2021 IEEE 7th International Conference on Cloud Computing and Intelligent Systems (CCIS 2021)

Xi'an, China
7 – 8 November 2021

IEEE Catalog Number: CFP2133N-POD
ISBN: 978-1-6654-4150-6

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: CFP2133N-POD
ISBN (Print-On-Demand): 978-1-6654-4150-6
ISBN (Online): 978-1-6654-4149-0

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

Table of Contents

Invited Speakers

Invited Keynote-1 **How to Break Through the Prior Hypothesis of Mchine Learning?**
Zongben Xu

Invited Keynote-2 **Bionic video sensing and target information processing**
Guangming Shi

Invited Keynote-3 **Multi-sensor Fusion for 3D Object Detection**
Xiang Bai

Invited Keynote-4 **Based on the Data, AI Enables Intelligent Development of Platform Business**
Robert Wang

Session I: Big Data Models and Data Mining

01-007 **Research on China’s Primary Industry: Evidence From Regional Analysis Based on SVM and Moran’s Index** ***1***
Shiyu Jiang, Junjie Jia, Yi Yuan, Yuxiong Wu, Tianqi Wang

02-010 **Research on Data Acquisition and Processing Under the Coordination of Multiple Value Chains in the Manufacturing Industry—Taking the Electric Vehicle Manufacturing Industry as an Example** ***9***
Shiping Geng, Yuntian Liu, Dongxiao Niu, Xiaopeng Guo

03-021 **Subgraph Convolutional Network for Recommendation** ***15***
Yan Zhao, Lianming Zhou, Liwei Deng, Vincent W. Zheng, Hongzhi Yin, Kai Zheng

04-032 **Knowledge Graph Completion via Bidirectional Translation and Interaction** ***20***
Qianjin Zhang, Dan Jiang, Xiongfei Wang, Ronggui Wang

05-035 **Dynamic Graph Neural Network for Fake News Detection** ***27***
Chenguang Song, Yiyang Teng, Bin Wu

06-049 **Feature Selection Based on Genetic Algorithm With Stochastic Disturbance Local Optimization** ***32***
Lingyun Guo, Guohe Li, Ying Li, Zheng Li

07-054 **CESMP: Chinese-English Segment-aligned Multi-field Patent Data** ***37***
Wuying Liu, Lin Wang, Fumao Hu

08-058 **Network Embedding Based Collaborative Filtering Model Equipped With User Purchase Motivation and Potential Interactions** ***42***
Shuo Wang, Hui Zhou, Mingxin Li, Chao Li, Zhongying Zhao

09-065 **Urban Fatigue Driving Prediction With Federated Learning** ***47***
Yongqiang Ma, Yingxia Shao, Zhe Xue, Ziqiang Yu

10-080 **Multi-Modal COVID-19 Discovery With Collaborative Federated Learning** ***52***
Xiaomeng Chen, Yingxia Shao, Zhe Xue, Ziqiang Yu

11-081 **Agricultural super docking Traceability System of Fresh Agricultural Products** ***57***
Shuhui Pan, Min Zuo, Wenjing Yan, Qingchuan Zhang, Wei Wei

12-095 **Stable and Diverse: A Unified Approach for Computerized Adaptive Testing** ***61***
Yuting Ning, Ye Liu, Zhenya Huang, Haoyang Bi, Qi Liu, Enhong Chen, Dan Zhang

13-111 **Cognitive Computing and Decision-Making of Traffic Intersection Based on Rule Set** ***66***
Nan Zhang, Weifeng Liu, Yaning Wang

14-177 **Auxiliary Diagnostic Method for Early Autism Spectrum Disorder Based on Eye Movement Data Analysis** ***72***
Haoquan Fang, Lei Fan, Jenq-Neng Hwang

15-196 **Website Fingerprinting Attack Through Persistent Attack of Student** ***78***
Zhenyan Zhu, Gang Chen, Zijiao zhang, Mingzhu Fang, Qiyu Song, Baolei Mao

16-206 **Leveraging Application Complexity Partition for Android Malware Detection** ***83***
Zhanbo Li, Biao Jiang, Baolei Mao,Yan Zhuang, Hongtao Zhang

