

# **2022 IEEE 5th International Conference on Electronics and Communication Engineering (ICECE 2022)**

**Xi'an, China  
16-18 December 2022**



**IEEE Catalog Number: CFP22BWB-POD  
ISBN: 978-1-6654-8790-0**

**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:	CFP22BWB-POD
ISBN (Print-On-Demand):	978-1-6654-8790-0
ISBN (Online):	978-1-6654-8789-4
ISSN:	2831-4301

**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

## 2022 IEEE the 5th International Conference on Electronics and Communication Engineering (ICECE)

<b>Preface</b> .....	viii
<b>Conference Committees</b> .....	ix

---

### Communication and Signal System

Dynamic Resource Allocation for All-Optical Multicast in Space Division Multiplexed Elastic Optical Networks .....	1
<i>Qiang Sun, Yue Zhao, Xin Yang, Weiqi Li</i>	
Research on Packet Pilot Multiplexing and Encryption Strategy in 5G MIMO System .....	7
<i>Yongliang Jia, Peng Tao, Chao Zhang, Bingyu Zhang, Xinghan Pan</i>	
An Implementation of Crest Factor Reduction for Sub-6GHz 5G-NR Transceivers.....	12
<i>Peng Jin, Junyan Zhang, Dapeng Wang, Nan Li, Leibo Liu</i>	
An Empirical Model for 1-D Molecular Drift-Diffusion Communication Channels under Reflecting and Absorbing Boundary Conditions.....	16
<i>Saqer Alhloul, Uri Rogers</i>	
Design of Intelligent Frequency Hopping Anti Continuous Change Jamming System Based on Migration Learning .....	21
<i>Jingyu Zhao, Jianquan Wang, Wanbin Tang, Shanglin Liu</i>	
Configuration Mechanism of Software Defined Chip Applied in Signal Processing.....	25
<i>Yu Li, Hao Chen, Huizhu Zhu, Rongyang Wang, Guiqiang Peng, Shaojun Wei, Leibo Liu</i>	

### Satellite Communication and Network Architecture Design

Constant False Alarm Rate Frame Detection Strategy for Terrestrial ASM/VDE Signals Received by Satellite....	29
<i>Haosu Zhou, Wenbin Lu, Yipeng Shi, Zhenfu Liu, Liu Liu, Ningfei Dong</i>	
Research on Key Technologies of Satellite Mobile Communication System.....	34
<i>Jun Zheng, Ru Wang, Qiang Li, Xinglong Wang</i>	

Outage Performance for Aeronautical Satellite OFDM-IM System .....	39
<i>Houssein Boud, Raveendra K. Rao, Quazi Rahman</i>	
Design of a Digital Twin for Spacecraft Network System .....	46
<i>Zhenhao Zhao, Feng Wang, Yanchao Gao, Tao Li, Le Ying, Wudi Liang, Yaonan Li, Zhanmin Dong</i>	
Applications of Capacity Enlargement and Traffic Management Control in Hybrid Satellite-Terrestrial 5G Networks .....	51
<i>M. Mourad Mabrook, Aziza I. Hussein</i>	

## **Mobile Communication and Data Network**

Design of Secure Pilot Spectrum for 5G Oriented Massive MIMO System .....	56
<i>Jiangfei Chen, Qiang Sun, Rui Wang, Changchao Wei, Weite Liu, Xinghan Pan</i>	
A Coarse-Grained Reconfigurable Array Based Ethernet Reliable Transmission Design.....	61
<i>Yu Li, Feng Xu, Zhou Yang, Yulong Luo, Tuo Xie, Guiqiang Peng, Leibo Liu</i>	
Mobile Networks Classification Based on Time-Series Clustering.....	65
<i>Shun Lu, Bing Qian, Long-gang Zhao, Qiong Sun</i>	
Studies Documenting the Components Associated with Instagram Influence: A Review of the Scientific Literature .....	72
<i>Katherine Valeria Salazar-Vegas, Adriana Margarita Turriate-Guzmán</i>	
An Improved Leach Algorithm Based on Hierarchical Clustering Approach for Wireless Sensor Network Application.....	78
<i>Amhmed Bhih, Walid Abushiba, Adel Elashheb</i>	
Effects of Fake News Related to Electoral News Disseminated on Social Networks over the Last Five Years in Iberoamerica: A Systematic Review of the Scientific Literature.....	84
<i>Cynthia Lizzeth Afaraya-Sinacay, Adriana Margarita Turriate-Guzmán</i>	
Virtual Network Embedding Reconfiguration Problem of Time-Varying Traffic Problem in EONs.....	89
<i>Der-Rong Din</i>	

## **Computer Network and Multimedia Application**

Social Media Influencers and Their Impact on Consumer Behavior: A Systematic Review of the Scientific Literature .....	94
<i>Viviana Nicole Mendoza-Moreno, Adriana Margarita Turriate-Guzmán</i>	
A URL-Based Computing Power Identification Method .....	99
<i>Wenjuan Xing, Guozhen Dong, Nan Wu, Bo Lei</i>	

Adaptation of Conventional Movie Consumers to Streaming Movie and Series Platforms during Lockdown: A Systematic Literature Review from 2019 to 2021 .....104

*Richard Yassir Huasasquiche-Carbajal, Rosa Anabel Quiroz-Villavicencio, Adriana Margarita Turriate-Guzmán*

A WebGIS Solution for Effective Investment Promotion for Investors: A Case Study in Gia Lai Province, Vietnam.....109

