2024 6th International Conference on Electronics and Communication, Network and Computer Technology (ECNCT 2024)

Guangzhou, China
19-21 July 2024

IEEE Catalog Number: CFP24TZ7-POD
ISBN: 979-8-3503-6615-0

Copyright © 2024 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: CFP24TZ7-POD
ISBN (Print-On-Demand): 979-8-3503-6615-0
ISBN (Online): 979-8-3503-6614-3

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

Table of Contents

Design and verification of the propulsion system for land exploration satellite 4 1

Ze Li, Fuzhi Wei, Zheng Peng, Yunhua Ma

Automatic radar calibration method based on UAV 7

Ying Zhai

Offset Parameter Optimization Method of Large-Scale Satellite Constellations Cooperative Observations on Area Targets 12

Xinhu Qi, Xiaodong Liu, Zhijie Hu, Yanbin Chen, Yanning Zhang

Distributed source coding for the Quantum Communication 20

Hui Chen, Lizhen Wang

Estimation of Propagation Graph Model Based on BP Neural Network 24

Yunfei Xu, Rongchen Sun

Design and Simulation of 8-bit SAR ADC 28

Shengzhe Jiang

The GNSS Blind Anti-jamming Method Based on Simulated Annealing Algorithm 34

Zhenxing Xu, Huizheng Wang, Feifei Zuo, Yuan Wang, Yufeng Wang

An Improved Algorithm Based on Adaptive IMM-UKF Application in Underwater Three-Dimensional Dynamic Target Tracking 39

Xiaochao Zhang, Wei Gao, Shiqi Zhang

Design and Implementation of S/Ka broadcasting distribution System 46

Guangzijian Yang, Xiaoguang Liu, Jing Lei, Jianjun Cao

Research and implementation of optical cable line fault location assistant system based on GIS 52

Chenwei Liu, Yu Shen, Guijin Xia, Jinzhi Ran

Hyperspectral image denoising based on low-rank matrix decomposition image prior 56

Zhongqiang Xiao

Miniaturized ultra-wideband filter with triple baud characteristics 60

Hua Jin, Jingchang Nan

Design and simulation of invalid services restoration scheme based on services weight in optical cable network 64

Zeyu Yang, Jinzhi Ran, Chushan Lin, Zilei Cheng

Photovoltaic Power Generation Forecasting Using VMD-KELM Based on DBO 68

Zhaoyu Li, Xiang Li, Zeyi Huang, Bo Lu, Siqi Li, Dongsheng Xu

Multi-exposure Laser Spot Image Fusion Dataset for Simulated and Real-World Scenes and A Laser Spot Shape-Aware Fusion Algorithm 73

Tengyu Ma, Zhitian Chen

UAV Communication and Localization Network Deployment for Content Distribution in Emergency Scenarios 78
Kailiang Wang, Ran Yu, Donghui Zhang, Yuhao Zhang, Jie Lu, Xinyu Yu, Baoxia Men, Yi Zhang, Yutong Ji

An Adaptive UAV Localization Network Deployment for Emergency Rescue Scenarios 86
Donghui Zhang, Kailiang Wang, Ran Yu, Yuhao Zhang, Sirui Pang, Wenke Chen, Jiaojiao Zhang, Fang Shen, Xinyu Yu

Simulation design and testing of spacecraft temperature measurement system 91
Yinxue Yan, Xi Zhu, Dongxing Tao, Yao Feng

Video Action Recognition Model Based on Local and Global Spatial-Temporal Feature 96
Rongsen Wu, Jie Xu, Yuhang Zhang, Zixuan Li, Yiyao Li, Shixue Cheng

Radiation Characterization and Evaluation of Airborne Environmental Telemetry Antennas 100
Xing Di, Jinxing Wu, Hanyang Li

A Noise Reduction and Distance Measurement Algorithm for FMCW Radar Based on Weighted Normalization 104
Xiaohang Ma, Yiyue Gao

Weighted fusion method of multi-station radar data based on outlier suppression 108
Chenyu Wang, Jianjun Chen, Hongxing Ge

