

2022 International Conference on Information Technology, Communication Ecosystem and Management (ITCEM 2022)

**Bangkok, Thailand
19-21 December 2022**



**IEEE Catalog Number: CFP22DB9-POD
ISBN: 978-1-6654-6302-7**

**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:	CFP22DB9-POD
ISBN (Print-On-Demand):	978-1-6654-6302-7
ISBN (Online):	978-1-6654-6301-0

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

2022 International Conference on Information Technology, Communication Ecosystem and Management (ITCEM) **ITCEM 2022**

Table of Contents

Message from the General Chairs	x
Message from the Program Chairs	xi
Organizing Committee	xii
Program Committee	xiii
Reviewers	xv

Computer Network & Safety

Design of a Mobile Internet-Based Community Sharing Platform and Implementation	1
<i>Xingyue Feng (Foshan Polytechnic, China) and Jiadong Zhu (Foshan Polytechnic, China)</i>	
Study on Reactor Temperature Control of Fuzzy Feedforward Combined with PID	5
<i>Xianggang Li (Shanghai Institute of Technology, China) and Bing Xu (Shanghai Institute of Technology, China)</i>	
System Design of Valve Failure Prediction with MySQL	10
<i>Pan Liu (University of Electronic Science and Technology of China, China), Yanjun Xia (University of Electronic Science and Technology of China, China), Chencheng Liu (Central South University of Forestry and Technology, China), Yongguang Wang (Tianfu Innovation Energy Establishmen, China), Zhouming Yuan (Tianfu Innovation Energy Establishmen, China), Jiang Niu (Nuclear Power Institute of China, China), Yifan Zhang (Nuclear Power Institute of China, China), Zheng Huang (Southwest Jiaotong University, China), Min Pan (Southwest Jiaotong University, China), and Zhangchun Tang (University of Electronic Science and Technology of China, China)</i>	
Turbulent Effects on Continuous-Variable Quantum Key Distribution	16
<i>Jiaxu Wen (Hebei Key Laboratory of Photonic Information Technology and Application, China) and Xuchao Liu (Hebei Key Laboratory of Photonic Information Technology and Application, China)</i>	

Research and Development of Cyber Cyberspace Resilience Technology	23
<i>Run Zou (Institute of System Engineering Academy of Military Sciences, China), Yang Liu (Institute of System Engineering Academy of Military Sciences, China), Qing Zang (Institute of System Engineering Academy of Military Sciences, China), Binbin Wei (Institute of System Engineering Academy of Military Sciences, China), Chunheng Liu (Institute of System Engineering Academy of Military Sciences, China), Jinyong Hou (Institute of System Engineering Academy of Military Sciences, China), Yuxiang Zhou (Institute of System Engineering Academy of Military Sciences, China), and Jibin Che (Key Laboratory of Electronic Information Countermeasure and Simulation Technology Ministry of Education, China)</i>	
Cloud Storage Ciphertext Search Scheme Based on Blockchain	29
<i>LuWei Bao (Yunnan University, China) and GeHao Lu (Yunnan University, China)</i>	
Introduction to Public-key Cryptosystems and Hotspot Analysis Based on CiteSpace	34
<i>Zutao Zhang (Northeastern University, China)</i>	

Computing Technologies

Asteroid Mineral Allocation Algorithm for Global Equity	46
<i>Pengcheng Ma (Beijing Institute of Technology, China)</i>	
Automatic Hospital Inspection System Based on Convolutional Neural Network	51
<i>Bangqian Ao (Zunyi Normal University, China), Yuan Lin (Zunyi First People's Hospital, China), Zhiwu Gao (Zunyi Normal University, China), Ye Han (Zunyi First People's Hospital, China), and Nanqing Zhang (Zunyi Normal University, China)</i>	
Research on Crude Oil Price Forecasting Based on MLR-SVR Decomposition Integrated Model	56
<i>Xinrui Liu (Wuhan University of Technology, China)</i>	
Forestry Text Classification Based on BERT and KNN	61
<i>Zhaoyi Guo (Leshan Normal University Leshan, China)</i>	
Determination of Anti-SARS-CoV-2 Activity of Compounds Based on Machine Learning	66
<i>Zeyu Cui (Northeastern University Shenyang, China), Qing Liu (Northeastern University Shenyang, China), Mengmeng Fan (Northeastern University Shenyang, China), Dakuo He (Northeastern University Shenyang, China), and Yue Hou (Northeastern University Shenyang, China)</i>	
E-Commerce Purchase Prediction Based on Graph Neural Networks	72
<i>Yuqian Sun (Shanghai University, China)</i>	
Research on Classification of Ancient Glass Products Based on Machine Learning	76
<i>Qian Pu (Wuhan University of Science and Technology, China), Lingwen Jiang (Wuhan University of Science and Technology, China), Zhanbo Liu (Wuhan University of Science and Technology, China), Xin Wang (Wuhan University of Science and Technology, China), and Zijie Liu (Wuhan University of Science and Technology, China)</i>	

