b>Wind Power Generation Condition Assessment Method Based on Multidimensional Data Mining</b>	301
Zihan Zhao, Xiangjia Sun	
<b>A Method for Evaluating Key Elements Affecting Visual Perception Capabilities of Unmanned Autonomous Systems in Virtual Scenarios</b>	305
Junchao Du, Haitian Liu, Binglin Liu, Qianchao Hu, Feng Wang	

<b>Research on contact mechanics of a 3D self-affine surface topography using mesh regeneration technology</b>	312
Kai Jiang, Zhifeng Liu, Tao Zhang	
<b>Dissipative control of networked control systems based on event-triggered mechanism</b>	319
Mancang Yan, Yang Yang, Chenjie Zhang	
<b>Prediction Method of Remaining Service Life of Li-ion Batteries Based on XGBoost and LightGBM</b>	324
Shipu Yang	
<b>Analysis of temperature control system for strawberry greenhouse based on Smith predictive fuzzy PID</b>	328
Dan Tang, Shiwang Liu, Wenna Bao	
<b>Global satellite positioning information application of remote temperature measurement system</b>	333
Fengxian Liu, Jianpeng Sun, Yue Ma	
<b>Research on transmission line industry finance link fusion technology based on DEMATEL-TFNAHP method</b>	340
Yanqin Wang, Zihan Qi, Zhen Dong, Ning Xu, Yong Wang, Hongshan Zhang	
<b>Design and Implementation of Project Management System Based on Vue3.0 Framework</b>	347
Chao Li, Shaoyang Zhang, Jiesi Na, Lei Yue	
<b>Simulation study on the influence of shell material properties on fragmentation formation</b>	354
Lifeng Zha, Zhigang Jiao, Tian Lan, Hefeng Xu	
<b>Research on Fault Method Based on Boiler Feed Water System Simulation</b>	358
Renli Gu, Yanqiao Chen, He Ni	
<b>Combined Prediction Model of Electricity Consumption Based on Grey System and ARIMA Model Correction</b>	363
Xuhao Ye, Zifan Zhang, Yinuo Liang, Yaohua Zhang, Yiyang Chen	
<b>Yolov5-based rotating target pose grasping</b>	367
Jian Yang, Shuai Jiang, Kai Chen, Li Liu	
<b>The long-term evolutionary pathway of Beijing's energy system towards carbon neutrality</b>	374
Wenhai Nie, Hao Yue, Jianmin Ding, Yi Zhou, Dan Chen, Defu Zhao, Zepeng Chen	
<b>Optimization of High-Speed Railway Train Timetable Considering Origin-Destination Service Quality</b>	380
Jialu Yu, Zhenhuan He, Zhiyuan Yao, Gang Wang, Jingzhe Zhou	
<b>Blockchain-based cryptographic model for electronic evidence authentication</b>	386
Pengfei Yu, Xianzhou Gao, Shenjian Qiu	
<b>Cloud Platform Component Fault Tracing System Based on Operation and Maintenance Knowledge Map</b>	390
Yongyan Yang, Lihong Yang	
<b>Short-term Electricity Price Forecasting Based on Data Mining</b>	394
Bo Wang, Wenting Wei, Wang Su	
<b>Simulation Study on Heat Exchangers Characteristics of Solar Thermal Steam System Based on Aspen Plus</b>	398
Pengfei Chen, Kang Chen, Huaiwu Peng, Yanlong Zhang, Baercheng Bawaa, Qiuyang Zhao	
<b>Design and Implementation of Practical Simulation Training System for Photoelectric Theodolite</b>	403
Chuanling Liu, Hao Lei, Hua Zhang, Feiya Fu	
<b>Semantic extraction technology of heterogeneous data for multi-dimensional service of electricity distribution System</b>	408
Yi Ding, Fei Teng, Chao Pang, Pan Zhang, Pei Chen, Xianxu Huo	
<b>Damage Detection System of Ancient Paper Books Based on Machine Vision</b>	412
Hong Wang, Shaoming Sun, Tao Kan, Genji Sun	

<b>Analysis and Simulation of Mechanical Arm Dynamics Model Based on Simulink</b>	416
Dongyang Zhang, Weisheng Ma, Hualiang Zhang	
<b>Urban Land Cover Classification Algorithms and Simulation</b>	420
Houhan Lu	
<b>Numerical simulation of the effect of blast shock wave on target plate</b>	427