Research on Sage-Husa Based Positioning Method for Maglev Trains 113
Qian Hu, Kuangang Fan, Wenlong Cai

Research on precise positioning method for underground personnel in coal mines based on UWB 117
Peng Jiao, Junchao Zhang, Yuechang Zuo, Zhipeng Lei, Lijun Zheng, Jiancheng Song

Analysis and Research on Bandwidth Prediction Demand for Backbone Transmission Networks in a Certain Region 121
Youke Zhang, Dandan Zhang, Guangwei Jia, Jing Ning, Chuang Liu

Nonconvex optimized model for impulse noise removal based on primal-dual algorithm 126
Yingying Li

Research on intelligent highway tunnel ventilation system based on vehicle identification technology 130
Lixia Yan

Specific Emitter Identification of ADS-B Signal Based on Mamba 136
Liu Yang, Xiaofang Wu

Multi-View subspace clustering algorithm based on spatiotemporal attention 142
Liping Chen

Microwave Photonic Channelized Receiver Based on Optical Frequency Comb and Dual Output Image-Reject Mixer 146
Jialu Zhao, Yongfeng Wei, Qingji Meng

Research on Targeted Release Technology of Dynamic Traffic Information Based on Mobile Phone Signaling Data 150
Haitao Huang, Tao Wang, Zandi Shang, Jiandong Cao

Analysis and Design Approach for Array Fed Reflector Antenna 154
Siyao Zhang, Jinwen Shi, Xingang Zhang, Long Zhang

Research on Eliminating Redundancy in Electricity Information Transmission Based on Artificial Neural Network Algorithm 158
Ligui Tao, Yuhuai Zhou, Zhihao Su, Hanhua Cao, Huanping Zhang

Optimization of MPSK signal threshold denoising method based on wavelet transform 162
Linlin Fan, Zhigang Gu, Hao Qi, Yan Fang

Anti-interference Integrated Combined Navigation Technology for High-precision Miniaturized Aircraft 167
Xiaojie Shi, Kunyu Tao, Junjie Yang, Wei Zheng, Ruiyue Wang

Intelligent fault root cause localization for 5G message Platform 172
Ying Tong, Xiang Jia

Stability and Anomaly Analysis of RC Circuits under Disturbance Conditions Based on Deep Learning 177
Binyu Lai, Xinyun Li, Nuoyi Qin, Boyi Zhang

Case design of digital circuit experiment based on through-type teaching 182
Ce Fu, Weihang Sun, Jianqiao Liu, Di Wu, Wen Nie

Adaptive Fault-Tolerant Visual Control For Electrically Driven Robotic Manipulators Using An Uncalibrated Camera 186
Zhitian Chen, Guanyu Lai, Liang Li

Anomaly Detection for Multivariate Times Series Data of Aero-engine Based on Deep LSTM Autoencoder 190
Guoqing Zhu, Lin Huang, Dongliang Li, Li Gong

Design of a Low Power Code Reader Based on Embedded Devices 195
Renchao Pei

A Power Load Forecasting Model Based on CNN-LSTM-Attention 199
Yumeng Zhang, Haoxiang Cao, Zhaofan Zhou

A Target Detection Algorithm Suitable for Embedded Devices 203
Zhibo Wang, Shengjie Zhou

Real-Time R-Wave Detection Algorithm for ECG Signals Based on Feature Enhancement 207
Sikai Guo, Huibin Wang, Ke Xu, Wenping Chen

Research on CLOVER-2000 Signal Detection Technology Based on Spectrum Template and Multi-tone Merging 212
Ruokun Wang, Qin Zhang, Xiaodong Wu

Towards Continually Evolved Heart Sound Classifiers with Class-Incremental Learning 218
Zhongyu Luo, Sijie Wang, Junjie He, Aiguo Wang

Internal short-circuit detection of Li-ion battery based on EIS and Elman Neural Network 223
Yanbang Chen, Jingxiao Zhu, Bokang Ding