17-248 **An Enhanced Method for Entity Trigger Named Entity Recognition Based on POS Tag Embedding** ***89***
Liwen Ma, Weifeng Liu

Session II: Computational Intelligence ***94***

18-072 **Knowledge Transfer-Based Multiple Data Sets Collaborative Analysis for Hyperspectral Band Selection** ***94***
Jiao Shi, Xi Zhang, Zeping Zhang, Xiaoyang Li, Deyun Zhou, Yu Lei

19-108 **Hyper-parameter Tuning of Federated Learning Based on Particle Swarm Optimization** ***99***
Zhiyuan Li, Hao Li, Mingyang Zhang

20-116 **A Multiobjective Multitask Evolutionary Algorithm Based on Decomposition and Multivariate Gaussian Distribution** ***104***
Zhongjian Wu, Wu Lin, Huimei Tang, Qiuzhen Lin

21-132 **A Modified Decomposition Based Multi-objective Optimization Algorithm for High Dimensional Feature Selection** ***109***
Manlin Xuan, Lingjie Li, Qiuzhen Lin, Zhong Ming, Wenhong Wei

22-136 **Android Unit Test Case Generation Based on the Strategy of Multi-Dimensional Coverage** ***114***
Jie Cao, Han Huang, Fangqing Liu

23-142 **Graph-Order Optimization Algorithm Based on Equal-in-Space Distance Model for High-Resolution Image** ***122***
Fujian Feng, Han Huang, Yihui Liang

24-159 **A Voronoi Neighborhood Based Differential Evolution Algorithm for Multimodal Multi-objective Optimization** ***128***
Tianqi Huang, Weifeng Gao, Hong Li, Jin Xie

25-183 **A Classification-based Mixture-of-Kriging Assisted Evolution-ary Algorithm for Expensive Many-objective Optimization** ***134***
Gaoli Kang, Xunfeng Wu, Qiuzhen Lin

26-185 **An Adaptive Asynchronous Transfer Evolutionary Framework Towards Many-Task Optimization** ***139***
Baihao Chen, Huimei Tang, Qiuzhen Lin

27-200 **A Review on Indicator-based Multi-objective Evolutionary Algorithms** ***144***
Zilu Huang, Feng Wang

28-246 **An Efficient Neighborhood Structure Generating Method for Large-scale Traveling Salesman Problem** ***149***
Kang Wang, Xinye Cai

29-247 **A Two-phase Constrained Multi-Objective Evolutionary Algorithm Based on the Constrained Decomposition Approach** ***154***
Haiyang Xu, Xinye Cai, Zhenhua Li, Zhun Fan

30-254 **Multiple Adaptive Strategies-based Rat Swarm Optimizer** ***159***
Ziyue Xu, Xiaodan Liang, Maowei He, Hanning Chen

Session III: Computer Vision ***164***

31-060 **ATKey.Net: Keypoint Detection by Handcrafted and Learned CNN With Attention** ***164***
Zhihong Wang, Jinshan Ma, Haiyang He, Zixuan Wu, Changying Wang, Li Cheng

32-052 **Improvement of YOLOV5 Model Based on the Structure of Multiscale Domain Adaptive Network for Crowdscape** ***171***
Xiangping Zhang, Honghui Fan, HongJin Zhu, Xianzhen Huang,Tao Wu, Hongyan Zhou

33-025 **Unsupervised Video-based Person Re-identification Based on The Joint Global-local Metrics** ***176***
Xiao Yu, Cao Liang,Wang Hongyuan, Liu Suolan, Yan Hui

34-047 **MLP-Pose: Human Pose Estimation by MLP-Mixer** ***183***
Songkai Xiong, Zhaowei Qu, Yiran Wang, Xiaoru Wang, Han Xia

35-053 **Saliency Region Detection in Complex Scenes Based on Multi-scale Cascaded Attention** ***188***
Yifeng Wang, Zhenfeng Huo, Aoli Liu, Lin Zhao, Di Wang

