2024 3rd International Conference on Big Data, Information and Computer Network (BDICN 2024)

Sanya, China 12-14 January 2024



IEEE Catalog Number: ISBN:

CFP24BW3-POD 979-8-3503-7461-2

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:	CFP24BW3-POD
ISBN (Print-On-Demand):	979-8-3503-7461-2
ISBN (Online):	979-8-3503-6382-1

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



2024 3rd International Conference on Big Data, Information and Computer Network (BDICN) BDICN 2024

Table of Contents

Preface	xi
Committee Members	. xii

Big Data Modeling and Intelligent Algorithm

Review on Science and Technology Trend Awareness Research
 Digital Twin Virtual Entity Data Association Mapping Based on Binary Space-Time Coding
Research on Privacy Information Preserving in Social Network Based on Big Data
A Comparative Study of the Performance of Spark-Based k-Means Algorithm Based on Euclidean Distance and Manhattan Distance

Rongxin Mi (National Computer Ne Team/Coordination Center of China, Network Emergency Response Techn China, China), Lin Li (National Com Technical Team/Coordination Center (Changan Communication Technolog (National Computer Network Emerg Team/Coordination Center of China,	puter Network Emergency Response of China, China), Haili Zhao yy Co., LTD, China), Weikuang Li ency Response Technical
Qiuping Li (Beijing Key Laboratory G Signal and Information Processing B Communication, China), Siyu Song Printing Equipment Signal and Info	eijing Institute of Graphic 'Beijing Key Laboratory of High-end 'mation Processing Beijing Institute and Peng Cao (Beijing Key Laboratory nal and Information Processing
Wenjuan Zhang (State Grid Informa Ltd, China), Yunxi Fu (State Grid In Group Co., Ltd, China), Tingting Ya Telecomunication Group Co., Ltd, Cl	n (State Grid Information and nina), Ziting Gao (State Grid roup Co., Ltd, China), Chenyang Yan unication Group Co., Ltd, China), m and Telecomunication Group Co., Grid Information and
Component Analysis Yucong Duan (Huazhong University	nt and Design Center, China), Ziwen esign Center, China), and Jie Ma
0	
Processing Framework Zhengwei Li (Dalian Maritime Univ	n Song (Dalian Maritime University,
Reconstruction and Forecasting	usion of Autoencoder-Based Spatiotemporal

Visual Analysis of Decent Work Based on the Core Database of Web of Science
A Sequence Point of Interest Recommendation Algorithm Incorporating Global Features
 The Application of Big Data and AI Analytics in Rating Industrial and Smart Manufacturing Districts: Challenges and Opportunities
Management Co, LTD, China; Universities Engineering Research Center, China)

Digital Information Recognition and Decision Making Research

 Auxiliary Decision-Making Method for Automatic Operation Duty Scheduling of Main Network Based on Bidirectional LSTM Neural Network Bo Zhou (NARI Information & Communication Technology Co., Ltd., China), Chao Hu (NARI Information & Communication Technology Co., Ltd., China), and Zhangguo Chen (NARI Information & Communication Technology Co., Ltd., China)
Power Network Security Situation Awareness Method Based on Heterogeneous Data Sources 83 Zhizhong Qiao (NARI Information & Communication Technology Co., Ltd., China) and Ying Ye (NARI Information & Communication Technology Co., Ltd., China)
A Multiscale Deep Convolutional Malicious Code Classification Method Based on Structural Reparameterization
An Adaptive Forward Error Correction Method Based on Deep Learning for Real-Time Video Transmission

Based on Generative Adversarial Networks Seed Generation Method for Fuzzing
Pedestrian Detection Method Based on Improved YOLOv5s for Densely Occluded Scenarios 102 Rongting Pan (Guangxi Normal University, China), Guofeng Qin (Guangxi Normal University, China), Yongjian Zhu (Shanghai Institute of Technology, China), Peiwen Mi (Guangxi Normal University, China), and Ming Li (Guangxi Normal University, China)
Research on Deep Learning-Based Driver Fatigue Driving Behavior Recognition Methods
Molecular Communication: Exploring the Potential of Nanoscale Information Transmission 110 Pengfei Zhang (Shihezi University, China) and Pengfei Lu (Shihezi University, China)
Feasibility Study of Digital Information Teaching Platform in Tennis Teaching
A Machine Learning Approach for Crossing Accident Prediction: Model Regularization and Optimization
Effective Polyp Segmentation in Medical Imaging: A Semi-Supervised Approach with Progressive Supervision 122 Shunlong Ye (Nanjing University of Science and Technology, China) and 2exuan Ji (Nanjing University of Science and Technology, China)
De-DETR: A More Accurate Real-Time Defect Detection Method
TMFNet: Two-Branch Multilevel Feature Interaction Compensation Network for Infrared and Visible Image Fusion 131 Lingna Gao (Yunnan University, China) and Rencan Nie (Southeast 131 University, China; Yunnan University, China) 131
Research on Radiation Source Identification Technology Based on Deep Learning

Computer Software Design and System Simulation

Simulation of Complex Network Based on on-Chain Data Security Access Control	3
 Safe Storage of Distributed Double-Carbon Power Data Based on DBN Neural Network	7
 Dynamic Password Verification Method for user Identity in Cloud R & D Environment	1
 Security and Privacy Protection Technology of AIoT Intelligent Transportation Teaching System with 5G Technology	5
 Empirical Exploration of Aircraft Headway Evolution Characteristics in Terminal Maneuvering Area <i>Chao Wang (Civil Aviation University of China, China), Wenqing Li</i> <i>(Civil Aviation University of China, China), and Shanmei Li (Civil Aviation University of China, China)</i> 	9
 Network Transformation of Telecontrol Device Based on Computer Network and Optimization of Acceptance Technology	3
 An Implementation of R-ate Pairing Based on FPGA	7
 VAS: An Unsupervised Visible Area Sensing Module for Lane Classification	4

A Visual Basic Support Software Design Method
A Design Method of Visual Demonstration Software
Research on UAV Reconnaissance Effectiveness Based on Improved BP Neural Network
Cross-Domain Defect GAN: Defect Generation for Defect Detection in Industrial Area
Optimizing Client Selection for Federated Learning: a PPO-Based Method
RELION Software Performance Optimization for the CPU+DCU Heterogeneous Platform

ithor Index
