

2022 3rd International Conference on Computer Vision, Image and Deep Learning & International Conference on Computer Engineering and Applications (CVIDL & ICCEA 2022)

**Changchun, China
20-22 May 2022**

Pages 1-627



**IEEE Catalog Number: CFP2237J-POD
ISBN: 978-1-6654-5912-9**

**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:	CFP2237J-POD
ISBN (Print-On-Demand):	978-1-6654-5912-9
ISBN (Online):	978-1-6654-5911-2

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Testing the feasibility of quantizing the progress of stroke patients' rehabilitation with a computer vision method <i>Shuai Zhao, Yao Tong, Gang Chen, Yiran Zhang</i>	1
Recognition of surface defects of aluminum profiles based on convolutional neural network <i>Wanbo Luo</i>	5
A Novel Generative Adversarial Network simulating the complementary structure of DNA genetic information <i>Lei Zhang, Haoying Wu</i>	9
A Novel Deep Convolution Neural Network Model for CT Image Classification Based on COVID-19 <i>Jingrong Wang, Limeng Lu, Zixiang Zhang, Nady Slam</i>	15
Prediction of rainfall-type debris flow in Jiangjiagou based on LSTM-Attention <i>Yuan Gao, Yingna Li</i>	21
An Improved Lightweight Method of Convolutional Neural Network for Face Recognition <i>Yankun Wang, Jingyan Huang, Wei Xiong, Peiqin Li</i>	27
A calculation method for line-of-sight stable attitude of networked optical transceiver based on depth feedforward neural network <i>Lihui Wang, Lizhong Zhang, Lixin Meng, Yangyang Bai</i>	32
A Grapevine Virus Disease Detection Method Based on Convolution Neural Network <i>Yi Wang, Shuizhou Ke, Shaohong Wang, ZhiBo Zheng</i>	36
A Predict Method of Measuring Equipment Operation Performance Based on Improved Local Weighted Partial Least Squares <i>Mingji Li, Ning Cao, Hao Lu, Fan Gao</i>	41
Lightweight detection method based on improved YOLOv4 <i>WenLong Ruan, Yunqing Liu</i>	46
Ancient Character Image Classification Model Training <i>Yixuan Lin</i>	50
ADNet: A neural network model for adversarial example detection based on steganalysis and attention mechanism <i>Xinrui Zhang, Yong Wang</i>	55
Research on Multi-scale Network Computer Modeling based on Mobile Vendor Management <i>Yufan Yang, Xingchen Dong, Yingjun Li, Huaiyang Zhang</i>	61
Predicting stock volatility based on weighted fusion model of XGBoost and LightGBM <i>Dingqianxi Zhu</i>	65
Research on Question Answering System Based on BERT Model <i>Jie Yin</i>	68
A quantitative study of the layout of Wangshi Yuan by means of Space Syntax analysis <i>Xinjie Yi, Menglin Wang</i>	72
Identification Method of Dress Pattern Drawing based on Machine Vision Algorithm <i>Ke Lyu, Haizhang Yan</i>	76
Research on a Control Method of DC Speed Regulating Electric Energy Vehicle Based on Neural Network <i>Wanxin Chen, Wenyu Lan, Xunrui Li</i>	80

Mobile Crowdsensing Task Allocation Model Based on Discrete Particle Swarm Optimization	86
<i>Shuang Lou, Gang Liu, Zhiyu Chen, Jianwei Guo, Peng Liu</i>	
Research on Power Load Forecasting Based on VMD-LSTM	93
<i>Weihaio Zhang, Ting Wang</i>	
FAST Active reflection surface shape adjustment model research	98
<i>Yiming He, Zheng Luo, Yi Xu, Haorui Yang, Jialu Fu, Zelin Zhou</i>	
Research on Prediction of Landslide Displacement Based on BP Neural Network and D-S Evidence Theory	103
<i>Kangdi Chen, Hongyang Liu, Xiaoling Tan</i>	
Research on low voltage distribution network topology generation method based on "transformer - distribution box - meter box - meter" model	107
<i>Zhan Shi, Yutu Liang, Xiuzhu Wang, Senlin Li</i>	
Lightweight the Focus module in YOLOv5 by Dilated Convolution	111
<i>Aohua Song, Ziyun Zhao, Qingyun Xiong, Junqi Guo</i>	
Ceramic ring defect detection based on improved YOLOv5	115
<i>Shengqi Guan, Xu Wang, Jingguo Wang, Zijiang Yu, Xizhi Wang, Chao Zhang, Tong Liu, Dongdong Liu, Junqiang Wang, Libo Zhang</i>	
Prediction method of Internet of things operation index based on improved Support vector machine regression model	119
<i>Moyan Li, Ning Cao, Hao Lu, Fan Gao</i>	
A Highly Accurate Attention-Based Convolutional Neural Network for Classification of Brain Tumors	124
<i>Xinyu Zhang</i>	
Multi-modal Brain Network Fusion Based on Random Walk-Grassmann Model	129
<i>Jiyun Li, Gege Wen, Chen Qian</i>	
Individual identification of dairy cows based on Gramian Angular Field and Migrating Convolutional Neural Networks	135
<i>ShiQi Xi, ChenJie Su, XiaoDong Cheng, Xi Li</i>	
Analysis of Extendibility of Sea Clutter Model in High Sea States Based on Measured Data	140
<i>Boyu Yang, Min Jiang, Jianming Wang</i>	
A Metadata Based Equipment Integrated Logistics Support Data Ontology Modeling Method	144
<i>Xuemiao Cui, Chen Pan, Jiping Lu, Yafeng Han</i>	
A Simultaneous Hole, Groove and Defect Detection Method Based on Yolov4-tiny and MMOE	149
<i>Haicheng Lin, Jie Gong, Xiang Chen, Xiaohua Xie, Hengliang Tang, Junfeng Jiang</i>	
Fault Diagnosis Method of Planetary Gearboxes Based on Multi-scale Convolution Neural Network	154
<i>Hu Teng, Yuqiang Jiang</i>	
A prediction model of Network traffic noise reduction based on PSO-VMD and BiLSTM	158
<i>Shaopu Zhang</i>	
Prediction of Liquefaction of Iron Concentrate with Artificial Neural Network Model	165
<i>Yin Chen, Jianwei Zhang</i>	
Sitting Posture Detection System Based on Keras Framework	170
<i>Peng Yang, Zhi-Lang Peng, Wu-Long Wang</i>	
Vehicle Analysis System Based on DeepSORT and YOLOv5	175
<i>Fuheng Guo, Yi Xu</i>	