Simulation and thinking of QPSK modulation and demodulation 228
Xuenan Liang, Binnian Wang, Delong Li, Dong Liu

Obstacle detection technology for unmanned transportation devices for medical inspection samples 233
Zhiqi Lang, Wenkai Wu, Hantao Zhao, Qi Li, Shen Dong

Analysis of conduction emission test based on Motor assembly 238
Guangfu Liu, Wei Hao, Ruohao Wang, Haijun She

Characterisation of typical disturbances in electrical fire monitoring systems in heritage buildings 242
Xiaobai Li, Chao Sun, Hongjun Ding, Yu Shao

A Method for Face Expression Forgery Detection Based on Reconstruction Error 246
Yutong Liu

Detection Methods of Hardware Trojans Based on DBN and QPSO-OCSVM Anomalous Behavior Analysis 250
Lei Zhang, Tianyu Zhang, Chaoen Xiao, Jianxin Wang, Dongyang Liu, Ding Ding

Minimizing Sampling Jitter by the Design and Implementation of a Phase-Trigger DSO on FPGA 256
Bilal Moussa, Kabalan Chaccour, Rachid Bouyekhf, Abdallah Abdallah

Research on Stock Prediction Based on PCA-GA-BP Modeling 262
Fengdi Li, Desheng Shi, Nannan Wang, Zhizhong Wu

Analysis and research of electromagnetic environment based on axle current disturbance of new energy vehicles 266
Meilan Liu, Ning Jiang, Tingkang Chen, Xiucan Li, Guangfu Liu

Improving High-Voltage Line Obstacle Detection with Multi-Scale Feature Fusion in YOLO Algorithm 270
Weichao Pan, Wenqing Huan, Lixian Xu

LFEMSFF: A Basketball Posture Detection Model Combining Local Feature Enhancement and Multi-camera Spatio-temporal Feature Fusion 274
Wenyue Liu, DENISE KOH CHOON LIAN, Zhihao Zhang, Jianguo Qiu

Performance Optimization of 4H-SiC MBL MPS Diode 279
Bolin Liu, Zaixing Wang, Jiachi Jiang, Linchang Wang, Bingqi Wang, Yi Cai

A method of insulator break detection based on multimodal information fusion 283
Xiuxiao Guo, Zhenli Wang, Yan Li, Yang Li, Dongsong Li, Zhaoxin Jia, Lei Wang

Bridge damage identification based on bridge finite element model and Transformer 287
Yuyu Meng, Feng Chen, Jiuyuan Huo

Detection of motorcycle helmet wearing in complex traffic environments based on YOLOv8 292
Zhaozhang Ouyang, Jeffrey S. Sarmiento

Simulation Analysis of Electric Field Changes in High Voltage Bushing under Typical Faults 296
Zhifei Yang, Manling Dong, Qilin Wang, Lei Guo, Shengqiang Zhang, Xinyuan Hong

Design of a Spring Boot-based Safety Grading Evaluation System for Industrial Robots 301
Linyu Gu, Zhongwei Li, Wenqi Jiang, Xianji Jin, Wennhao Liu

Research on Road Disease Detection Algorithm Based on Improved YOLOv5s 305
Xili Yang, Hu Sheng, Na Geng, Wenqiang Li

An accuracy estimation method for line detection based on transient information in non-effectively grounded system 310
Jinzhao Song, Zhanying Tong, Chunhui Zhang, Guoqiang Zu

Research on bacon smoking control system based on Fuzzy PID algorithm 315
Honghao Chen, Hua Luo, Yu Gu, Wenbin Gong, Yutao Jiang, Siyun Tan

Simulation Study of 4H-SiC MPS with Sidewall Trench Oxide and P- Region 319
Yi Cai, Zaixing Wang, Jiachi Jiang, Linchang Wang, Bingqi Wang, Kongting Wei

Heterogeneous graph representation combined with LSTM for predicting RNA–protein interactions 323
Danyu Li, Jiedong Xie, Jiyuan Chen, Yunci Ma

