

2021 2nd International Conference on Computer Engineering and Intelligent Control (ICCEIC 2021)

**Chongqing, China
12-14 November 2021**



**IEEE Catalog Number: CFP21Z13-POD
ISBN: 978-1-6654-0213-2**

**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:	CFP21Z13-POD
ISBN (Print-On-Demand):	978-1-6654-0213-2
ISBN (Online):	978-1-6654-0212-5

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

2021 2nd International Conference on Computer Engineering and Intelligent Control (ICCEIC) ICCEIC 2021

Table of Contents

Preface	x
Conference Organizers	xi
Reviewers	xii

Session 1: Computer Algorithm and Image Model Recognition Processing

Pedestrian Target Tracking Based on DeepSORT with YOLOv5	1
<i>Yuqiao Gai (Nanchang University, China), Weiyang He (Fujian University of Technology, China), and Zilong Zhou (Tongji University, China)</i>	
Computer Simulation of Electric Conductor Dynamic Response in Cold Region	6
<i>Xiubao Pan (Inner East Mongolia Electric Power Co. Ltd., China), Ligang Ye (Inner East Mongolia Electric Power Co. Ltd., China), Dapeng Xu (Inner East Mongolia Electric Power Co. Ltd., China), Kunpeng Ji (China Electric Power Research Institute, China), Bin Liu (China Electric Power Research Institute, China), Peng Li (China Electric Power Research Institute, China), Yang Cao (Inner East Mongolia Electric Power Co. Ltd., China), Danyu Li (China Electric Power Research Institute, China), and Zeyu Wang (Inner East Mongolia Electric Power Co. Ltd., China)</i>	
Automatic Power Transmission Towers Detection Based on the Deep Learning Algorithm	11
<i>Yifu Mo (Guangdong Power Grid Co., Ltd., China), Ruibiao Xie (North China Electric Power University, China), Qishen Pan (Guangdong Power Grid Co., Ltd., China), and Baoxing Zhang (Guangdong Power Grid Co., Ltd., China)</i>	
Research of Privacy Preservation of Data Aggregation in Wireless Sensor Networks	16
<i>Zhenyu Liu (Nanjing University of Aeronautics and Astronautics, China) and Feng Xu (Nanjing University of Aeronautics and Astronautics, China)</i>	
The Influence of Image Enhancement Algorithm on Face Recognition System	20
<i>Yu-Xuan He (Changchun University of Science and Technology, China)</i>	

Research on 5G Encryption Algorithm Identification Scheme Based on Adaboost	25
<i>Yiming Zhang (Zhengzhou University, China) and Qinglei Zhou (Zhengzhou University, China)</i>	
A Fineset Cortex Atlas of Human Brain Based on Boundary Mapping Technique: An 7T fMRI Study	29
<i>Ziteng Han (Beijing Institute of Technology, China), Luyao Wang (Shanghai University, China), Tianyi Yan (Beijing Institute of Technology, China), and Jinglong Wu (Beijing Institute of Technology, China)</i>	
A Hybrid Evolutionary Algorithm Based on Artificial Bee Colony Algorithm and Differential Evolution	35
<i>Yao Wei (Fujian University of Technology, China)</i>	
Ultrasound Thyroid Nodule Segmentation Based on Multi-Branch and Color Space Volume	41
<i>Haonan Zheng (Fuzhou University, China), Xiaogen Zhou (Fuzhou University, China), Weixin Zheng (Fuzhou University, China), Jing Li (Fuzhou University, China), Qinquan Gao (Fuzhou University, China; Imperial Vision Technology, China), Tong Tong (Fuzhou University, China; Imperial Vision Technology, China), and Ensheng Xue (Fujian Medical University, China)</i>	
A Resilient Response Method of DDoS Attack Based on TCP Proxy	46
<i>Xiaoyang Han (Air Force Engineering University, China), Xiangru Meng (Air Force Engineering University, China), Dong Zhai (Air Force Engineering University, China), and Gang Chen (Air Force Engineering University, China)</i>	
Comparison Analysis for Pruning Algorithms of Neural Networks	50
<i>Xi Chen (Beijing University of Posts and Telecommunications, China), Jincheng Mao (University of Sussex, UK), and Jian Xie (Nanchang Institute of Technology, China)</i>	
Toponym Based Community Search in Large Social Network	57
<i>Zhenghui Chen (Hangzhou Dianzi University, China), Jian Xu (Hangzhou Dianzi University, China), Qing Bao (Hangzhou Dianzi University, China), Xue Yang (Zhejiang Police College, China), Huaixiang Zhang (Hangzhou Dianzi University, China), and Ming Xu (Hangzhou Dianzi University, China)</i>	
Distributed Functional Connectivity Network Method for Identifying Autism Spectrum Disorder	64
<i>Zhongwei Han (Shandong Institute of Business and Technology, China), Hongxin Pan (Shandong Institute of Business and Technology, China), Na Li (Shandong Institute of Business and Technology, China), Tianyu Gao (Shandong Institute of Business and Technology, China), and Feng Zhao (Shandong Institute of Business and Technology, China)</i>	
Research on Raw Material Ordering and Transportation Process Based on TOPSIS and Neural Network	68
<i>Hanrao Huang (Beijing University of Posts and Telecommunications, China)</i>	

