

2024 8th International Conference on Communication and Information Systems (ICCIS 2024)

**Shenzhen, China
18-20 October 2024**



**IEEE Catalog Number: CFP24OAA-POD
ISBN: 979-8-3315-3118-8**

**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:	CFP24OAA-POD
ISBN (Print-On-Demand):	979-8-3315-3118-8
ISBN (Online):	979-8-3315-3117-1
ISSN:	2837-4916

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

2024 8th International Conference on Communication and Information Systems (ICCIS 2024)

Table of Contents

Preface.....	vii
Conference Committee	viii

✦ Advanced Signal Theory and Processing Methods

Hierarchical Map Generation Considering Place Concept and Object Recognition for Household Assisting Robot.....	1
---	---

Bin Zhang, Haruki Ozawa

Data Rearrangement Optimized FIR High-Pass Filter Implemented on FPGA	6
---	---

Guangbin Li, Wendong Yang, Zhaoping Zeng, Yutang Li, Chunlin Li, Mingqiang Huang, Liangtao Yang, Jinglong Wu

Adaptive Threshold of Compressed Sensing for AUD	11
--	----

Yuan Luo, Haoyue Sun, Jiaojiao Dang, Guangfen Wei

Modeling Pet Compatibility: A Quantitative Approach to Evaluate Household Suitability for Pet Ownership	16
---	----

Yiqun Gui, Zhiqian Li, Junyang Xiao, Yihong Xu, Kai Yang

High-Sensitivity Mach-Zehnder Interferometer for Precise Seawater Temperature Measurements Using No-Core and Seven-Core Fibers.....	22
---	----

Junyu Wei, Aoyan Zhang, Minghui Niu, Chenlong Xue, Jiaqi Hu, Gina Jinna Chen, Ping Shen

Learning Unified Model for Sleep Health Monitoring	27
--	----

Gaohan Ye, Zhi Lu, Dongheng Zhang, Fang Zhou, Ruiyuan Song, Lingjie Shu, Yu Pu, Yan Chen

✦ Digital Communication and Signal Processing

Novel Soft Spread Spectrum with Unequal Probabilistic Spreading codes against Clustering-based Blind Despreading	33
--	----

Wenhao Huang, Shengqiang Li, Jian Yu

Anti-Drone Systems and Assessment of Their Launch Coverage	38
--	----

Haowei Wang, Jingguo Sun, Zhangyuan Ji, Hewei Li, Jiancun Zuo, Xiaopu Yu

A Study of DS/FH Hybrid Spread Spectrum Signal Synchronization Technique under High Dynamics	43
<i>Biyi Liao, Yong Wang, Xianren Kong, Wei Lu</i>	
A Low-PAPR Scheme for Millimeter-Wave Communication Systems Based on Neural Network.....	49
<i>Li Hou</i>	
UCB Algorithm Based Decision Making Method for Edge Computing Tasks Offloading.....	54
<i>Nan Ding, Jianping Wu</i>	
Adaptive Aggregation in Clustered Federated Learning for Wireless Networks	61
<i>Tong Liu, Haitao Zhao, Chongyu Bao, Siyang Wang, Wenchao Xia</i>	
A Novel Wireless Capacity Prediction Algorithm Based on GCN-GRU Combining Surrogate Model-based Optimization	66
<i>Yuxiang Zhao, Hongqiao Gao, Haifeng Wang, Li Yu, Hulei Fan</i>	
Design on a Compact UWB Antenna with Triple Band-notched Characteristics.....	72
<i>Jia Wang, Wendong Yang, Xiaokui Ren, Xi Cheng, Xun Zhao, Jingchang Nan</i>	
+ Data Transmission and System Models in Communication Systems	
Resource Allocation for Hierarchical Service Assurance in NOMA-Assisted Network Slicing with Finite Blocklength Communication	77
<i>Siyu Yuan, Qixuan Zhang, Songtao Gao, Qin Si, Hailun Wang</i>	
Optimized Mapping and Hybrid Transmission Integrating TAS and CQF in TSN	82
<i>Yixin Wu, Weiqiang Pan, Zhuoxing Chen, Meng Wang, Yiqin Lu, Jiancheng Qin</i>	
Inter-Satellite Routing Algorithms for Dual-Layer Low Earth Orbit Satellite Internet.....	89
<i>Pao Cheng, Ping Du, Yueyue Zhang, Mingji Dong, Yu Liang, Yu Zhu</i>	
Linear Attention Based Channel Estimation Scheme for V2X Communications.....	96
<i>Qian Yao Fu, Hongjie Yuan, Yahui Hou, Xianghui Shen</i>	
Conditional Diffusion Model for Anti-Interference in Train Satellite Navigation Receiver Signals	102
<i>Zhiwei Zhang, Yinghong Wen, Jinbao Zhang, Dan Zhang, Jie Ren</i>	
KKT-Based Analysis of Capacity-Distortion Tradeoff in Integrated Sensing and Communication System	107
<i>Ziqiang Gao, Xiong Deng, Xihua Zou, Wei Pan, Lianshan Yan</i>	
+ Emerging Network Technologies and Information Security	
Conjunctive Dynamic Searchable Encryption Scheme for Smart Grid Data in the Cloud.....	112
<i>Yijing Zhang, Dejiang Su, Yun Zhao, Haolin Wang, Ziwen Cai, Yuxin Lu</i>	
Research on Intrusion Detection Model Based on Filter Feature Selection Algorithm.....	120
<i>Qingjie Liu, Yong Li</i>	

