2019 4th International Conference on Communication and Information Systems (ICCIS 2019)

Wuhan, China
21 – 23 December 2019

IEEE Catalog Number: CFP19OAA-POD
ISBN: 978-1-7281-6298-0

Copyright © 2019 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: CFP19OAA-POD
ISBN (Print-On-Demand): 978-1-7281-6298-0
ISBN (Online): 978-1-7281-6297-3

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

2019 4th International Conference on Communication and Information Systems (ICCIS)

ICCIS 2019

Table of Contents

Preface xi

Communication Principle and Technology

Relaying Transmission for Multiresolution M-DCSK Modulation in Multi-Relay Networks 1
Yu Zhang (Guangdong University of Technology), Guofa Cai (Guangdong University of Technology), Yi Fang (Guangdong University of Technology), and Guojun Han (Guangdong University of Technology)

Optimization of Spin Protocol Combined with Network Coding 7
Daren Bi (Nanjing University of Posts and Telecommunications) and Linghua Zhang (Jiangsu Provincial Engineering Research Center of Telecommunications and Network Technology)

Design and Experiment of SF6 Decomposition Product CF4 Sensor in GIS by NDIR Technology 11
Zhang Shi-ling (State Grid Chongqing Electric Power Company Chongqing Electric Power Research Institute)

Research on a New Antenna Selection Algorithm 19
Hongmei Li (First Research Institute of the Ministry of Public Security of PRC), Xiao Chen (KOAL Software Co., Ltd.), and Peng Shen (Zhengzhou University)

DAPTS: A Depth Adaptive Packets Transmission Scheme for Underwater Acoustic Sensor Networks 23
Xian-yi Chen (Hainan University), Guo-lan Lin (Hainan University), Qiu-ling Yang (Hainan University), and Xiang-dan Huang (Hainan University)

Time-Amplitude-Phase Modulation System and Its Channel Capacity 28
Jingwei Liu (Nanjing University of Aeronautics and Astronautics), Dazhuan Xu (Nanjing University of Aeronautics and Astronautics), and Weilin Tu (Nanjing University of Aeronautics and Astronautics)

Communication and Information Engineering

Online Coordination Scheduling for Distributed Satellite System with Limited Communication 35
Guoliang Li (China Academy of Electronics and Information Technology)

Prediction and Verification of Complex Electromagnetic Environment Adaptability for Long-Wave Communication Systems .41
Shi Xin-yang (Wuhan Maritime Communication Research Institute), Shen Guo-qing (Wuhan Maritime Communication Research Institute), Huang Bo (Wuhan Maritime Communication Research Institute), and Li Lu (Wuhan Maritime Communication Research Institute)

Generic Communication Infrastructure to Facilitate Regional Electric Power Distribution System Management .46
Xiao Liu (Guangzhou Power Supply Co., Ltd), Yuanrong Luo (Guangzhou Power Supply Co., Ltd), Shaohua Wang (Guangzhou Power Supply Co., Ltd), Yin Yin (Guangzhou Power Supply Co., Ltd), Yiting Duan (Guangzhou Power Supply Co., Ltd), and Yuhan Zhang (Guangzhou Power Supply Co., Ltd)

Digital Self-Interference Cancellation for Full Duplex Wireless Communication Based on Neural Networks .53
Chengzhe Shi (University of Electronic Science and Technology of China), Yuefan Hao (University of Electronic Science and Technology of China), Ying Liu (University of Electronic Science and Technology of China), and Shihai Shao (University of Electronic Science and Technology of China)

Research on Cross-Domain Secure Communication Technology of Sensitive Information Under Microservice Framework .58
Jing Liang (Sichuan Normal University), Qing Chen (Sichuan Normal University), and Zhousen Zhu (Sichuan Normal University)

Study of GNSS CV Data Transmission Method Based on Redundant Communication Network .64
Ping-li Wang (Chinese Academy of Sciences, University of Chinese Academy of Sciences), Yu-ping Gao (Chinese Academy of Sciences), Hong-bing Cai (Chinese Academy of Sciences), and Na Liu (Chinese Academy of Sciences)