Dongjiang Zhang, Lei Zhang, Qiang Luo, Yangyang Ma, Qifan Yang, Kai Chen	
<b>Prediction of Heavy Metal Content in Soil Based on AGA-Elman model</b>	433
Liangliang Li, Cong Zhang, Kun Cao	
<b>Structure design of image acquisition device for cotton heterosexual fiber</b>	438
Yangchao Wang, Changxu Chen, Mingming Liu, Yong Ding	
<b>A Lightweight Network for Small Object in UAV Images</b>	443
Bin Hu, Xiaoyang Hu, Zhanpeng Zhao	
<b>Method of small target on surface flaw detection for the tube products based on block processing</b>	447
Zhuanwen Ji, Yilan Sun, Yu Liu	
<b>Power helmet detection based on improved YOLOX</b>	452
Bo Tao, Lei Chen, Shiwei Tong	
<b>Research and Implementation of Artificial Intelligence Real-Time Recognition Method for Crack Edge Based on ZYNQ</b>	460
Xuefei Gao, Chaoyu Yao, Liqi Hu, Wei Zeng, Shengyang Yin, Junqiu Xiao	
<b>Research on ORB-SLAM2 Based on Dynamic Scenarios</b>	466
Dongyang Zhang, Nianqiu Liu, Hualiang Zhang	
<b>Improved RetinaNet target detection model</b>	470
Qiang Wei, Xiaoyang Hu, Xuna Wang, Haodong Wang	
<b>Design and implementation of PROFIBUS DPV0 master software</b>	477
Tong Zhou	
<b>Study of Enhanced Multi-spectral Remote-sensing-satellite Image Technology Based on Improved Retinex-Net</b>	484
Peng Liu, Honggang Wang, Jinpeng Li, Wenjun Dong, Jin Zhang	
<b>Defect Detection of Small-size Fittings Based on Reformative Cascade RCNN Network</b>	490
Lin Lu, Yong He, Hanjie Yuan, Yaohua Zheng, Liang Fan, Yu Zhang, Limeng Dong, Qi Tan, Lei Zhang, Qiumei Wang	
<b>Image Generation Model Based on Ls-CapsGAN Network</b>	495
Haotian Song	
<b>A Knowledge Semantic Representation Method Combined with Path Information</b>	502
Jinkui Huang, Tingze Yang, Shipeng Zhang, Chenjun Huang, Zhongfeng Wang, Chu Wang, Ligang Li	
<b>Design and Implementation of OpenWSN Hardware Platform</b>	506
Shusheng Zhang, Chuang Xie, Jun Liu, Chun Zhao, Zhijia Yang, Jizhi Mao	
<b>Self-Cure Networks with Latent Distribution Mining for Facial Expression Recognition</b>	511
Guanlin Zhao, Yifan Chen, Dongsheng Wu, Yanqiao Liu, Sitong Jing, Deyuan Wang	
<b>Anomaly Detection Based on Semi-Supervised Generative Adversarial Networks</b>	515
Dengjin Liu, Liang Chen	
<b>Software program design to compute signals of balance coil metal detectors</b>	519
Wenjing Hu	

<b>Research on Visualization of Fragment Power Field and Target Detection Method of Detonator</b>	524
Qiang Luo, Yangyang Ma, Kai Chen, Qifan Yang	
<b>Design Simulation and Development of Aircraft Air-launch Platform</b>	529
Fude Wang, Teng Li, Zhihu Kou, Wenhao Li	
<b>An Improved Hand-eye Calibration Method Based on 3D Position Information</b>	535
Shunyao Yang, Jian Zhou, Hua Zhang, Songlin Gou	
<b>Intelligent inspection method for overhead line drones supported by hybrid networking</b>	542
Limeng Dong, Hanjie Yuan, Yong He, Jianan Yao, Yu Zhang, Lin Lu, Qi Tan, Tianhang Jiang, Haiao Tan, Chengxi Dong	
<b>Identification Method of Underground Operation Violation Behavior Based on Deep Learning</b>	547
Xianwei Li, Hao Chen, Ye Tian, Yuanchen Zhong, Geli Jiang	
<b>Graceful Sentence Recognition Based On Lexical Features and CNN-Att-BiGRU</b>	551
Zhiheng Wang, Fang Wang, Shucheng Huang	
<b>Construction of Knowledge Graph of Pumping Wells Based on Improved BERT Model of Joint Information Extraction</b>	555
Renbin Gong, Tongtong Wang	
<b>Low-light image enhancement model based on self-calibration illumination and color adjustment</b>	559
Guiwen Zhang, Qishen Li, Qiufeng Li, Taida Wu	
