2021 International Conference on Computer Network, Electronic and Automation (ICCNEA 2021)

Xi'an, China 24 – 26 September 2021



IEEE Catalog Number: CFP21M07-POD ISBN: 978-1-6654-4487-3

Copyright © 2021 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:
 CFP21M07-POD

 ISBN (Print-On-Demand):
 978-1-6654-4487-3

 ISBN (Online):
 978-1-6654-4486-6

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



2021 International Conference on Computer Network, Electronic and Automation (ICCNEA) ICCNEA 2021

Table of Contents

elcome xi essage from the General Chairs xi	
essage from the Program Chair	
ganizing Committeex	
ogram Committeexv	
viewersx	ίx
onsorsxx	V
omputer Science and Engineering	
search on Vehicle Driving Cycle Synthesis Technology Based on Improved K-Means Cluster alysis Yajuan Wan (Xi'an Technological University, China), Shuping Xu (Xi'an Technological University, China), and Shuang Wang (Xi'an Technological University, China)	1
erview of Oral Interventional Surgery Robot Positioning System	7
search on the Application of Gradient Descent Algorithm in Machine Learning	1
search on Classification Model of BP Neural Network Based on DL Algorithm	.6
lnerability Feature Extraction Model for Source Code Based on Deep Learning	<u>?</u> 1

Design of Mobile Application Lifecycle Security Management Platform Yan Zeng (State Grid Chongqing Electric Power Company Marketing Service Center, China), Guangcheng Xie (State Grid Chongqing Electric Power Company Marketing Service Center, China), Yingying Cheng (State Grid Chongqing Electric Power Company Marketing Service Center, China), and Rui Wang (State Grid Chongqing Electric Power Company Marketing Service Center, China)	26
Criminal Investigation Image Retrieval Based on Deep Hash Code Xiaojun Bai (Xi'an Technological University, China), Xin Jin (Xi'an Technological University, China), Feihu Jiang (Xi'an Technological University, China), and Zongxin Wang (Xi'an Technological University, China)	31
Biomimetic Sandwich Structures Optimization Under Graph-Based Method	37
Implementation of A Python-Based Website Voting Program Lin Deng (Sichuan Vocational and Technical College, China)	41
Research on Affective Computing Based on Self-Awareness Xue Gao (Xi'an Technological University, China), Junmin Luo (Xi'an Technological University, China), and Wuqi Gao (Xi'an Technological University, China)	46
Personalized Film and Television Recommendation System Based on Big Data Platform	51
Design and Research on Key Modules of Smart Campus Network Cloud Platform Under the Background of Big Data	56
Research on Hybrid Key Mission Model Based on Association Relationship	60
Multi Core Scheduling Algorithm Based on Affinity Node Fusion	65
Research on Fitness Action Evaluation System Based on Skeleton Jingwen Liang (Xi'an Technological University, China), Junmin Luo (Xi'an Technological University, China), Wuqi Gao (Xi'an Technological University, China), and Liping Lu (Xi'an Technological University, China)	69
Progressive Damage Analysis of CFRP Laminates Under Three-Point Bending Load	75

Hough Circle Detection Method for Shaking Instruments in Drilling Field	
Research on Forest Fire Detection Technology Based on Deep Learning	
Design and Implementation of Mobile Phone Intercom App Based on Android	
Design of Test Framework Based on Lightweight Operating System	
An Improved Artificial Bee Colony with Self-Adaptive Strategies and Application	
Research on BP Decoding of Polar Codes Aided by Deep Learning	
Research on Video Classification Based on Deep Learning	
The Application of Three-Dimensional Reconstruction Technology in Assisted Orthodontics 116 Na Xie (Xi'an Medical University, China), Xiaoting Ji (Affiliated Hospital of Shaanxi University of Traditional Chinese Medicine, China), Danyang Wang (Xi'an Medical University, China), and Zixia Li (Xi'an Medical University, China)	
An Improved ResNet Algorithm Based On CBAM	
Improved Method of Garbage Classification Based on Deep Learning	
A Defect Detection Method Based on Improved Mask R-CNN for Wafer Maps	

Network Technology and Engineering

Intelligent Monitoring System of Materials Subject Laboratory Based on IoT	.38
Research of Intelligent Fault Diagnosis Based on Machine Learning	.43
Edge Servers Deployment Based on 5G Micro Base Stations	.48
Research and Design of Decimal Network DDNS	.53
Facial Expression Recognition Based on SAS-Net Attention Mechanism	.59
Analysis of Computer Network Economy and Trade Form	.64
An Improved Group Mobility Model Suitable for Tactical Subnet	.68
Information Protection of International Students Based on Network Security	.72