Optical Gas Sensor Based on MEMS Technology is Used for Gas Detection 327
Zhiliang Cai, Jieming Huang, Xuexuan Yao, Jianlei Feng, Yuxin Li

Performance Optimisation of 4H-SiC Semi-Superjunction MPS Diodes 332
Bingqi Wang, Zaixing Wang, Jiachi Jiang, Yi Cai, Linchang Wang, Bolin Liu

Design and Implementation of Frequency Hopping Signal Detection System Based on FPGA+DSP 337
Jiaan Zhang, Yingke Lei, Jin Wang, Yourui Wang, Bisheng Pan, Feng Qian

Research and Implementation of a Novel Dynamic K-value K-best Detection Algorithm 342
Xinwei Li, Wei Chen, Zhuhua Hu

DOSDet: A sequential feature enhancement network for Deck Oil Spill Detection 348
Haocheng Zhang, Fei Chen, Hongjun An, Yubo Ma, Zhihui Zheng, Shuyu Yue, Bowen Liu, Jiale Tong, Yunpeng Wang, Dengkai Hou

Analysis of a TE11 to HE11 mode converter for a Ka-band corrugated horn 354
Jingtao Li, Donghui Xia, Wentao Geng

Small target vehicle detection algorithm based on YOLOv5s 359
Zhensan Bao, Yu Bai

Real-time Tracking and Monitoring System with Geofence Notification for Garbage Collection Vehicles 363
Emmanuel Antonio M. Alvarico, Fausto Antonio I. Arricivita, Febus Reidj G. Cruz

Design and implementation of parallel cancellation technology based on LMS algorithm 369
Guang Lin, Xiaochen Wang, Huai Wang, Zhuo Han

Privacy-preserving Pseudonym Schemes for Personalized 3D Avatars in Mobile Social Metaverses 375
Cheng Su, Xiaofeng Luo, Zhenmou Liu, Jiawen Kang, Min Hao, Zehui Xiong, Zhaohui Yang, Chongwen Huang

Research on Network Security Situation Assessment Based on Improved Gradient Boosting Algorithm 381
Tengteng Wang

Handwritten Signature Verification for Inspection Report of Special Equipment Based on Improved GANomaly 388
Huaping Ren, Heng Luo, Jingbo Fu, Chunyu Yan, Zhangjian Wang

Research on fast capture algorithms for PMF-FFT 395
Jiaming Wang, Weicheng Yu, Yiwei Peng, Pengcheng Yin, Bo Huang, Ye Xie

Credibility evaluation of FANET simulation system 399
Xian Xiao, Xu Li, Ying Liu

Lightning Nowcasting Based on Depthwise Separable Residual Convolution with Attention Mechanism By Using Multisource Data 405
Dan Xie, Fei Luo

Research on GRAPES semi-implicit semi-Lagrangian computation optimization based on CPU+GPU heterogeneity 411
Zhengsheng Ning, Jianqiang Huang, Haodong Bian, Zhanjie Tan

An improved regularization Parameter adaptive NAS-RIF algorithm for blind image restoration 418
Wei Lu, Qi Sun, Aishu Li

Study on the Performance of MIMO-FSO System under the Condition of Log-normal Distribution 422
Yuetao Du, Haodi Yin, Mengqi Xie, Song Zhang, Yan Gao

A Linkable Ring Signature Scheme on Lattice from DualRing 426
Jianing Kang, Fengtong Wen

Design and implementation of centralized time-sensitive network controller cluster system 431
Xuyang Zhao, Jun Zhu, Wenjiao Yang, Donghui Lu

A 5G RCS System Optimization Method for Large-scale Users 437
Xiang Jia

Image steganography scheme based on 3D chaotic sequence and prediction error 443
Man Zhou, Lingzhi Zhou, Xunming Zhou, Qing Liu, Yuan Yuan, Mengyao Li, Wanning Zhun