<b>Abundant Semantic Information Module for Object Detection</b>	563
Taida Wu, Qishen Li, Qiufeng Li, Jun Gao	
<b>Research on attention-based multiscale information fusion with the real-time instance segmentation method</b>	568
Yifan He, Hua Huang, Qishen Li, Guiwen Zhang	
<b>Simulation research on safety evaluation of auto parts manufacturing enterprises based on structure entropy weight method and forward cloud algorithm model</b>	573
Wen Xu, Xiaoqun Wang, Jinlong Zhang	
<b>Object Detection and Segmentation Method for Unmanned Vehicles in Bird's-Eye View Based on Peripheral Camera</b>	578
Tyrol Chiang, Qizhong Li, Miaohua Huang	
<b>A lightweight YOLOv5 model used for safety helmet and reflective clothing detection</b>	582
Weihao Li, Yan Wei	
<b>Abnormal Vehicle Identification Method Based on ETC Gantry</b>	588
Jiancheng Zhou, Fumin Zou, Gen Xu, Lvchao Liao	
<b>Research on Multi-level Attention-based Human Pose Estimation</b>	592
Jun Gao, Hua Huang, Qishen Li, Shaoqi Xia	
<b>Transformer vibration fundamental frequency amplitude prediction based on information fusion and migration learning</b>	596
Yongchang Chen, Peng Yang, Zhenchao Liao	
<b>Word Pair Relation Classification Model for Nested Named Entity Recognition</b>	601
Shaoguo Cui, Guangping Hu	
<b>Joint Extraction model of Chinese Recipe Entities and Relations Based on Adversarial Training and Cascaded Binary Tagging</b>	606
Chuanhao Lan, Yongzhi Zhu, Qian Zhang, Yikai Cui, Qinghang Mao	



<b>FINE GRAINED IMAGE CLASSIFICATION COMBINING DUAL ATTENTION AND KERNELIZED BILINEAR CNN</b>	610
Jenpeng Yang, Peng Liu	
<b>Development Trend of Customer Side Energy Internet Communication Protocol</b>	615
Zhongxing Wu, Yina Du, Dan Li, Zixu Zhu, Xingqi Liu, Xuan Liu	
<b>Simulation design and control experiment of Folding quadrotor UAV</b>	623
Deyi You, Yongping Hao, Shoutai Wang	
<b>State Estimation of UAV under Network Attack</b>	629
Xiaoqi Liu, Jiangning Zhu, Qingquan Liu	
<b>Research on Transformer for Natual Language Processing</b>	633
Wentao Li	
<b>Research on pedestrian target trajectory detection of mobile robot in a complex scene</b>	639
Guannan Li, Qi Yang, Jiaping Tian, Qianqian Ma	
<b>Region Segmentation Method of Mobile Robot Based on ORB Feature in Dynamic Scene</b>	643
Jiaping Tian, Qi Yang, Guannan Li, Qianqian Ma	
<b>Research on the incentive mechanism of Energy IoT based on DAG blockchain</b>	648
Xiaopeng Chen, Jinjing Cao, Hongwei Xin, Jianhui Zhang, Entang Li, Mingliang Mu, Chuankang Miao, Lixuan Che	
<b>Neural Network Based Self-Tuning PID Controller</b>	655
Pengyi Xu	
<b>Simulation and analysis of aerial scattering of foldable rotorcraft UAV</b>	662
Xuyang Zheng, Yongping Hao, Jiulong Xu	
<b>Student Score Prediction Based on Deep Learning</b>	666
Kun Zhang, Liang Chen	
<b>Research on robotic arm based on YOLO</b>	670
Huiming Li, Shuo Zhou, Yuyuan Du, Qingliang Zou, Shoufeng Tang	
<b>Switching Model of Multi-Channel Closed-Loop Supply Chain with Time Delay and Neural Network Predictive Control Method</b>	675
Haifeng Guo, Anzhou Yan	
<b>Design and Kinematic Simulation Analysis of Crawler Desilting Robot</b>	680
Kang Yan, Chongzhi Song, Haiqing Mei, Han Zhou	
<b>Fault Diagnosis of Multimodal Chemical Process Based on Attention Mechanism and Deep Subdomain Countermeasure Adaptive Network</b>	686
Qing Yang, Hongyou Li, Chunli Hua, Dongsheng Wu	
<b>A Frequency Analysis Method for the Vibration of Robot Manipulators based on Pointwise Interval Mean Regression and Fast Fourier Transform</b>	691
Yong Xu, Xiaozhi Zhang, Caifang Lin, Yuanda Yang, Shengjian Chen	
