# 2022 14th International **Conference on Computer Research and Development** (ICCRD 2022)

Shenzhen, China 7-9 January 2022



**IEEE Catalog Number: CFP2285J-POD ISBN:** 

978-1-7281-7732-8

## 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:
 CFP2285J-POD

 ISBN (Print-On-Demand):
 978-1-7281-7732-8

 ISBN (Online):
 978-1-7281-7721-2

#### **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



# 2022 IEEE 14th International Conference on Computer Research and Development (ICCRD)

#### **Table of Contents**

Preface Committees Committees	x
Machine Learning Theory and Applications	
Post Training Quantization after Neural Network  Hangyang Jiang, Quande Li, Yanteng Li	1
A Survey of Machine Learning Technologies for COVID-19 Pandemic	7
Research on the Relationship between Mobile Network Data and COVID-19 Cases  Jianmeng Tian, Haoyuan Zhao	12
Deep Learning Techniques for Financial Fraud Detection	16
An Ensemble Method for IoT Device Classification	23
Research on Malicious URL Detection Based on Random Forest	30
Deep Learning and Algorithms	
Impact of Resampling and Deep Learning to Detect Anomaly in Imbalance Time-Series Data  Mulyana Saripuddin, Azizah Suliman, Sera Syarmilla Sameon	37
Skin Disease Classification Using Inception-ResNetV2 and Data Augmentation	42

Quantization Algorithm in Neural Network Training
Deep Learning and Data Mining for Book Recommendation: Retrospect and Expectation
Deep Neural Networks for Stock Price Prediction
Deep Learning Techniques for Aspect Based Sentiment Analysis
Next Generation Artificial Neural Networks and Technologies
LSTM Boosted Multi-layer Residual Spiking Neural Network with Application to Motor Cortical Activities
Real-Time Distortion Prediction and Optimization of Weld Sequence Using Artificial Neural Network 79  Jeyaganesh Devaraj, Aiman Ziout, Jaber Abu Qudeiri
Emotion Detection with Deep Neural Network and Contrastive Learning
VPN Traffic Classification Based on CNN
A Survey on Convolutional Neural Network Accelerators: GPU, FPGA and ASIC
A Survey on Implicit Bias of Gradient Descent
A Robust Multiple Network Attacks Detection Method Based on Artificial Neural Network
Intelligent Recommendation System and Computational Model
Statistical Analysis of Factors Influencing Coronary Heart Disease
A User-based Collaborative Filtering System for Deck Recommendation in Game Clash Royale

Car Recommendation System for Dealers in Different European Countries	131
Factors Affect the House Price	136
Random Forest Model for the House Price Forecasting	140
The Brief Analysis on Recommender Systems and Similarity Algorithms	144
Comparative Analysis of Different Models for Covid-19 Trend Prediction	148
K-nearest Neighbors Regressor for Traffic Prediction of Rental Bikes	152
Impact of Using Electric Vehicle on Carbon Emission	157
Natural Language Analysis and Processing	
Public Opinion Analysis and Popularity Prediction for COVID-19 Hot Search Based on Weibo	161
A Transformer-based Attention Flow Model for Intelligent Question and Answering Chatbot	167
Improvement of Japanese Text Emotion Analysis by Active Learning Using Transformers Language	
Tatsuya Ikeagami, Xin Kang, Fuji Ren	
Attention Method Analysis in Sentiment Analysis for Humor Level Evaluation	178
Comparison and Analysis of Humorous Factors in Text  Jihui Wu, Huiyi Xie	186
Different Data Enhancement Methods applied on Imbalanced Data	190
Refining Word Embeddings for Funniness Predicting Sentimental Analysis Tasks	197

## **Image Detection and Methods**

An Attention-based U-Net Network for Anomaly Detection in Crowded Scenes	202
Jinpeng Fang, Xinfeng Zhang, Baoqing Yang, Shuhan Chen, Bin Li	
An Implementation of Face Mask Detection System Based on YOLOv4 Architecture	207
An Ensemble Method for Phishing Websites Detection Based on XGBoost	214
Detecting Spliced Image Based on Simplified Statistical Model	220
A Simultaneous Object Detection and Tracking Framework Based on Point Cloud	225
Image Recognition and Computing	
Research on Recognition Method of Truck Colors Based on Convolutional Neural Network Mod Jian Cui, Chuangang Kang, Xiaogang Ma, Rong Cao, Xuehui Chen, Hao Li, Jing Zhang, C Teng Ma, Xinliang Wang	
Bright Field Droplet Image Recognition Based on Fast Hough Circle Detection Algorithm	234
Traffic Sign Classification by Using Learning Methods: Deep Learning and SIFT Based Learning	ng Algorithm
Kundong Lin, Zhuying Wang	239
License Plate Recognition Based on CNN	244
Improve Generalization Ability of CNN by Data Augmentation and SE Block in Landmark C	
Yuwei Miao, Wenyi Luo	
Digital Image Analysis and Processing	
Estimate Yeast Replicative Lifespan from Time-lapse Microfluidic Images with Object Tracking Analysis	ŭ
, Mehran Ghafari, Cody Whitt, Parisa Hatami, Li Yang, Weiwei Dang, Hong Qin	

A Fast and Effective Panorama Stitching Algorithm on UAV Aerial Images  Haoran Yang, Yan Fu, Duanbing Chen, Yu Peng	266
Super-Voxel Graph Guided 3D Point Cloud Denoising	276
Research of Camouflage Evaluation Based on Human Visual Attention Mechanism	281
Blind Image Restoration with Horizontal Motion Blur Based on Point Spread Function Estimates Frequency Domain	
A Survey: Image Classification Models Based on Convolutional Neural Networks	291
Comparison and Analysis between Different Versions of FXAA	299
Underwater Image Processing using Various Data Enhancement Methods	311
Advanced Electronic Technology and Application	
Chisel-based Implementation of High-performance Pipelined Priority Queue Generator	317
Semi-Automatic Construction of Surrounding Domain for Aerodynamic Simulation with PolyCube  Chengqiao Lin, Juncong Lin, Pan Chen, Bin Luo	323
Hardware-oriented Groupwise Topology for CNN Accelerator  Peng Luo, Hongzao Chen, David Yat King Chu, Tak Wai Shen, King Hung Chiu, Yiu Kei Li	328
Design and Implementation of the Large-scale Instruments and Equipment Sharing System	334
Research and Future Challenges of Radiomics  Jingyu Liu, Ying Liu, Fan Zhang	340
A Survey for Realizing In-Memory Computing	345
Evaluation System of Civil Aircraft Cockpit Design Using Mixed Reality	349

## **Photonics and Optical Communication**

MPPM Spectrum Analysis Based on PPM
Zirui Zhou, Bochun Liang, Yuxuan Cao, Moxuan Zhang
Spectrum Analysis of Multi-Pulse Position Modulation under Same Transmission Condition
Performance Analysis and Realization of MSK-MPPM Scheme for Optical Transmission System 368  Yuheng Hu, Jun Li, Ye Li
The Research on Transmission Effect of Different Pulse Shapes in MPPM
Electronics and Communication Engineering
Two 5G Patch Antenna Designs for Millimeter-Wave
A Simulation Method of Orthogonal Frequency Division Multiplexing
Transmission Analysis of OFDM System Based on Index Modulation and QPSK
Millimeter Wave Patch Antenna for Vehicle-Mounted 5G Communication
Parameter Research and Design of 5G Millimeter Wave Patch Antenna
The Cross-carrier Scheduling in LTE-NR Dynamic Spectrum Sharing

#### **Author Index**