A Machine Learning-Based Approach for Performance Prediction and Optimization of Network-on-Chip Designs 447
Jiapeng Zhu, Leran Wang, Haoran Teng, Wenxin Xu, Guozhu Liu

Ambient IoT: Insight and challenge of enabling technologies for future study 451
Rongling Jian, Yu Ding, Miao Qu, Jie Miao, Xiaoyong Tang, Wenwen Huang, Yincheng Zhang

Twin-T Network Oscillator Based on Knowm Memristors 459
Leixin Zhang, Xuefang Xiao

Multi-Object Tracking Algorithm Based on Improved ByteTrack 463
Zixuan Liu, Fang Li, Linjing Hou, Yuhang Shi

Federated reinforcement learning-driven offloading strategy for edge computing 467
Xiao Chen

Color constancy calculation based on improved UniRepLKNet 471
Xiang Li, Tong Li

Design and implementation of a web crawler system for the vertical field of the Internet of Things 475
Xuewei Liu, Bo Xu

Joint Throughput and Power Optimization for mmWave Integrated Access and Backhaul Networks 479
Mengxin Yu, Yunfeng Fan, Yang Jin, Yi Ouyang

Predicting Momentum: A Model Based on Wavelet Neural Network and PSO Algorithm 484
Xinxuan Li

PLGCA: A Progressive Local-Global Context-Aware Semantic Segmentation Network for Crop Remote Sensing Mapping 491
Xuedong Zhai, Wenting Han, Xiaoxian Li, Shenjin Huang

HFEM: An Hybrid Feature Encoding Module by utilizing spatial and morphological characteristics for improving the diffusion model of medical imaging 496
Linfeng Xie, Wujian Ye, Yijun Liu, Yue Wang

A Deep Reinforcement Learning Approach with Heuristic Optimization for Resource-Efficient Task Offloading in Mobile Edge Computing 500
Yanggai Liu, Zeyu Hou, Ke Lin, Lin Li

Design and implementation of fault reconfiguration system based on MQTT 505
Wenjie Ye, Houpeng Wang, Suzhi Cao, Lei Yan

InterHandNet: Enhancing 3D Interacting Hand Mesh Recovery through Inter-hand Feature Extraction 510
Han Bi, Ge Yu, Yu He

Back Propagation neural network model for railway risk warning 515
Baofu Duan, Yunqian Yang, Zhe Jing, Yuguan Wei, Anni Chu, Liankai Bu

A deep reinforcement learning scheduling algorithm for heterogeneous tasks on heterogeneous multi-core processors 519
Qiguang Tan, Wei Chen, Dake Liu

Research on the Digital Restoration of Female Hero Images in Shandong Red Films 524
Qingshuang Dong, Guangran Zhong, Bing Wu

Enhanced Document Segmentation at Paragraph Level 528
Jiafu Ma, Sai Han, Shiwei Ye, Guangquan Wang

RTRL: Efficient Real-Time Task Scheduling in Heterogeneous Clusters Based on DRL 536
Yong Long, Zeyang Zhang, Tian Luan, Zhijian Wang

Study on Robot Route Planning using an Enhanced Ant Colony Optimization Algorithm 545
Xiaoxiang Xia

Design and Implementation of GeoCloud Monitoring Platform based on Multi-Tier Cloud Service Model 550
Bowen Li, Yongzhi Wang

Detail-enhanced video-based super-resolution networks 556
Jidong Wang, Wei Chen, Zhuhua Hu

Design of FPGA-Based Reconfigurable Hardware Acceleration System 561
Linchang Wang, Zaixing Wang, Jianwu Dang, Chao Dang, Yi Cai, Huiji Shi

Automated Monitoring Method for Enterprise Microservices Network Operation Status Based on Database Knowledge Graph 567
Qidi Hu, Yujiang Long, Ye Zhong, Guangyi Zhang, Wei Wei

Research on template discovery technology for multi-source heterogeneous log fusion 573
Wuqiang Shen, Zheheng Liang, Yechao Wang, Lei Cui, Chaosheng Yao, Ge Jin

Author Index 578