Based on the Improved Utaut Model to Study the Influencing Factors of User Participation Willingness in the Group Fission Marketing Model	180
<i>Jinting Zhang, Mengbo Wang, Feng Ding, Yutong Feng, Zuyi Zhang</i>	
Research Analysis of Stream Processing System Storm Based on Knowledge Map	184
<i>Lina Li, Peng Lian, Tingting Zhang, Nianfeng Li</i>	
Comparison between Machine Learning Models and Neural Networks on Music Genre Classification	189
<i>Zizhi Ma</i>	
Red Blood Cell Aggregation Classification Based on Ultrasonic Radiofrequency Echo Signals by An Improved Convolutional Neural Network	195
<i>Zerong Liao, Yufeng Zhang</i>	
Context-aware Transformer Model for Crowd Localization	199
<i>Yiming Gong, Kan Li</i>	
A Cellular Automaton Model for Fishing Industry of Taihu Lake	203
<i>Zihao Li</i>	
Sequential Recommendation Model That Combines Attention Mechanism with User Scoring Information	207
<i>Xiujin Shi, Chenyun Tao, Peiyang Liu, Jiulei Jiang, Guohao Sun</i>	
Working Condition Identification of Rod Pumping System Based on SGTCCNN Convolutional Neural Network	213
<i>Jun Shao, Kai Hou, Bin Yan, Yong Peng, Heng Wu</i>	
Few-shot Classification with First-order Task Agnostic Meta-learning	217
<i>Xiaoxiao Yang, Jungang Xu</i>	
Safety optimization study of bridges based on BP neural network	221
<i>Chao Zhou, Yinghao Zheng, Chuangyu Liu, Su Li, Kaiji Zhou, Zhaotao Zou</i>	
Exploring a Computer Vision and Artificial Intelligence-based Approach to Sit-and-reach Distance Measurement	225
<i>Cheng Jiang, JiaQi Sun, KeXin Qi, ChengZhu Jin, GangTie Jin</i>	
FYCFNet: Vehicle and Pedestrian Detection Network based on Multi-model Fusion	230
<i>Pnegyu Dai</i>	
Strawberry Disease and Pest Identification and Control Based on SE-ResNeXt50 Model	237
<i>Guanshou Gan, Xuncan Xiao, Chuntao Jiang, Yingxi Ye, Yuhao He, Yushen Xu, Chunhai Luo</i>	
Spare parts consumption prediction based on AO-ELM	244
<i>Kai Gao, Huameng Gao, Jin Sun, Jiawen Zhang</i>	
Blockchain-based power battery traceability system for new energy vehicles	248
<i>Yan Ma, Ruoyu Fang</i>	
DMP: A Distributed Matchmaking Trading Platform	252
<i>Bowen Duan, Aiqing Du, Peiyu Yang, Jiale Wang, Wenjie Mou, Haiyu Ju</i>	
Recognition and detection of Wolfberry in the natural background based on improved YOLOv5 network	256
<i>Wei Zhang, Xulu Xia, Jianming Du, Zhengyong Zhang, Hui Zhang</i>	
Phishing website identification based on double weight random forest	263
<i>Zhixin Zhou, Chenghaoyue Zhang</i>	