36-077 **Updating Land-Cover Maps by Iterative Difference Learning Network** ***193***
Mingliang Zhang, Zheng Feng, Jinxin Wei, Maoguo Gong

37-078 **PowerDet: Efficient and Lightweight Object Detection for Electric Power Open Scenes** ***198***
Shigeng Wang, Zhonghong Ou, Meina Song

38-090 **CFPA-Net: Cross-layer Feature Fusion and Parallel Attention Network for Detection and Classification of Prohibited Items in X-ray Baggage Images** ***203***
Yifan Wei, Yizhuo Wang, Hong Song

39-096 **Single-task Temporal Face Synthesis Model Based on Migration Confrontation** ***208***
Linlin Tang, Ruipei Sun, Shiyu Qin, Xing Huang, Yijie Fan, Minghua Hou

40-130 **Windows Attention Based Pyramid Network for Food Segmentation** ***213***
Xiaoxiao Dong, Wei Wang, Haisheng Li, Qiang Cai

41-163 **Non-Mydriatic Fundus Images Enhancement Based on Conformal Mapping Extension** ***218***
Songlin Yan, Xiujiao Chen, Jiehua Sun, Xiaoying Tang, Xuebing Chi

42-202 **Multi-scale Defective Samples Synthesis for Surface Defect Detection** ***224***
Zirong Liu, Zhihui Lai, Can Gao,

43-243 **DRSGN: Dual Revised Semantic Graph Structured Network for Image-Text Matching** ***230***
Xiao Yang, Xiaojun Wu, Tianyang Xu

Session IV: Deep Learning ***243***

44-006 **Daily Load Forecasting of Electric Power Manufacturing Industry Considering Disaster Weather Recognition Under the Deep Learning** ***243***
Mingyu Li, Yujing Liu, Zhengsen Ji, Dongxiao Niu, Huanfen Zhang

45-040 **A Novel Radial Basis Function (RBF) Network for Bayesian Optimization** ***250***
Jianping Luo, Wei Xu, Jiao Chen

46-045 **Learn Fine-grained Sharing Network for Multiple Tasks** ***255***
Yanbao Ma, Hao Xu, Junzhou He, Kun Qian

47-048 **Malicious Code Family Classification Method Based on Spatial Pyramid Pooling and Deep Residual Network** ***260***
Jianyi Liu, Yansheng Qu, Jiaqi Li, Yunxiao Wang, Jing Zhang, Hongshan Yin

48-055 **A Heart Sound Classification Method Based on Time Series Analysis** ***265***
Zhuo Chen, Qiao Pan, Chende Hua

49-073 **Multi-scale Features Fusion Network for Unsupervised Change Detection in Heterogeneous Optical and SAR Images** ***270***
Jiao Shi, Zeping Zhang, Tancheng Wu, Xiaoyang Li, Deyun Zhou, Yu Lei

50-083 **Research on Multi-task Deep Learning Approach Based on Hybrid Sharing and Network Optimization** ***275***
Hui Guo, Jingchun Guo

51-084 **A Deep Learning Inference Scheme Based on Pipelined Matrix Multiplication Acceleration Design and Non-uniform Quantization** ***281***
Yuyang Zhang, Dik Hin Leung, Min Guo, Yijia Xiao, Haoyue Liu, Yunfei Li, Jiyuan Zhang, Guan Wang, Zhen Chen

52-092 **Mask Image to Real Image Generation Based on Semantic Control Context Encoder** ***286***
Yangqianhui Zhang, Pingda Huang, Xinwei Li, Shuda Gao, Liang Zhao

53-094 **Graph Convolutional Neural Network With Inter-layer Cascade Based on Attention Mechanism** ***291***
Lu Wei, Yiting Liu, Kaiyuan Feng, Jianzhao Li, Kai Sheng, Yue Wu

54-209 **Federal Learning Based COVID-19 Fake News Detection With Deep Self-Attention Network** ***296***
Suyu Ouyang, Junping Du, Benzhi Wang, Bowen Yu, Yuhui Wang, Meiyu Liang