*Nguyen Ngoc Phien, Thuy-Van T. Duong*

Distribution of Audiovisual Content on Digital Platforms in Ibero-America: A Systematic Review of the Scientific Literature .....114

*Fatima Marcela Ascuez-Valero, Adriana Margarita Turriate-Guzmán*

Hierarchical SDN Multi-controller Placement Strategy Based on Improved Aquila Optimizer .....119

*Xiaodi Chai, Hui Xu*

## **Electronics and Communication Engineering**

Improving UWB Ranging Accuracy via Second Order Motion Prediction .....125

*Xingyuan He, Guangwei Xing, Xiaoxuan Chen, Sheng Zhong, Hangzai Luo*

Design of Ka-Band Tree-Shaped Fractal Millimeter Wave Antenna .....131

*Youqing Lu, Jinbing Jia, Wei He*

An Extensive Survey on Short-Wave Vehicle Full-Loop No-Blind-Area Antenna.....135

*Chen Jundong, Wang Peng, Feng Xiaoyun*

Computation Rate Optimization for RIS-Assisted Multi-server MEC System.....139

*Chen Liu, Wensheng Zhang, Yongwei Wang*

IPSO-BP Power Quality Disturbance Identification Method Based on Feature Screening .....144

*Chaojun Li, Yinfei Xu, Xiaodan Deng, Junxia Zhang, Zhaocheng Han, Qin Xu*

## **Modern Electronic Information Technology and Application**

A Double-Balanced I/Q Mixer with a Fully Differential Transformer-Based Quadrature Generation Network in CMOS Technology .....149

*Xiang Huang, Liguang Sun, Dongwei Pang, Mingjie Liu, Jie Liu, Haiqiang Guo*

Pre-silicon Memory Validations.....154

*Lim Kae Yih, Ch'ng Pei Chun, Lee Ching Yee, Moiseev Mikhail, Ngo Seow Yin, Ang Boon Chong, Koay Say Beng*

A High-Linear Rail-to-Rail Class-AB PGA with Transconductance Compensation Based on Common-Mode Detection.....	159
<i>Wenbo Yao, Xiaotian Li, Nairiga Wu, Tongbei Yang, Hao Wang, Fang Tang</i>	
Dual Gaussian Beam Scattering of Chiral Spheres .....	163
<i>Jing Bai, Xuan Liu, Cheng-Xian Ge, Xin-Yu Han, Zi-Han Wang, Zhen-Sen Wu</i>	
Integrative Electromagnetic Modal Analysis for the Waveguide-Antenna Cascaded Systems under the Energy Transport Theorem Framework .....	168
<i>Ren-Zun Lian, Yixuan Liu, Xinyu Zhao, Long Li</i>	
Graph ODE Recurrent Neural Networks for Traffic Flow Forecasting .....	178
<i>Yuqiao Su, Bin Ren, Kunhua Zhang</i>	
Essential Differences between Scattering and Transmitting Characteristic Modes.....	183
<i>Ren-Zun Lian, Long Li</i>	

## **Image Analysis and Processing**

A Small-Scale Pedestrian Detection Method in Railway Scene.....	188
<i>Zhenhao Zhang, Wenwen Meng, Zheng Li, Jupeng Li</i>	
Design of Image Processing System Based on DSP Core.....	193
<i>Jing Zeng</i>	
Quantitative Analysis of Improvement on Wavefront Aberration Correction with Scattering Preconditioner .....	197
<i>Sen Yang, Xiaofeng Li</i>	
Hard Contrastive Learning for Video Captioning .....	202
<i>Lilei Wu, Jie Liu</i>	
Recognition Types of Cracked Material under Uniaxial Tension Based on Improved Mel Frequency Cepstral Coefficients (MFCC).....	210
<i>Jianjian Yuan, Hua Shao, Hongcheng Huang</i>	

## **Next Generation Artificial Intelligence and Intelligent Computing**

KPA: Automatic Acquisition Algorithm of Key Parameters in Space Field .....	216
<i>Wang Guonv</i>	
User Intention Prediction Method Based on Hybrid Feature Selection and Stacking Multi-model Fusion...220	
<i>Zhongxian Xu, Yuejia Sun, Ye Guo, Zhihong Zhou, Yinchao Cheng, Lin Lin</i>	

Fast Route Planning on DEM Big Data with Cost Constraint Sampling .....	227
<i>Luo Chen, Zebang Liu, Zhulong Liu, Ye Wu, Sijie Li</i>	
A 3-Layer Deep Learning Model for Predicting Breast Cancer Disease .....	233
<i>Wan Aezwani Wan Abu Bakar, Muhammad Amierusyahmi B. Zuhairi, Mustafa B. Man, Nur Laila Najwa Bt Josdi</i>	
Mobile Edge NLU with On-device Inference for Humanitarian Assistance during Disasters .....	239
<i>Karunchai Mabuntham, Worawan Marurngsith</i>	
Detecting Kernel Rootkits in a Virtualized Infrastructure with Low-Level Architectural Features.....	244
<i>Huaizhe Zhou, Changjiang Fei, Lin Ni, Bo Wu, Guopeng Li, Kun Han</i>	
A Golden Section Software Synchronization Algorithm Based on Linear Optical Sampling System .....	248
<i>Rirong Su, Qinghua Tian, Xiangjun Xin, Xiaoli Yin, Fu Wang, Zhipei Li, Yongjun Wang</i>	
.....	<b>Author Index</b>