A study of a federated learning framework based on the interstellar file system and blockchain: Private Blockchain Federated Learning	267
<i>Peng Zhang, Gang Liu, Zhiyu Chen, Jianwei Guo, Peng Liu</i>	
Target detection on lightweight device based on Compressed YOLOv5s6	274
<i>Jingxiang Cui, Weimin Zhou, Weijun Liu</i>	
Research of the 51% attack based on blockchain	278
<i>Yuechen Hao</i>	
IoT intrusion detection technology based on Deep learning	284
<i>Bo Cao, Chenghai Li, Junfeng Sun, Yafei Song</i>	
Research on target measurement based on fusion of binocular and TOF system	290
<i>Xinghua Xia, Zilong Xu, Zhonghua Han, Zhili Chen</i>	
On-line Test and Fault Location of Aviation General-purpose cables based on TDR	294
<i>Xin Gu</i>	
The application of white-box encryption algorithms for distributed devices on the Internet of Things	298
<i>Zheng Xu</i>	
Incentive Mechanism Of Distributed Electric Energy Transaction Based On Blockchain	302
<i>Zhiyu Wang, Jing Zhang</i>	
Research on The Construction and Division of Asset Group Based on Value Chain	307
<i>Jia-xu Cheng, Guan-ran Wang, Jian Zhao</i>	
Design and Implementation of Reliable Communication Protocol for BeiDou Long Message	311
<i>Fanzeng Bu, Yunqing Liu</i>	
Blockchain and IoT based traceability system for agricultural products	316
<i>Teng Wang, Xinyu Liu, Songming Guo, Baishuo Han, Wenhui Yang</i>	
Research on Power Line Carrier Communication Channel Modeling for Power Distribution and Consumption IoT	322
<i>Zhan Shi, Jiangang Lu, Bo Li</i>	
An emotional EEG signal classification research based on deep learning	326
<i>Baoqing Cai, Wei Quan, Qi Li, Yu Song</i>	
Indoor Monocular Image Depth Estimation Based on Semantic Information of Tree-shaped ASPP Structure	330
<i>Zhisong Bai, Chao Zhang, Cheng Han</i>	
Trading Strategy Based on DQN and Dynamic Programming	334
<i>Yufei Qiu, Chengyu Du, Yilong Zhang, Zheyong Qiu, Yasong Yang</i>	
A Deep Learning Framework for Non-stationary Time Series Prediction	339
<i>Lina Li, Shengkui Huang, Zirun Ouyang, Nianfeng Li</i>	
Research and Application of Corrosion Classification of Weak Current Interface based on PSO-OTSU	343
<i>Linlin Xiong, Zhenyu Liao</i>	
Occluded-based Facial Recognition under mask using Deep learning method	349
<i>Haoyu Wang, Guanhua Wei, Haoning Xu, Chong Zhang</i>	
Multi-style Migration of Chinese Characters based on Self-attention Mechanism and StarGAN v2	357
<i>Fangfu Ning</i>	

Exploiting Cross-scale Consistency for Object Detection in Aerial Images	362
<i>Jingtao Xu, Yali Li, Shengjin Wang</i>	
Realization of Chrysanthemum Harvesting Recognition System based on CNN	368
<i>Xingang Liu, Yongyi He</i>	
Research on Insulator Defect Identification and Detection Based on UAV Paddle Vision	372
<i>HaiRong Mou, Rui Lu, Juan An</i>	
Monocular Gaze Estimation Network based on Mixed Attention	377
<i>Zichen.Zhao, Lai.Wei, Xiaofeng.Lu, Zhi.Liu</i>	
Research on single-character image classification of Tibetan ancient books based on deep learning	381
<i>Zhongnan Zhao</i>	
Deep learning algorithm for Facial Expression Classification	386
<i>Bin He</i>	
Aircraft Target Detection Based on Attention Mechanism and Faster R-CNN	392
<i>Yunqian Lai, Xinyue Dong, Yuan Tang</i>	
Research on an aerial object detection algorithm based on improved YOLOv5	396
<i>YiChuan Huang, HuiMing Cui, JiJun Ma, YueHan Hao</i>	
The influence of different environments on reinforcement learning	401
<i>Siyue Zheng</i>	
Feature matching and object registration based on convex hull alignment	407
<i>Xueyang Xu, Zhiyong Zhang, Changzhen Qiu, Ziwei Liu</i>	
Overlapped Pedestrian Detection Based on YOLOv5 in Crowded Scenes	412
<i>Wei jie Guo, Nanbo Shen, Tianze Zhang</i>	
Bird's Nest Detection Algorithm for Transmission Lines Based on Deep Learning	417
<i>Zhao Ge, Hongwen Li, Rui Yang, Haifeng Liu, Shaotong Pei, Zhihui Jia, Ziru Ma</i>	
Remote sensing image object detection based on improved SSD	421
<i>Shuchao Liu, Huajun Shi, Zhan Guo</i>	
Single image super-resolution via deep learning	425
<i>Zhenyue Cao, Xuan Liu, Zhenkun Wang</i>	
Multi-Scale Fusion RA-CNN for Fine-Grained Classification	431
<i>Junzhe Guo, Miaoting Tian, Yue Wen, Zixuan Zhang</i>	
Real time monitoring system for steel plate laser cleaning based on deep learning	435
<i>Haodong Chen, Shuhua Chen, Chi Zhang, Jun Wang, Bo Yuan</i>	
Segmenting against Dense Distribution and Occlusion in Road Scenarios	440
<i>Fangzhou Zhou, Beixing Deng, Shengjin Wang</i>	
Human fall detection based on improved particle swarm optimization algorithm and neural network	445
<i>Chaowei Zhou, Jie Xiao, Aimin Xiong, Caifeng Zhang</i>	
Blockchain-based Federated Learning with Limited Resources	449
<i>Qian Wang, Haofei Meng</i>	
An Improved Object Detection of Image Based on Multi-task Learning	453
<i>Lei Yang, Lijuan Lou, Xin Song, Jiangtao Chen, Xiaorui Zhou</i>	