Cloud-Based Portable IoT Inkjet Printer .70
Mange Huang (Wuhan University of Technology) and Ning Zhao (Wuhan University of Technology)

Electronics and Communication Engineering

Bandwidth Reduction for Multicarrier Systems Using Kalman Filter .75
Aiping Yao (St. Cloud State University) and Yi Zheng (St.Cloud State University)

A Cyber-Physical Interaction Model Based Impact Assessment of Cyberattacks for Internet of Vehicles .79
Hongbo Dong (Xian Research Institute of China Coal Technology & Engineering Group) and Qianxiang Zhu (Xian Research Institute of China Coal Technology & Engineering Group)

An Efficient Localization Algorithm for Wireless Sensor Networks .84
Qi Qi (Nanjing University of Posts and Telecommunications) and Linghua Zhang (Nanjing University of Posts and Telecommunications)

Human Motion Modeling Based on Single Action Context .89
Junyi Wang (University of Science and Technology of China) and Xinyu Su (University of Science and Technology of China)

Study on the Radiant Power of Ambient Electromagnetic Wave .95
Ningning Lu (CETC-54), Zhiguang Xiong (CETC-54), Haipeng Zhang (CETC-54), Ruiliang Song (CETC-54), and Yun Liu (CETC-54)

Sparse Nonlinear-Phase FIR Filter Design Using Simulated Annealing Algorithm .100
Chen Wu (Nanjing University of Posts and Telecommunications) and Xinzhou Xu (Nanjing University of Posts and Telecommunications)

Wideband Microwave System for Brain Diagnosis .104
Leng Ying (China Electronic Technology Corporation), Liu Guanghong (China Electronic Technology Corporation), Guo Qingxin (Communication University of China), Zhang De (China Electronic Technology Corporation), Li Mingqiang (China Electronic Technology Corporation), and Li Xiaolin (China Electronic Technology Corporation)

Global Temperature Forecast Based on ARIMA Model .108
Guan Naiqian (Xiamen University), Guan Yuxin (Southwestern University of Finance and Economics), and Sun Xuelian (Dalian Minzu University)

WSN Location Algorithm Based on Efficient Simulated Annealing Weighted DV-Hop .113
Gaochi Zhang (Nanjing University of Posts and Telecommunications) and Linghua Zhang (Nanjing University of Posts and Telecommunications)

Signal Analysis and Processing

On-Line Sparse Recovery from Correlated Multiple Measurements Without Time Latency .118
Daoguang Dong (Navy Aviation University), Guosheng Rui (Navy Aviation University), Wenbiao Tian (Navy Aviation University), Ge Liu (Navy Aviation University), Rui Wang (Navy Aviation University), and Yang Zhang (Navy Aviation University)

Analysis of Bioproteins by Propagation Signal Based on SAW Device .124
Yuxia Yang (Inner Mongolia University for Nationalities), Jingqing Jiang (Inner Mongolia University for Nationalities), Tu Ya (Inner Mongolia University for Nationalities), and Chao Luomeng (Inner Mongolia University for Nationalities)

Walsh Code Soft Spread Spectrum Multi-Tone Interference Suppression Algorithm .128
Danna Zhang (National University of Defense Technology), Zhongfei Liu (National University of Defense Technology), Xiaojing Yang (National University of Defense Technology), and Yu Zhang (National University of Defense Technology)

Localization of Interference Sources in LTE Mobile Networks .134
Tingjuan Jiang (Beijing University of Posts and Telecommunications), Wen Ye (Beijing University of Posts and Telecommunications), Jingping Yin (Beijing University of Posts and Telecommunications), Shengxiang Xiong (Beijing University of Posts and Telecommunications), and Haijia Jin (Beijing University of Posts and Telecommunications)

Mathematical Modeling ECG Waveform Using Abel's Bernstein Polynomials .141
Vanvisa Chutchavong (King Mongkut's Institute of Technology Ladkrabang)