FPGA Placement Optimization with Deep Reinforcement Learning	73
<i>Junpeng Zhang (Beijing University of Posts and Telecommunications, China), Fang Deng (Beijing University of Posts and Telecommunications, China), and Xudong Yang (Beijing University of Posts and Telecommunications, China)</i>	
Research on Unstructured Data Access Strategy in Cloud Environment	77
<i>Lu-lu Fang (Army Academy of Armored Forces, China), Hai-rong Hu (Army Academy of Armored Forces, China), Cai-sen Chen (Army Academy of Armored Forces, China), and Song Chen (Army Academy of Armored Forces, China)</i>	
IDMC-VSLAM: Improved Dense Map Construction and Visual SLAM in Dynamic Environments ..	81
<i>Shifeng Jia (Heilongjiang University, China) and Haihua Yu (Heilongjiang University, China)</i>	
A Knowledge-Based Question-Answering Method for Military Critical Information under Limited Corpus	86
<i>Bo Liu (National University of Defense Technology, China), Ruicheng Yan (National University of Defense Technology, China), Yuan Zuo (National University of Defense Technology, China), and Yu Tao (National University of Defense Technology, China)</i>	
Semantic Segmentation Model for Detection of People Falling into the Water Based on DeepLabV3+	92
<i>Zhang Yang (Jiangsu University of Science and Technology, China), Zhengang Wan (Jiangsu University of Science and Technology, China), and Zihan Fan (Jiangsu University of Science and Technology, China)</i>	
Predicting Differentiation Degree of Gastric Cancer Pathology Images Based on Mask Attention R-CNN	98
<i>Yanglin Deng (Fuzhou University, China), Junlin Lan (Fuzhou University, China), Yuxiu Huang (Fuzhou University, China), Qinquan Gao (Fuzhou University, China; Imperial Vision Technology, China), Hejun Zhang (Fujian Cancer Hospital & Fujian Medical University Cancer Hospital, China), Tong Tong (Fuzhou University, China; Imperial Vision Technology, China), and Gang Chen (Fujian Cancer Hospital & Fujian Medical University Cancer Hospital, China)</i>	
Image Encryption System Based on Chaotic System and DNA Computing	103
<i>Yunyi Li (Zhengzhou University, China) and Jiangfeng Xu (Zhengzhou University, China)</i>	
A Comparative Study of Poisson Kriging's Matrix Solving Method and Surrogate Model Solving Method	107
<i>Zhenyu Wang (Institute of NBC Defence, China), Weiqi Huang (Institute of NBC Defence, China), and Jian Sun (Institute of NBC Defence, China)</i>	
Optimization of Process Conditions for Catalytic Preparation of C4 Olefins from Ethanol Based on Stochastic Forest Algorithm	113
<i>Xinyu Zhang (Jilin University, China), Yuan Fang (Jilin University, China), Xiaohan Zhang (Jilin University, China), and Xiaoshi Chen (Beijing Institute of Technology, China)</i>	

Session 2: Artificial Intelligence Technology and Intelligent Control Application