COVID-19 Classification with CT Scan and Advanced Deep Learning Technologies	458
<i>Ziyi Li</i>	
Target detection method based on improved YOLOv3	463
<i>YiXin Jia, LuYang Liu, LiJie Zhang, Hai Li</i>	
Research on 3D Object Detection Method Based on Vlidar	468
<i>Yipan Sun, Zhibin Hou</i>	
Research on Abstractive Summarization Technology Based on Deep Learning	474
<i>Yifei Chen</i>	
Research on reliability analysis method of wireless communication hardware system	479
<i>Jin Sun, Huameng Gao, Nengbo He, Fenling Qi, Jiawen Zhang, Hongjian Yang</i>	
Network Situation Features Extraction Method of Computer Network Based on Knowledge Graph	484
<i>Li-Qiong Deng, Yi-Fei Wu, Jie-Yu Wang, Bo Wang</i>	
Research on Path-planning Combining the Salient Features of Landmarks and Photography Composition Techniques	489
<i>Kaige Gui, Zhengwei Yao</i>	
Research on Key Technologies of target location based on Intelligent Robot	494
<i>Zhong Li, Caihui Guo</i>	
Research on End-to-End Bearer Scheme for Precise Control of Transmission Network Based on 5G Communication Technology	499
<i>Yuming Liu, Yanzhi Sun, Cheng,Fu, Quan Wen</i>	
Design and Implementation of MAC with Time-Sensitive Networking	502
<i>Fuzhi Zhang, Minhua Ren, Biyang Zhang</i>	
Deterministic bounds on performance about software defined network based on network calculus	507
<i>Debin Wei, Chang Liu, Li Yang, Chengsheng Pan</i>	
A Memory Access Performance Detection and Optimization Driven by Address Mapping	513
<i>Weijia Hua, Shiwei Feng</i>	
Effectiveness evaluation of warship system based on nonlinear SEM	519
<i>Dongjing Huang, Xin Liang, Xiaoqing Liu</i>	
A Location Analysis for Dynamic Verification	524
<i>Jingyao Nie, Shuqin Geng, Xiaohong Peng, Wenhua Cao, Pengkun Li, Xuefeng Li</i>	
Aero-Optical Image and Video Restoration Based on Mean Filter and Adversarial Network	528
<i>Xinyi Gao, Shengzhe Wang, Yuyong Cui, Zhongjian Wu</i>	
Smart Contract Vulnerability Detection Based on Deep and Cross Network	533
<i>Nianfeng Li, Yang Liu, Lina Li, Yuying Wang</i>	
Image Radiation Compensation Method Based on Two-dimensional Attention Module	537
<i>Tianyu Zhang, Chao Zhang, Cheng Han, Yihan Yang</i>	
An Efficient Transformer with Shifted Windows for Low-light Image Enhancement	541
<i>CanLin Li, PengCheng Gao, Shun Song, XinYue Wang</i>	
A distributed multi MIMO radar imaging system	548
<i>Renjun Liu, Yunqing Liu</i>	

Shadow Removal Based on 2Cycles-GAN	552
<i>Haijia Chen, Dongliang Guan</i>	
A low-cost and simple on-chip cell counting device based on lensless imaging technology	559
<i>Yongliang Wang, Xiaoliang Guo</i>	
Non-frontal face recognition method with a side-face-correction generative adversarial networks	563
<i>Haixin Lin, Hongzhi Ma, Weibin Gong, Chao Wang</i>	
Single image dehazing based on Multi-scale Channel Attention Mechanism	568
<i>Chenxi Guo, Jing Lian, Wen Li</i>	
Infrared background suppression method based on low-pass adaptive morphological filtering	574
<i>Honglin Ji, Zijian Cui</i>	
Spectral-Pointer Network:	
Pre-sort leads the Pointer Network to elude the TSP vortex	578
<i>Jiaqi Wen</i>	
Distant Blurred Pedestrian Detection: Based on SSD Network with SRGAN Image Super Resolution	587
<i>Naifeng Zhang</i>	
Research on Liver Fat Sequencing Measurement Method Combined with Super-pixel Segmentation	592
<i>Xu Jiao, Jinfang Song, Yonggang Zhang, Xin Tian</i>	
Flower Classification Based on Improve VGG Networks with Attention	596
<i>Jiahao Huo, Qicong Qian, Sijie Qiao, Jiayi Yang</i>	
Research on Liver Segmentation of CT Image Based on Deep Active Contour Model	601
<i>Shanshan He, Jinfang Song, Yonggang Zhang, Xin Tian</i>	
Channel Interaction Attention Networks for Fine-Grained Visual Classification	606
<i>Qiongjia Chen, Wenguo Wei</i>	
Research on image restoration of objects passing through ground glass	612
<i>Yufeng Li, Erming Tian, Qin Li, Huiyan Han</i>	
Multi-Object Tracking with Spatial-Temporal Correlation Memory Networks	616
<i>Ming Xin, Wenjie Sun, Kaifang Li, Guancheng Hui</i>	
An image caption generation method based on improved attention mechanism	620
<i>Yingying Su, Minjie Bian, Chen Cheng, Yuzhe Huang</i>	
Trans-U: Transformer Enhanced U-Net for Medical Image Segmentation	628
<i>Shirong Guo, Shaowei Sheng, Zhikang Lai, Shanhong Chen</i>	
Influence of different image preprocessing methods on bone age prediction	632
<i>Yangyi Pan</i>	
Hyperspectral Image Denoising Based on Multi-Resolution Gated Network with Wavelet Transform	637
<i>Kengpeng Li, Fenfa Zhong, Lei Sun</i>	
A Novel Graph-Based Structural Dissimilarity Measure for Video Summarization	643
<i>Caixia Ma, Lei Lyu, Chen Lyu</i>	
Prediction of Iron Ore Spheroidity Based on Image Texture Features and PCA-SVR	648
<i>DaiFei Liu, ShengYang Wang</i>	