55-245 **Adaptive Observer-Based Inverse Optimal Control of a Class of Second-Order Euler-Lagrange Systems** ***300***
Zheng Cao, Fancheng Meng

56-252 **Research on Pedestrian Re-identification Method Based on Visual Attention Mechanism** ***305***
Zexin Jiang, Hang Ma,Wenbai Chen, Weizhao Chen, Tianxu Tong, Xibao Wu

Session V: Hybrid Intelligence and Complex Systems ***310***

57-017 **Construction of Intelligent Management System Model Based on Multi-value Chain Collaboration Data Space** ***310***
Jingdong Wang, Qizi Mu, Xiaolong Yang, Jieping Han

58-019 **Construction of Data Quality Evaluation Index for Manufacturing Multi-value Chain Collaborative Data Space Based on the Whole Life Cycle of Data** *315*
Sha Peng, Zhuxiao Tian, Zhuoya Siqin, Xiaomin Xu

59-033 **Manufacturing Multi-value Chain Product Demand Forecasting Based on KPCA-PSO-SVM —Taking the Demand of the Ring Network Cabinet as an Example** *324*
Dongxiao Niu, Min Yu, Ruoyun Du, Lijie Sun, Xiaomin Xu, Huanfen Zhang

60-034 **Application of Laboratory Information Management System (LIMS) in Coal Mine Electronic Products Testing Laboratory** *330*
Baojia Zhang, Guoming Li

61-039 **Design of Intelligent Collision Avoidance System for Fishing Vessels Based on AIS** *334*
Rui Zhuang, Yuanhong Wu, Wen Chen, Jianke Zhang

62-067 **Structural Balance Computation in Signed Networks by Using Multifactorial Discrete Particle Swarm Optimization** *338*
Changlong He, Zengyang Shao, Lijia Ma, Jianqiang Li, Tingyi Hu

63-069 **Evolution of Cooperation in Signed Networks Under a Cheating Strategy** *344*
Jingkuan Zhang, Zhenguo Liu, Ziwen Hong, Lijia Ma, Yanli Yang, Jianqiang Li

64-138 **A Lévy-Inspired Kinodynamic A* Algorithm for Quadrotor Fast Path Searching** *350*
Lin Zhao, Xinghui Zhang, Weiyan Ren

65-180 **Quadrilateral Surface Mesh Generation Algorithm for CFD Model Based on Area-Preserving Parameterization** *356*
Peng Wang, Haisheng Li, Xiaoqun Wu, Nan Li

66-195 **Road Network Optimization of Intelligent Warehouse Picking Systems Based on Improved Genetic Algorithm** *361*
Ruiping Yuan, Luke Pan, Juntao Li, Zhixin Chen

67-199 **Research on 5G UAV Smart Grid Inspection Technology Based on Digital Twin** *367*
Ming Xu

68-226 **Research on Online Scheduling Method for Flexible Assembly Workshop of Multi-AGV System Based on Assembly Island Mode** *371*
Xiangfei Ge, Lingli Li, Hao Chen

Session VI: Machine Learning ***376***

69-020 **Day-ahead Prediction Method of Hourly Building Energy Consumption in Transition Season** ***376***
Haizhou Fang, Hongwei Tan, Ningfang Dai, Xiaolei Yuan

70-024 **Optimization of Classification Rules and Voting Strategies for Random Forest** ***381***
Shishi Huang, Wanrong Gu, Shixin Chen

71-027 **Target Extraction from Remote Sensing Image Based on Scene Recognition and Target Segmentation** ***388***
Xili Wang, Min Liang, Huimin Guo, and Chenxiao Feng

72-043 **On the Convergence of Federated Learning with Stochastic Quantization** ***393***
Wenling Li, Yuhao Li, Junping Du

73-050 **Prediction of Heart Disease Based on Enhanced Random Forest** ***398***
Xianzhen Huang, Honghui Fan, Hongjin Zhu, Xiangping Zhang

74-062 **Video Super-Resolution Based on Spatial-Temporal Transformer** ***403***
Minyan Zheng, Jianping Luo, Wenming Cao