Research on UAV Target Recognition Technology Based on Federated Learning	119
<i>Lu-lu Fang (Army Academy of Armored Forces, China), Hai-rong Hu (Army Academy of Armored Forces, China), Wei Pu (Army Academy of Armored Forces, China), and Jian-quan Bi (Army Academy of Armored Forces, China)</i>	
Cooperative Pursuit of UAV Cluster Based on Graph Embedding Reinforcement Learning	123
<i>Wan-chun Guo (Air Force Engineering University, China), Wu-jie Xie (Air Force Engineering University, China), Wen-han Dong (Air Force Engineering University, China), and Lei He (Air Force Engineering University, China)</i>	
Design of Control System for Heating Furnace Based on Variable Domain Fuzzy Control	129
<i>Xingyuan Fan (University of Science and Technology Beijing, China), Zhengguang Xu (University of Science and Technology Beijing, China), Tong Hua (University of Science and Technology Beijing, China), and Xu Zhu (University of Science and Technology Beijing, China)</i>	
Intelligent Control of a Hypersonic Flight Vehicle Based on Active Disturbance Rejection Control	134
<i>Zhen Yu (Xiamen University, China), JiaHao Ao (Xiamen University, China), Lijun Liu (Xiamen University, China), and ChunHui Zhu (Xiamen University, China)</i>	
Design and Simulation of Permanent Magnet Synchronous Motor Controller for Twin Oar Electric Boat	138
<i>Zihan Fan (Jiangsu University of Science and Technology, China), Zhengang Wan (Jiangsu University of Science and Technology, China), Zhang Yang (Jiangsu University of Science and Technology, China), and Surui Chen (Jiangsu University of Science and Technology, China)</i>	
AI Feasibility Study on Case Detection	143
<i>Zeyu Ma (Xi'an Jiaotong-Liverpool University, China)</i>	
Performance Comparative Analysis of Artificial Intelligence Chip Technology	149
<i>Ruize Gao (Jilin University, China) and Mo Song (Washington University in St. Louis, USA)</i>	
Research on Intelligent Operation and Maintenance System of Battery Based on Digital Twin .	154
<i>Gang Cheng (Guangzhou Zijing Communication Technology Co., Ltd., China), Wei Wei (Guangzhou Zijing Communication Technology Co., Ltd., China), and Zihan Liu (Guangzhou Zijing Communication Technology Co., Ltd., China)</i>	
An Outlier Fault Diagnosis Method Based on Principal Component of Entropy Weight	158
<i>Yufeng Long (Naval Aviation University, China), Xianjun Shi (Naval Aviation University, China), Zhicai Xiao (Naval Aviation University, China), and Zhilong Zhang (Naval Aviation University, China)</i>	
Research on the Architecture of Shipborne UAV Target Indication Command and Control System Based on DoDAF	162
<i>Haonan Lv (Naval University of Engineering, China), Jun Xie (Naval University of Engineering, China), and Kai Liu (Fujian Normal University, China)</i>	

Research on Architecture of Spacecraft Intelligent Control System	172
<i>Jinggang Gong (Beijing Institute of Control Engineering, China), Xiaojing Zhang (Beijing Institute of Control Engineering, China), Yu Ning (Beijing Institute of Control Engineering, China), and Nan Lv (Beijing Institute of Control Engineering, China)</i>	
Analysis of Dynamic Equivalent Circuit Model of Single Axle Bogie	177
<i>Zheng Wang (Lanzhou Jiatong Univesity, China), Yuanpeng Lei (Lanzhou Jiatong Univesity, China), Sheng Wang (Lanzhou Jiatong Univesity, China), and Fan Luo (Lanzhou Jiatong Univesity, China)</i>	
Research on the Construction of Data Middle Platform for Smart Hydropower Station	181
<i>Yang Lyu (Power China Huadong Engineering Corp. Ltd., China), Yuanlin Luo (Power China Huadong Engineering Corp. Ltd., China; Zhejiang University, China), Wenqu Fei (Power China Huadong Engineering Corp. Ltd., China), and Bo Zheng (Power China Huadong Engineering Corp. Ltd., China)</i>	
Impaction of Artificial Intelligence on Interaction Design	187
<i>Jiamei Du (Northeast Yucai Foreign Language School, China)</i>	
Participation of Electrochemical Energy Storage in Secondary Frequency Regulation of Thermal Power Units	192
<i>En Ren Liu (Shandong Electric Power Research Institute, China), Jun Li (Shandong Electric Power Research Institute, China), Song Gao (Shandong Electric Power Research Institute, China), Xiang Rong Meng (Shandong Electric Power Research Institute, China), Qing Bin Yu (Shandong Electric Power Research Institute, China), and Yuan Yuan Li (Shandong Electric Power Research Institute, China)</i>	
Research on Design and Optimization Technology of Mine-Used Multi-Output Intrinsically Safe Power Supply	196
<i>Zifeng Chen (China Coal Research Institute, China), Ruxuan Li (China Coal Research Institute, China), and Huibin Zhao (University of Bristol, UK)</i>	
Energy Saving Simulation Analysis of Natural Cooling of Fresh Air in Small and Medium-Sized Data Centers in Cold Winter and Hot Summer Regions	201
<i>Kai Wang (Shanghai University of Electric Power, China), Qifen Li (Shanghai University of Electric Power, China), and Yongwen Yang (Shanghai University of Electric Power, China)</i>	
Structural Strength Analysis of Crane Setting of 4000t Revolving Floating Crane	205
<i>Sibo Chen (Jiangsu University of Science and Technology, China) and Yifeng Guan (Jiangsu University of Science and Technology, China)</i>	
Study on Ship Collision Risk Assessment and Anti-Collision Scheme of Cross-Sea Bridges	209
<i>Pei Yuan (China Merchants Chongqing Communications Technology Research and Design Institute Co., Ltd., China)</i>	
Author Index	215