A computed tomography image recognition method of pulmonary nodules	653
<i>Ling Guo, Sheng Liu</i>	
Trans-CycleGAN: Image-to-Image Style Transfer with Transformer-based Unsupervised GAN	657
<i>Shiwen Li</i>	
Platform of the Web vulnerability detection Based on Natural Language Processing	661
<i>Xin Ge, Min-nan Yue</i>	
Multi-channel Network with Dense Attention for Image Super-Resolution	665
<i>Ziyi Zhang, Kewen Liu, Liyang Xia, Yachao Li</i>	
Background Suppression Method of Star Image Based on Improved CBDNet	671
<i>Yabo Li, Zhaodong Niu, Quan Sun, Huaitie Xiao</i>	
General Saliency Detection Model for 2D and Panoramic Images	675
<i>Ripei Zhang, Chunyi Chen, Jun Peng</i>	
Differential sparse single-pixel imaging with wavelet coefficients	679
<i>Qian Wang, Yaoran Huo</i>	
Single-pixel imaging encryption based on 2D coupled Logistic mapping	683
<i>Qian Wang, Yaoran Huo</i>	
Multi-scale Attention-based Individual Character Network for Handwritten Signature Verification	687
<i>Ziyun Zeng</i>	
A Radar Jamming Recognition Method based on Hybrid Dilated Convolution	692
<i>Lei Qiu, Yize Fan</i>	
A Truncated L1-L2 Total Variational Method for Image Restoration with Impulse Noise	696
<i>Yihua Jiang</i>	
Target tracking based on staring multispectral imager	700
<i>Zijian Cui, Honglin Ji</i>	
Terrain Classification of PolSAR Images Based on Optimal Features Combination	705
<i>Yangyang Wang, Weidong Chen, Xuwen Mao, Chang Chen</i>	
Personality Recognition Method based on Facial Appearance	710
<i>Xiaodong Duan, Yingying Yu, Yixin Du, Haoran Liu, Yuangang Wang</i>	
Aggregating color and absolute difference for CFA interpolation	716
<i>Yifan Liu</i>	
Face forgery detection with a fused attention mechanism	722
<i>Jiaying Wang, Yongfeng Qi, Jinlin Hu, Jihong Hu</i>	
TDR-Net: Tobacco Disease Recognition Using Improved GoogLeNet Network	726
<i>Hao Peng, Jiao Yuan, Guoliang Han, Hang Wu, Cheng Zeng, Jianjun Wang</i>	
Fingerprint Identification using Ridge Lines	732
<i>Ziqi Liu, Yucheng Niu, Qianhou Qu</i>	
Image Recognition of Cucumber Diseases Based on a New Attention Module	736
<i>Haiyan He, Yuan Yuan, Lei Chen</i>	
An improved multi-resolution 2D/3D registration method	740
<i>Yipei Cao, Fei He, Feng Qu, Tiejun Wang, Chen Yang, Weili Shi, Zhengang Jiang</i>	