Research on Site Planning of Communication Network Based on Genetic Algorithm	81
<i>Jiahao Yin (Electronic Information Engineering Shenyang Aerospace University, Liaoning) and Liheng Cheng (Electronic Information Engineering Shenyang Aerospace University, Liaoning)</i>	
Simulation Research of Dam Break Flood in Urban Area Based on TELEMAC-2D Model	86
<i>Guoyi Li (State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, China), Weiwei Shao (State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, China), and Jiahong Liu (State Key Laboratory of Simulation and Regulation of Water Cycle in River Basin, China Institute of Water Resources and Hydropower Research, China)</i>	
Self-Organizing Coalition Formation Based on Non-Cooperative Games in Social Networks	90
<i>Ruixian Jin (Xi'an University of Science and Technology, China) and Jun Su (Xi'an University of Science and Technology, China)</i>	
Data-Driven Approach to Integrate CAE Model and ANSYS Simulation	95
<i>Zhenyu Wang (Southwest Jiaotong University, China), Zerui Xiang (Southwest Jiaotong University, China), and Jianhua Lu (Sichuan Agricultural University, China)</i>	
Research on Prognostic Risk Assessment Algorithm Based on Graph Neural Networks and Attention Mechanisms	101
<i>Mengjie Han (Jilin University, China), Jingbo He (Jilin University, China), and Xiuzhi Jiao (Xinjiang Military Region Information and Communication Brigade, China)</i>	
Analysis and Application of Enterprise Organization Management System Based on Data Mining Technology	107
<i>Ningning Sun (Shanghai Institute of Technology, China)</i>	
Construction and Design of Strong Electricity in Building Electrical Engineering Based on Immune Genetic Algorithm	111
<i>Jinyang Li (State Grid Sichuan Economic Research Institute, China), Dan Yang (State Grid Sichuan Economic Research Institute, China), Siying Du (State Grid Sichuan Economic Research Institute, China), Wenhui Zeng (State Grid Sichuan Economic Research Institute, China), Yiming Tang (State Grid Sichuan Economic Research Institute, China), Bin Zou (State Grid Sichuan Economic Research Institute, China), Yi Luo (State Grid Sichuan Economic Research Institute, China), and Quanming Zhang (State Grid Sichuan Economic Research Institute, China)</i>	
Research on Personalized Product Design of Industrial Design Based on Genetic Algorithm	116
<i>Chao Liu (Silla University, Republic of Korea) and KaiQiang Pei (Pukyong National University, Republic of Korea)</i>	
Evaluation and Optimization Design of Electricity Sales Channel Based on Power Marketing Big Data	120
<i>Yongjun Sun (Kunming Electric Power Trading Center Co., Ltd, China), Shuibin Zheng (Kunming Electric Power Trading Center Co., Ltd, China), Danqi Chen (Kunming Electric Power Trading Center Co., Ltd, China), Jifei Wang (Kunming Electric Power Trading Center Co., Ltd, China), and Kangren Huang (China Energy Construction Group Guangdong Electric Power Design and Research Institute Co., Ltd., China)</i>	

Emergency Treatment in Case of Electric Leakage Protection Device Failure	126
<i>Gang Hong (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd., China), Song Zhu (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd., China), Hengying Huang (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd., China), and XiangXiang Wei (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd., China)</i>	
Insulator Defect Detection and Positioning Method in Power Grid Inspection	130
<i>Gang Hong (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd. Laibin City, China), Song Zhu (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd. Laibin City, China), Hengying Huang (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd. Laibin City, China), and XiangXiang Wei (Laibin Power Supply Bureau of Guangxi Power Grid Co. Ltd. Laibin City, China)</i>	
Empirical Analysis of Corporate Finance from a Fintech Perspective - Based on DEA Model	134
<i>Xu Ruoyu (Hubei Business College, China)</i>	

Wireless Communication

Analysis of Anti-Jamming Effectiveness Evaluation of a Communication System in Electromagnetic War	141
<i>Yamiao Zhang (PLA Troops of 63896, China), Xianlong Li (PLA Troops of 63896, China), Li Shui (PLA Troops of 63896, China), Feng Chen (PLA Troops of 63896, China), Hao Wu (PLA Troops of 63896, China), and Hanwen Chen (PLA Troops of 63896, China)</i>	
Incentive Mechanism and Simulation of Data Sharing in Blockchain Based on Evolutionary Game	146
<i>Ruihan Liu (Northeastern University State Key Laboratory of Synthetic Automation for Process Industries, China), Min Huang (Northeastern University State Key Laboratory of Synthetic Automation for Process Industries, China), and Yang Yu (State Key Laboratory of Synthetic Automation for Process Industries, China)</i>	
Construction of a Decentralized Management System Based on Blockchain Technology	153
<i>Bohao Wu (Shanxi University of Finance and Economics, China) and Shijie Li (Shanxi University of Finance and Economics, China)</i>	
An Improved Industrial Wireless Network Scheme for Deterministic Transmission	158
<i>Da Luo (China Mobile Research Institute, China), Chuntian Zhang (China Mobile Research Institute, China), Yidan Jin (China Mobile Research Institute, China), Bohan Yang (China Mobile Research Institute, China), and Shuai Ma (China Mobile Research Institute, China)</i>	
Analysis of Industrial Internet Application Based on Blockchain	163
<i>Zhiping Li (China Academy of Information and Communications Technology, China), Bo Zhang (China Academy of Information and Communications Technology, China), Jin Li (China Academy of Information and Communications Technology, China), Jian Guo (China Academy of Information and Communications Technology, China), and Fanjie Nie (China Academy of Information and Communications Technology, China)</i>	

Research on the Development Path of Multinational Enterprise Management Mode Based on Blockchain Technology	169
<i>Kun Shi (Shanghai Lixin University of Accounting and Finance, China)</i>	
Analysis and Simulation of the Effect of Band Hopping Jamming on Frequency Hopping Communication System with Simulink	174
<i>Yamiao Zhang (PLA Troops of 63896, China), Chong Zhang (PLA Troops of 63896, China), Feng Chen (PLA Troops of 63896, China), Jian Shen (PLA Troops of 63896, China), Mengda Lei (PLA Troops of 63896, China), Zhenyu Sun (PLA Troops of 63896, China), and Zhong Lei (PLA Troops of 63896, China)</i>	
Author Index	181