A Novel Handover Reduction Mechanism Based on UE's Moving Direction and Velocity .147
Xiang Liu (Beijing Jiaotong University) and Xiuqian Jia (Chongqing University of Posts and Telecommunications)

On-Line Dynamic Sparse Recovery of Streaming Signals from Correlated Multiple Measurements. 152
Guosheng Rui (Navy Aviation University), Daoguang Dong (Navy Aviation University), Lin Jiao (PLA Dalian Naval Academy), Wenbiao Tian (Navy Aviation University), Haibo Zhang (Navy Aviation University), and Song Zhang (Navy Aviation University)

Computer and Information Engineering

Can People's Depression Level Affect How They Respond to Related Information?: Information Relevance as a Mediator .158
Zixuan Wang (Wenzhou-Kean University), Hanlin Wang (Wenzhou-Kean University), Yue Zhang (Wenzhou-Kean University), and Rongjuan Chen (Wenzhou-Kean University)

Exploring Structured Information Systems: A Keyword Search Approach .164
Mehdi Kargar (Ryerson University)

Range-Scattering Information and Range Resolution of Multiple Target Radar .168
Siyi Zhu (Nanjing University of Aeronautics and Astronautics) and Dazhuan Xu (Nanjing University of Aeronautics and Astronautics)

Research on Task Pricing of Internet Labor Crowdsourcing Platform .174
Kai-xuan Bao (Nanjing University of Posts and Telecommunications), Kai Zhao (Nanjing University of Posts and Telecommunications), Qi-pei Qian (Nanjing University of Posts and Telecommunications), and Yin Lu (Nanjing University of Posts and Telecommunications)

Digital Heritage Enrichment through Artificial Intelligence and Semantic Web Technologies .180
Abdelhak Belhi (Qatar University, Université Lumière Lyon 2), Tahani Abu-Musa (Qatar University), Abdulaziz Khalid Al-Ali (Qatar University), Abdelaziz Bouras (Qatar University), Sebti Foufou (Université de Bourgogne), Xi Yu (Chengdu University), and Haiqing Zhang (Chengdu University of Information Technology)

Multi-Focus Image Fusion Method Based on MCA and Focus Region Detection .186
Mengxue Ren (Beijing Jiaotong University, Beijing Key Laboratory of Advanced Information Science and Network Technology), Shaohai Hu (Beijing Jiaotong University, Beijing Key Laboratory of Advanced Information Science and Network Technology), and Xiaole Ma (Beijing Jiaotong University, Beijing Key Laboratory of Advanced Information Science and Network Technology)

Plant Leaf Recognition Based on Naive Bayesian Classification and Linear Discriminant Analysis Model .191
Ding Min Yue (Wuhan University of Technology) and Feng Qin (Wuhan University of Technology)

Identifying Opinion Leaders in Twitter During Social Events: Social Impact Theory from Influencer's Perspective .197
Jilei Lin (Wenzhou-Kean University), Zixuan Wang (Wenzhou-Kean University), Xuanjing Jin (Wenzhou-Kean University), Yipei Huang (Wenzhou-Kean University), and Rongjuan Chen (Wenzhou-Kean University)

Dynamic Scheduling Strategy of Smart Manufacture System .206
Kai Zhao (Nanjing University of Posts and Telecommunications), Qi-pei Qian (Nanjing University of Posts and Telecommunications), Kai-xuan Bao (Nanjing University of Posts and Telecommunications), and Yin Lu (Nanjing University of Posts and Telecommunications)

Data Science and Intelligent Computing

A Time Improvement PSO Base Algorithm Using Multithread Programming .212
Somsin Thongkrairat (King Mongkut's Institute of Technology Ladkrabang) and Vanvisa Chutchavong (King Mongkut's Institute of Technology Ladkrabang)