Research on the Method of Color Compensation and Underwater Image Restoration Based on Polarization Characteristics	746
<i>Kaiqiang Gong, Dou Hua</i>	
A Hierarchical Path-based and SSIM-motivated Method for Cartoon Image Interpolation	752
<i>Qian Chen</i>	
Image Segmentation For pneumothorax disease Based On based on Nested Unet Model	756
<i>Hongwei Niu, Zhengyuan Lin, Xuan Zhang, Tianzhi Jia</i>	
Solar position acquisition method by structural similarity characteristics of skylight polarized pattern images	760
<i>Ni Pan, Zhiguo Fan, Haihong Jin, Bianbian Liu</i>	
RecommenderPlus: New Content-based User-centered Game Recommendation System	767
<i>Tianrui Liu</i>	
EEG data augmentation for Personal Identification Using SF-GAN	771
<i>Shuai Zhang, Xiuqing Mao, Lei Sun, Yu Yang</i>	
Lightweight convolution-based Chinese Speech Synthesis Method	777
<i>Ruotong Yang, Yunfei Shen, Nian Yi, Zhixing Fan, Jiajun Liu, Wumaier Aishan</i>	
Research on Binary Program Dynamic Slicing Technology for Cause Analysis of Vulnerability	783
<i>Peiyu Lu, Chao Feng, Chaojing Tang</i>	
Research on garment classification and detection based on artificial intelligence and machine vision	789
<i>Ye Liu, Fei Ren, LiQun Ren, JiTian Qian, Yong Wang, HongSheng Li</i>	
Attention and Memory Training System Based on Neural Feedback	794
<i>XiuJun Li, LiMin Tang, ZhiLin Zhang, Jinglong Wu, Qi Li</i>	
Capturing Temporal Information with LSTM to Stabilize A Rotating Machine	799
<i>Yaoyao Wei, Weiming Qu, Tao Zhang, Yian Deng, Fan Hu, Xiangqi Zhang, Tianlin Liu, Paul Bolchover, Tao Yu, Guishui Zheng, Ping Zhang, Qing Liu, Dingsheng Luo</i>	
A Research and Verification of MFC Framework-aware Virus Infection Technology	805
<i>Wang Guo, Yang Li, Zihan Sha, Wenjuan Bu</i>	
Design and Deployment of Space Surveillance System to Monitor Geosynchronous Orbit	811
<i>Yue Shen, Ying Zhou, Zekai Wang, Tao Wang, Bin Rao</i>	
Application research of plant leaf pests and diseases base on unsupervised learning	817
<i>Mingjing Pei, Min Kong, Maosheng Fu, Xiancun Zhou, Zusong Li, Jieru Xu</i>	
Prediction of Peak Shear Strength of Joints Based on Machine Learning Algorithms	821
<i>Hui Shen, YaQun Liu, HaiBo Li, Xiang Xia, Bo Liu, Chong Yu</i>	
Design of water quality monitoring system based on NB-IoT technolog	825
<i>YanBing Wang, Fang Lv</i>	
A Mechine Learning Approach for Botnet Detection Using LightGBM	829
<i>Dehao Gong, Yunqing Liu</i>	
Countermeasure Against Anti-Sandbox Technology Based on Activity Recognition	834
<i>Jin Yang, Yunqing Liu</i>	
Sports Health Detection System Based on STM32	840
<i>Wei Tang, Liangyan Zheng</i>	

A Dual Knowledge Aggregation Network for Cross-Domain Sentiment Analysis	844
<i>Pengfei Ji, Dandan Song</i>	
Research on Multiple Detection Method Against Mascara Attack	851
<i>Xiaoxiao Du, Yunqing Liu</i>	
Research on Human Pose Recognition Based on Skeletal Information	856
<i>Mingna Xu, Lili Qian</i>	
Research on control of medical permanent magnet synchronous Motor based on fuzzy adaptive fractional order PID	860
<i>JiTe Shi, HuiHui Gu, ChuanDao Shi, TianYi Ma</i>	
Research on the anti-UAV distributed system for airports	
YOLOv5-based auto-targeting device	864
<i>Ruixi Liu, Yuxin Xiao, Zhidong Li, Hanlin Cao</i>	
A solution on cloud and digital transformation for IT system using DevOps yundao platform	868
<i>Lanying Shi, Wensheng Yao, Mengxia Chen, Huan Liang, Yong Chen, Chengwei Yang, Yiquan Jiang, Jiangang Tong, Man Li, Chunhua Chen, Hongming Qiao, Kefeng Yu</i>	
Trajectory Planning Controller Design for Autonomous Vehicles	872
<i>Shuning Jia, Taihua He</i>	
Scheme design of one-stop tracing service center	878
<i>Shen Wang, Zhiqiang Fan, Haiyin Ma, Pan Zhang</i>	
Analysis between different types of smart contract fuzzing	882
<i>Xiang Guo</i>	
Fault Diagnosis of Transformer Circuit Module based on Data Mining	887
<i>Yuqing Ju, Zhuowen Zhuang</i>	
Segmentation of Intervertebral Disc based on Semi-supervised Conditional Generative Adversarial Network	891
<i>Qi Li, Ziyi Li, Siyuan He</i>	
Detection of Cells and Microbes in Microscopic Field Based on Improved YOLOv5	896
<i>Xu Chu, Xiaoyang Liu</i>	
Smart Noise Jamming Suppression Method Based on Target Position Estimation	900
<i>Lei Qiu, Yize Fan</i>	
Human phone usage recognition based on OpenPose	904
<i>Yuyan Li, Jiawen Luo, Jinghao Wen, Yangjia Zhang</i>	
Design of Mixed Reality Assembly System Based on Improved ORB Algorithm	910
<i>Na Lu, YongFei Xiao, Jie Zhao</i>	
A Fusion Neural Network Incorporating Attention for Sensor-Based Human Activity Recognition	916
<i>Limeng Lu, Chuanlin Zhang, Kai Cao, Dao Deng</i>	
Research on urban open space behavior extraction based on semantic segmentation technology	921
<i>Xi Liu, ChenQi Li, Yu Chen</i>	
Feasibility Analysis Of Bone Abnormality Diagnosis Based On Microwave Technology	926
<i>Yafei Jiang, Mengqiu Liu, Teng Li</i>	
Design Method of Universal Modular Digital Target Simulation System	931
<i>Yong Sun, Weiqing Yang, Guangzhao Lu, Jinqing Zhao, Xiaoyue Wang, Jirong Xue</i>	