Research on 5G Communication System Transmission Scheme Through Penetrations in Reactor Buildings of In-service Nuclear Power Plants	126
<i>Jia Meng, Li Biao Yang</i>	
Phishing Recognition Software based on Machine Learning	134
<i>Zheng Gao, Gabriela Mogos</i>	
Comparison of Different Partition Clustering Algorithms under the Network Flow Detection Scenario	140
<i>Zhe Bu, Shuaichen Ye</i>	
Optimization of Monitoring and Scheduling Strategy for Distributed Docker Cluster	145
<i>Liangbin Zhang, Shibin Liang, Yuanming Wang, Xinwei Liu</i>	
A Semantic Communication System for Real-time 3D Reconstruction Tasks.....	150
<i>Jiaxin Zhang, Luosong Guo, Kun Zhu, Houming Qiu</i>	
+ Intelligent Information System Design and Management	
An Empirical Study on the Usability of Melden: A Crowdsourcing-Based Mobile Crime Reporting Application Using the PACMAD Model	156
<i>William P. Rey</i>	
Centralized-Decentralized-Hybrid Student Attendance Management System with Trust Regulation	163
<i>Amogh Katti, Dinesh Samal, Vamshi Krishna, Anshuman Singh, Sohan P, Sudeep Kadavil</i>	
Application of Computer Vision for Efficient Maintenance of Cleanliness and Order in Commercial Areas: An Invention Approach for Automated Management in Commercial Zones.....	170
<i>Jesus David Villon Llacta, Wiler Yosef Hurtado Simeon, Jorge Martin Vega Rosales</i>	
AquaPulse: Leveraging Artificial Intelligence for the Comprehensive Management of Frontosa Freshwater Aquarium.....	177
<i>William P. Rey, Kieth Wilhelm Jan D. Rey, Althea Jodie B. Labayan</i>	
Design of high output DC/DC boost circuit without boost transformer.....	185
<i>Qin Hong, Liang Zhou, Zhongning Jia, Chun Liu, Jianbo Liu</i>	
+ Intelligent Image Processing and Monitoring Applications	
Real-time Monitoring of Bicycle Behavior in IoT Fall Detection System	191
<i>Paulino III M. Alcaide, Kaizley D. Finez, Glenn V. Magwili</i>	
A Node Importance Evaluation Method Based on Graph-Transformer.....	197
<i>Xiansheng Yang, Jian Shu</i>	
Two-Stage Nighttime Desnowing Diffusion Model Based on Pseudo-Scenario Reconstruction.....	203
<i>Huajing Li, Bin Wang, ZeKun Chen, Lei Zhang, ShiLi Liang, SiJia Guo</i>	

Implementation of Yolov5-Based Camera on Bicycle for Collision Prevention	208
<i>Marc Chipper T. Cruz, Charles Renier A. De Castro, Mary Ann E. Latina</i>	
✦ Intelligent Robots and Path Planning	
Application of an Advanced Dijkstra Algorithm for Automation Systems of 3D Piping Routing	213
<i>So-Won Choi, Eul-Bum Lee</i>	
Deep Learning Algorithm-Based Prediction of Maximum Layer Height in Ionosphere F2	218
<i>Wenyu Yang, Xuekun Chen</i>	
A Novel Path Planning Algorithm for Multi-Agent Collaboration in Finite Space	223
<i>Yihan Xu, Tian Cao, Xiaotong Shi</i>	
Atr loitmBaeo Deluy Trangulation and Its Improvement	228
<i>Wenyu Li, Senchun Chai</i>	
ViperBot: The Nature-Inspired Rescue Robot for Disaster Operations.....	235
<i>Vidura Wickrema, Udaya Dampage, Sumudu Edirisinghe, Dulmi Wijesinghe, Evans Weerawadana</i>	

Author Index