<b>TDOA-based localization via ML-LPNN</b>	696
Yue Zuo, Hongwei Shi, Yunlong Wang, Qi Chen	
<b>Inverse Reinforcement Learning in Automatic Driving Decision</b>	701
Chaoying Zhang, Guanjun Jing, Siqi Zuo, Minglan Su, Qiaoqiao Liu	
<b>Line survey and intelligent planning technology for power material transportation</b>	705
Xi Chen, Hao Sun, Xian Meng, Ming Tong, Yunchen Zhu, Yan Li, Yang Sun, Peng Yan, Jianshuang Liu	

<b>Design and Simulation Analysis of Ship Dynamic Positioning Simulator</b>	709
Xiaohan Lu, Chongzhe Shan, Fei Wu, Jinglin Yang	
<b>Research on Collaborative Fire Fighting Technology of Tunnel Fire Robot</b>	714
Xin Li, Qilin Shu	
<b>Yaw Moment Distribution Strategy based on Six-Wheel Independent Drive of Unmanned Vehicle</b>	718
Yi Hu, Yonghai Wang, Shuai Zhang, Yongchao Wang	
<b>Improve the Robot Path Planning Based on the Integration of A* and DWA</b>	723
Husen Wang, Zhian Zhang, Xuegong Huang	
<b>A Review of Visual Perception for Mobile Robot Navigation: Methods, Limitation, and Applications</b>	729
Chen Hua	
<b>Classification and detection of printed product surface scratches based on machine vision</b>	738
Yunfei Du, Cai Zuo, Yongbin Zhang	
<b>Monocular Depth Estimation with Multiscale Feature Fusion Networks</b>	742
Yuhang Zheng, Chuqing Cao	
<b>Optimization of UAV Endurance Based on Materials</b>	747
Chenhao Ma, Zhigang Jiao, Jun Zuo	
<b>Error Analysis of Multi-information Fusion Printing Machine Bushing Assembly Robot</b>	752
Haifei Wang, Shaozhong Cao, Wei Zhao, Zhenqing Gao	
<b>The prediction model of Irregular Cavity Volume based on CNN-GRNN neural network</b>	758
Xin Zhang, Yueqiu Jiang, Wei Zhong, Hongyuan Zhang, Jiawei Hou	
<b>Research on the Scheduling and Management Strategy of Lift-and-traverse Type Intelligent Stereo Garage</b>	762
Qiang Jiang, Xueyu Huang, Shuangxin Liu	
<b>Comprehensive evaluation of the flexibility and economy of coal power units</b>	768
Fei Li, Yishuai Huang, Qinghe Liang, Yao Wang	
<b>Resource Allocation Strategy of Power Communication Network Based on Enhanced Q-Learning</b>	773
Ben Wang, Xiwei Wang, Siwei Li	
<b>Research on Simulation Method of Ship Equipment maintenance Support process</b>	778
Lei Li, Pengxing Yi, Zhen Wang, Kun Liu, Fangzheng Li	
<b>Convolutional neural networks news classification based on gating mechanisms</b>	783
Guoshuai Yan, Chengwan He, Jianqin Tang	
<b>Graph Convolutional Networks with Adaptive Frequency and Dynamic Node Embedding</b>	788
Linkai Chen, Shihao Zhao, Guangda Xu, Wu Zeng	
<b>Method for improving the accuracy of mobile robot odometry based on machine learning</b>	793
Bingbing Shao, Tianjiang Zheng, Qi Li, Yikun Chen	
<b>Extraction of urban road surface from mobile laser scanning point clouds</b>	798
Guoqing Zhou, Jiahao Guo	
<b>Improved RBF Neural Network for Short-Time Passenger Flow Forecast of Rail Transit</b>	802
Feng Xu, Yanbiao Di, Hui Jin	
<b>Research on Visual Guidance Method for Cabin Grasping</b>	807
Yukang Chen, Tianpeng Yang, Shixun Fan, Zhijie Wen, Dapeng Fan	

<b>Simulation of fault-tolerant control strategy of BP neural network automatic transmission based on MATLAB</b>	812
Haopeng Tian	
<b>Research on modeling technology of PV/storage integrated operation analysis model</b>	817
Qidi Huo, Jia Wei, Xiaojun Tang, Wensheng Li, Yan Xie, Yuyue Zhang, Bin Yang, Huiling Li	
<b>Numerical simulation study of the flying law of behind-armor debris based on AUTODYN</b>	822
Dongjiang Zhang, Boyang Xing, Rui Guo, Yunhui Hou, Yangyang Ma	
<b>Author Index</b>	828