Consistent regularization and proxy label based bonesemi-supervised point cloud segmentation method	935
<i>Qiu-qing Bai, Meng-xia Sun, Jia-min Jiang, Si-cong Cheng</i>	
AF-Transformer: Attention Fusion Transformer for Facial Expression Recognition	939
<i>Hanning Lu</i>	
Auto Parts Defect Detection Based on Few-shot Learning	943
<i>Jiancheng Xu, Jialei Ma</i>	
A Design Method of Aircraft Simulation System	947
<i>Yong Sun, Jingxiao Zhang, Qiang Zhou, Hongyue Geng, Junqing Cao, Lan Wei</i>	
A Design Method of Three-Dimensional Presentation System for Warhead Fragment Power Field	951
<i>Yong Sun, Yongle Zhang, Guangzhao Lu, Jinqing Zhao, Xiaoyue Wang, Jirong Xue</i>	
A multi-sensor information fusion monitoring system for photovoltaic power generation	955
<i>Xiao Wang, Bo Zhao, Shengxian Cao, Siyuan Fan</i>	
Design of Bionic Robotic Hand Gesture Recognition System Based on Machine Vision	960
<i>Hui Li, Haoqi Guo</i>	
Research on Law of RSSI Fluctuation of Wireless Sensor Networks	965
<i>Qiangwei Xin, Wei Zhang</i>	
Research on salt body recognition based on DeepLab V3 combined with auxiliary classifier and attention module	969
<i>Huiyong Cheng, Zhonghua Ma</i>	
Circle Detection Through Nearest Distance	973
<i>Longsheng Cai, Jinguo Zhang</i>	
Human Body Movement Velocity Estimation Based on Binocular Video Streams	977
<i>Yiheng Cao, Shiqing Fan, Weishi Cheng, Yibing Zhao, Huanqing Zheng, Hongyu Zhao</i>	
GASiam: Graph Attention Based Siamese Tracker for Infrared Anti-UAV	986
<i>Xiaoran Shi, Yan Zhang, Zhiguang Shi, Yu Zhang</i>	
Vision Transformer-based Classification Study of Intracranial Hemorrhage	994
<i>Xian Wang, Zhi Liu, Junting Li, Gengang Xiong</i>	
Discerning Art Works through Active Machine Learning	1002
<i>Zihao Yu</i>	
Evaluation Algorithm of Urban Road Sanitation Quality Based on Machine Vision	1007
<i>Zhenyu Wang, Jiangwei Feng, Xiangsheng Feng, Xingyun Liu, Xiangchao Zhao</i>	
Heterogeneous IoT and data fusion communication algorithms for power distribution station areas	1011
<i>Keguang Yu, Xinhao Lin, Xiangmao Cheng, Xiaoqing Xiao, Bing Zhan, Lei Yu, YinLiang Liu, Quan Xu</i>	
An EEG Feature Extraction Algorithm Based on Adaptive Time-frequency Motor Imagery	1016
<i>Yan Wu, ZhiDa Mao, LiMin Tang, Qi Li</i>	
Research and practice of blended teaching based on TVTHM supported by mobile learning platform	1022
<i>Hui Wang, Hao Peng, ShuangGe Lu, ZhiGuo Wang</i>	
Consensus protocol based on DPOS and aggregate signature	1028
<i>Huiyu Xu</i>	
An Iterative Recovery Strategy based kNN Method to Edit the Data with Label Noise	1036
<i>Baiyun Chen, Longhai Huang, Jialin Peng, Hao Zhou</i>	

Design and implementation of question recommendation system based on deep knowledge tracing	1041
<i>Shuai Guo</i>	
Malware Classification based on a Light-weight Architecture of CNN: MalShuffleNet	1047
<i>Lingfeng Qiu, Shuo Wang, Jian Wang, Yifei Wang, Wei Huang</i>	
Design and Implementation of Garbage Classification System Based on Wechat Mini Program	1051
<i>Xin Liu, Jinglong Li, Wenxiang Li, Jijiang Song</i>	
A Fast Convergence Iterative Interference Alignment Algorithm for Partially Connected MIMO Interference Channel	1056
<i>Yuan Wang, Jia Yuan</i>	
An Dynamic Adaptive Slicing Algorithm Based on Improved Greedy Algorithm	1060
<i>Zhihua Tang, Guohua Chen, Yulin Han, Yurun Zhu</i>	
A multiobjective optimization whale optimization based community detection algorithm	1064
<i>Hongji Zhou, Guoqiang Chen</i>	
Studying the effects of image filters on extracting information reduction in meaningful image encryption	1068
<i>Jinming Chen</i>	
Analysis of nonlinear deformation relationship between steel-plastic grid and membrane structure based on Abaqus software	1075
<i>Yuanyuan Tian, Hongyue You, Zhongying Li, Haixiang Nie, Xiang Ren</i>	
General nonlinear function neural network fitting algorithm based on CNN	1079
<i>Xintao Xu, Zhelong Jiang, Gang Chen, Zhigang Li, Guoliang Gong, Huaxiang Lu</i>	
A Dense Network Community Discovery Algorithm Based on Label Propagation	1083
<i>Riming Wu, Yiliang Han, Kaiyang Guo, Kai Liu</i>	
Image Mosaic algorithm based on improved AKAZE	1089
<i>Lili Qian, Hua Li, Mingna Xu</i>	
A Lightweight Encryption Algorithm for RFID System	1094
<i>Wenhua Cao, Shuqin Geng, Xiaohong Peng, Jingyao Nie, Xuefeng Li, Pengkun Li</i>	
Research on the Development of Programable Packet Scheduling	1098
<i>Yinjie Lin</i>	
Research on edge data Processing security technology in Industrial Internet	1102
<i>Zhengqin Wang</i>	
Research on Heterogeneous Converged Network Handover Algorithm for Mountainous Microgrid	1109
<i>Zhan Shi, Xingnan Li, Zhongmiao Kang</i>	
Book recommendation system based on an optimized collaborative filtering algorithm	1113
<i>Yulin Lu, Yidi Lu</i>	
Traffic sign recognition algorithm based on convolutional neural network	1117
<i>Xiaoxue Zhang, Wei Huang</i>	
Focal Consistency of Virtual Reality Fusion Based on Depth Information	1120
<i>Siyu Lu, Chao Zhang</i>	
Feature extraction method of large-scale landscape tree based on airborne laser data	1124
<i>Lisha Chen, Jiawei Liu</i>	