OCNN: Point Cloud-Based Convolutional Neural Network for Object Orientation Estimation .217
Shiqi Li (Huazhong University of Science and Technology), Yu Wei (Huazhong University of Science and Technology), Ke Han (Huazhong University of Science and Technology), and Shuai Zhang (Huazhong University of Science and Technology)

Completeness Integrity Protection for Outsourced Databases Using Semantic Fake Data .222
Holly Roisum (Boise State University), Lois Urizar (Boise State University), Jyh-haw Yeh (Boise State University), Kedric Salisbury (Timberline High School), and Megan Magette (Bishop Kelly High School)

Energy Saving Strategy on Mobile Devices Under Mobile Cloud Systems .229
Futian Wang (Anhui University), Hongfang Nian (Anhui University), Xingxiang Huang (Anhui University), Qiang He (Swinburne University of Technology), Yun Yang (Swinburne University of Technology), and Cheng Zhang (Anhui University)

Utilization of Distributed Computing in Exhaustive Search for Optimal Block Code .236
Phatham Loahavilai (Thammasat University), Prapun Suksompong (Thammasat University), and Chalie Charoenlarpnopparut (Thammasat University)

A Method for Accelerating Convolutional Neural Networks Based on FPGA .241
Mengxing Zhao (ShanDong University), Xiang Li (ShanDong University), Shunyi Zhu (ShanDong University), and Li Zhou (ShanDong University)

Electronic Engineering and Control System

A Study of Multi-Station Relay Measurement and Control Method on State Assessment .247
Xianglong Gu (Northwest Institute of Nuclear Technology), Zhenkun Wang (Northwest Institute of Nuclear Technology), Rui Cao (Northwest Institute of Nuclear Technology), Tian Liu (Northwest Institute of Nuclear Technology), and Ziqi He (Northwest Institute of Nuclear Technology)

Obstacle Avoidance System of Substation Inspection Robot Based on the Dual-Mode Controller of Bumpless Switching .251
Qilin Li (Guangzhou Power Supply Co., Ltd), Xiao Liu (Guangzhou Power Supply Co., Ltd), Shaohua Wang (Guangzhou Power Supply Co., Ltd), Yuanrong Luo (Guangzhou Power Supply Co., Ltd), Haisheng Hong (Guangzhou Power Supply Co., Ltd), and Yingxiao Zhang (Guangzhou Power Supply Co., Ltd)

Design and Implementation Aspects of the Sheshan 13-m Radio Telescope .257
Cong Liu (Shanghai Astronomical Observatory), Jinling Li (Shanghai Astronomical Observatory), Hui Zhang (Shanghai Astronomical Observatory), Daxin Zhao (Shanghai Astronomical Observatory), Jinqing Wang (Shanghai Astronomical Observatory), and Rongbing Zhao (Shanghai Astronomical Observatory)

Running State Monitoring of Circuit Breaker Handcart Driving Motor 262
Wang Gang (Xiamen University of Technology), Peng Yanqing (Xiamen University of Technology), and Zhuang Zhijian (ABB (China) Co., Ltd.)

Design and Research of Continuous Blood Pressure Monitoring System Based on LoRa 267
Yan Zhe (Guangxi Normal University) and Hu Weiping (Guangxi Normal University)

Research on High Pressure Oil Pipe Pressure Control 273
Ya-xuan Yang (Nanjing University of Posts and Telecommunications), Yu Shi (Nanjing University of Posts and Telecommunications), Meng-yu He (Nanjing University of Posts and Telecommunications), and Yin Lu (Nanjing University of Posts and Telecommunications)

Study on Dynamic Monitoring and Regulation System for Cleaning of Rice-Wheat Combine Harvester 278
Jiang Qing (CAS), Wang Legang (Lovol Heavy Industry CO., LTD), Jiao Zhongyuan (Lovol Heavy Industry CO., LTD), Huang He (CAS), Zhang Zhenyong (CAS), and Wang Rujing (CAS)

Design and Implementation of Photo Printer System for Scenic Spot 283
Jiajian You (Wuhan University of Science and Technology)

Author Index 287