Internal Control Evaluation of Small and Micro Enterprises' Sales Process Based on Fuzzy Neural Network	177
Shuping Zhang (An Kang University, China) and Dan Zhang (An Kang University, China)	.,,
Blockchain-Based Design of a Multi-Domain Joint Combat Simulation System	181
Unbalanced Data Set Classification Based on Convolutional Neural Network	186
Image Style Transfer Based on Generative Adversarial Network Li Zhao (Xi'an Technological University, China), Yan Jiao (Xi'an Technological University, China), Jie Chen (Xi'an Technological University, China), and Ruixia Zhao (Xi'an Technological University, China)	191
Optimization of TCP NewReno Algorithm Based on Available Bandwidth Estimation	196
Research on Online Teaching Satisfaction Based on Big Data and COVID-19 Wei Tang (The Open University of Shaanxi, China), Zimao Cheng (Beijing Sport University, Beijing, China), Hao Lian (Xi'an Physical Education University, China), and Jianhong Zhang (The Open University of Shaanxi, China)	202
Research on the Construction of Network Course Platform Based on Big Data	207
Research on the Construction of Collaborative Governance Audit Big Data Platform Xiaojuan Jing (Xi'an Traffic Engineering Institute, China), Zhiqing Zhou (Xi'an Traffic Engineering Institute, China), and Yu Pan (Xi'an Traffic Engineering Institute, China)	211
The Application of SDN in Range Command and Control Network	216
A Resource Allocation Method of Deep Reinforcement Transfer Learning in WSN	220

Electronic Technology and Engineering

Application Research of Detection Based on Frequency Electric Perspective	225
Improved Sine Cosine Optimization Algorithm Based on Hybrid Mutation Strategy	230
Design of Tracked Agricultural Robots for Apple Orchards	235
Design of Photodetector Test System Based on Visual Recognition	239
Research on Reliability of Network Data Transmission in Substation Area Protection	243
Fault Arc Detection Based on Time and Frequency Domain Analysis and Radom Forest	248
Research on Fault Arc Detection Method Based on FOA-GRNN Yaling Yu (State Grid Chongqing Electric Power Research Institute, China; Chongqing Key Laboratory of Energy Internet Advanced Measurement and Energy Big Data, China) and Songnong Li (State Grid Chongqing Electric Power Research Institute, China; Chongqing Key Laboratory of Energy Internet Advanced Measurement and Energy Big Data, China)	253
Research on Fault Location of Distributed Low-Voltage Distribution Network Based on Internet of Things	258

Automation Control and Engineering

Hyperparameter Optimization for SOC Estimation by LSTM with Internal Resistance	263
A Trajectory Generation Method for Quadrotor and Cable Suspended Load Stability	268
Active Collision Avoidance Control Based on Vehicle Emergency Braking Lei Zhang (Tianjin University of Technology and Education, China), Yi Zhou (Tianjin University of Technology and Education, China), and Bing Li (Tianjin Zhenyi New Energy Technology Co., Ltd, China)	274
Optimal Design and Performance Analysis of a New-Type Linear Oscillatory Motor with Three	
Divided Moving Body Yajuan Wang (Xi'an Technological University, China), Lujing Guan (Xi'an Technological University, China), Bo Liu (Xi'an Technological University, China), and Junan Zhang (Xi'an Technological University, China)	279
Study on the Division Method of Pipeline Robot Module Haizhen Zhu (Xi'an Technological University, China), Yan Yuan (Xi'an Technological University, China), and Yongjun Lei (Xi'an Technological University, China)	. 284
SLAM Method Based on Multi-Sensor Information Fusion Yang Tao (Nanchang Institute of Science and Technology, China), Yuanzi He (Guangdong University of Science and Technology, China), Xuemei Ma (National University of Defense Technology Library, China), Haidong Xu (Nanchang Institute of Science and Technology, China), Jingbo Hao (Nanchang Institute of Science and Technology, China), and Junrong Feng (Nanchang Institute of Science and Technology, China)	. 289
Stable Platform Research on Control Method of Fully Rotary Steerable Drilling Tool	294
The Research on the Promotion Path of Digital Elements to Digital Economy	. 299
Research on Thrust Fluctuation of Linear Motor with Trapezoidal Halbach Pole Bo Li (Xi'an Technological University, China), Junan Zhang (Xi'an Technological University, China), Ziang Li (Xi'an Technological University, China), and Bo Liu (Xi'an Technological University, China)	303
Prediction of Strip Width in Roughing-Mill Group Based on PSO-LSSVM Kangbo Dang (Xi'an Technological University, China), Jingcheng Wang (Xi'an Technological University & Shanghai JiaoTong University, China), Chaobo Chen (Xi'an Technological University & Xi'an University of Technology, China), and Xueqin Yang (Xi'an University of Posts & Telecommunications, China)	310

Research of Boost Converter Sliding Mode Control Method Based on Exponential Reaching Law Chunyong Dang (Xi'an Shiyou University, China; Control Technology, China) and Qizhi Zhang (Xi'an Shiyou University, China; Control Technology, China)	316
Development and Application of Process Monitoring Equipment for Pole-Holding and Tower Assembly Based on Big Data Technology	. 320
Author Index	325