Research On Lightweight Flame Detection Algorithm Based On Improved YOLOv5	1128
<i>Yilian Yao, Dong Pei, Qi Ren, Tangxu Dan</i>	
Research and implementation of real-time transmission technology for industrial interconnection	1133
<i>Zhen He, Lianghan Ye</i>	
3D Reconstruction Algorithms and Comparison	1137
<i>Zhimeng Chi, Xinru Wang</i>	
Epidemic Data Visualization Surveillance Based on Flask	1147
<i>Mingxuan Wu, Nan Li, Jingjing Jiang, Yao Li</i>	
Research and Implementation of Text Topic Classification Based on Text CNN	1152
<i>Wanbo Luo</i>	
SOLOv2-cable: A Power Cable Segmentation Algorithm in Complex Scenarios	1156
<i>Xinhao Luo, Wentao Zeng, Yilin Chen, Shaohui Liu</i>	
Parameter selection and application on the smoothly clipped absolute deviation method	1162
<i>Qiqiang Yang, Xuemin Zi</i>	
Design and implementation of improved CNN activation function	1166
<i>Yihang Tang, Lu Tian, Yichen Liu, YuJieEr Wen, Keyi Kang, Xiyan Zhao</i>	
Image Super Resolution Reconstruction Algorithm Based on Strong Constraint	1171
<i>Shuaibing Shi, Min Li</i>	
Improved Simulated Annealing Algorithm for the Scheduling of Hybrid Flow-shop Problem	1176
<i>Wenxin Wang</i>	
Gesture recognition method for placement task in VR environment based on improved xgboost algorithm	1180
<i>Liping Zheng</i>	
Design of Online Course Patrol System Based on Region of Interest Coding	1185
<i>Wenyue Li, Lingchun Meng</i>	
Research on end-to-end binocular stereo matching algorithm based on image segmentation	1189
<i>Yajuan Tian, Lei Yin, Wenwen Chang, Xinjian Qiang</i>	
K-Pointer-Network for Express Delivery Routes Planning	1193
<i>Xuyi Zheng</i>	
High-capacity Reversible Data Hiding for Encrypted Videos Based on Multi-domain Embedding	1198
<i>Pei Chen, Yangping Lin, Feng Qiu</i>	
Approximate Algorithm and Empirical Study of L1 Principal Component Analysis based on Weighted Least Squares	1202
<i>Xingkai Wen, Xinghao Jin</i>	
Research on Detecting and Tracking Algorithm of UAV Intrusion Based on YOLOv5+DeepSort	1209
<i>Huaizhou Yang, Yujie Ge</i>	
Multi angle location and identification method of suspension insulators based on R2CNN algorithm	1213
<i>Chao Hou, Yuchen Xing, Ziru Ma, Haifeng Liu, Shaotong Pei, Rui Yang, Zhilei Li</i>	
CSNet-PGNet: Algorithm for Scene Text Detection and Recognition	1217
<i>Guanjin Li</i>	
An Adaptive Gradient Descent Optimization Algorithm Based on Stratified Sampling	1225
<i>Yajing Sun, Aixiang Chen</i>	

Panoramic Depth Estimation Algorithm Based on Attention Module	1232
<i>Yihan Yang, Chao Zhang, Yiwu Zhao, Yong Zhang</i>	
Pointer Network Solution Pool:	
Combining Pointer Networks and Heuristics to Solve TSP Problems	1236
<i>Chenxu Shi</i>	
Visual Object Tracking: Algorithms and Prospectives	1243
<i>Jiehao Yuan</i>	
Light field structured light projection data generation with Blender	1249
<i>Xinjun Zhu, Zhizhi Zhang, Linpeng Hou, Limei Song, Hongyi Wang</i>	
Author Index	