75-064 **CoBABO: A Hyperparameter Search Method with Cost Budget Awareness** ***408***
Wenyuan Qian, Zhenying He, Linwei Li, Xiaoqing Liu, Feng Gao

76-070 **Generalized Zero-Shot Text Classification via Inter-Class Relationship** ***413***
Yiwen Zhang, Caixia Yuan, Xiaojie Wang

77-137 **Federated Graph Neural Network for Cross-graph Node Classification** ***418***
Zeli Guan, Yawen Li, Zhe Xue,Yuxin Liu, Hongrui Gao, Yingxia Shao

78-186 **Federated Learning Method Based on Knowledge Distillation and Deep Gradient Compression** ***423***
Haiyan Cui, Junping Du, Yang Jiang, Yue Wang, Runyu Yu

79-187 **A Semi-Supervised Deception Jamming Discrimination Method** ***428***
Hongliang Luo, Jieyi Liu, Siyuan Wu, Zhao Nie, Hao Li, Jie Wu

80-191 **A Bi-Objective Search Method for Bayesian Network Structure Learning** ***433***
Ting Wu, Hong Qian, Aimin Zhou, Zhenzi Li

81-198 **Device-Free Indoor Localization Based on Supervised Dictionary Learning** ***438***
Kangkang Zhang, Benying Tan, Shuxue Ding

82-267 **A Novel Topic Extraction Model for Science and Technology Demand Data** ***444***
Haiyan Cui, Zhe Xue, Junping Du, Xin Xu, Junqing Xi

Session VII: Neural Network Applications ***449***

83-005 **A Key-phrase Extraction Method Based on Multi-size Convolution Windows for Scientific Literatures** ***449***
Yuhong Zhang, Yuxin Xie, Peipei Li, Xuegang Hu

84-029 **Dense Crowd Counting Based on ResNet** ***455***
Yang Wang, Shouqiang Liu, Mingyue Jiang, Liming Chen, Jianming Zeng, Wanggan Yang

85-031 **ReCUS: Reconvolution and Upsampling Network for Object Detection** ***460***
Fudong Li, Dongyang Gao, Yuequan Yang, Zhiqiang Cao, Wei Wang

86-036 **WNN Short-Term Traffic Flow Prediction Based on Improved Mind Evolutionary Algorithm and Error Compensation** ***465***
Yumeng Zhou,Yuchao Lv, Xi Jiang, Xijun Zhu

87-068 **Spatiotemporal Representation Learning for Taxi Pick-up Point Recommendation** ***470***
Yuyuan Huang, Yanwei Yu, Peng Jiang

88-088 **A Regularized Hypergraph Recommendation Algorithm with Attention Mechanism** ***475***
Tingting Zhu, Jianrui Chen, Zhihui Wang, Meixia He

89-192 **An Extraction Model Based on RoBERTa-BiLSTM-CRF for Chinese Financial Event** ***480***
Dagao Duan, Wenwen Liu, Zhongming Han

90-208 **A Multi-granularity Fusion Neural Network Model for Medical Question Classification** ***487***
Yingpei Ma, Jing Wang, Yonghao Ren, Shuo Zhang, Runzhi Li

91-210 **Incorporating Option and Out-of-domain Knowledge for Multi-choice Machine Reading Comprehension** ***493***
Yuan Xu, Shumin Shi, Heyan Huang

92-230 **Deep Name Disambiguation by Combining BERT and Orthogonal Constrained Non-negative Matrix Factorization** ***498***
Yangchen Huang, Licai Wang, Zhonglin Liu

93-234 **Target-based Sentiment Analysis in Finance with Domain Knowledge** ***504***
Caihua Yang, Jianzhu Bao, Xiaoqi Yu, Ruifeng Xu

94-237 **An Automatic Text Region Selection Method on Optical Inspection for Airborne Instrument** ***509***
Siyuan Wu, Jieyi Liu, Hongliang Luo, Zhao Nie, Hao Li, Jie Wu

95-255 **Deep Face Recognition for Intelligent Video Surveillance at Electrical Substations** ***514***
Bo Dai, Jinxia Jiang, Guizhu Shen, Xue Wang, Qing Wang

Author Index