2020 Eighth International Conference on Advanced Cloud and Big Data (CBD 2020)

Taiyuan, China **5-6 December 2020**



IEEE Catalog Number: CFP2003Y-POD ISBN:

978-1-6654-4627-3

Copyright © 2020 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:
 CFP2003Y-POD

 ISBN (Print-On-Demand):
 978-1-6654-4627-3

 ISBN (Online):
 978-1-6654-2313-7

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



2020 Eighth International Conference on Advanced Cloud and Big Data (CBD) CBD 2020

Table of Contents

Message from the Conference Chairs Message from the Program Chairs Message from the Program Chairs Message from the Program Committee Message from the Program Committee Message from the Program Committee Message from the Conference Chairs Message from the Program Chai	xii xiii xv
session 1: Cloud Computing and Applications	
he Multi-objective Cloud Tasks Scheduling Based on Hybrid Particle Swarm Optimization Ming Gao (School of Computer Science and Engineering of Nanjing University of Science and Technology), Yaoqin Zhu (School of Computer Science and Engineering of Nanjing University of Science and Technology), and Jin Sun (School of Computer Science and Engineering of Nanjing University of Science and Technology)	1
DEBSA-Sketch: a Combination of Sketch and Hash Table for the Measurement of Stream Data Haiting Zhu (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China), Yingying Deng (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China), Yuan Zhang (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China), Gaofeng He (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China), Ning Liu (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China), and Hao Zhang (School of Internet of Things, Nanjing University of Posts and Telecommunications, Nanjing, China)	6
MRC: A High Density Encoding Method for Pratical DNA-Based Storage	13
In Improved Ant Colony Optimization for QoS-Aware Web Service Composition	20

Supervised Learning Based Resource Allocation with Network Slicing	
A Novel Approach for Radar Network's Detection Power Analysis Based on GPU	
Integrated Power Grid Management System Based on Micro Service	
An Intelligent DevOps Platform Research and Design Based on Machine Learning	
Session 2: Big Data and Applications	
Bus IC Card Swiping Behavior Recognition Based on Multivariate Data Fusion and Venn Diagram	
Emotional Analysis and Recognition Based on EEG Brain Network	
A Spatial and Time Analysis Method of Big Bata of Public Transport Card Base on Classification Statistics and Visualization	
Research on Human Behavior Recognition Method Based on Static and Dynamic History Sequence. 68 Feng Xiufang (Taiyuan University of Technology, China) and Dong Xiaoyu (Taiyuan University of Technology, China)	

Spatial-Temporal Pattern Analysis on Journal Paper Submissions 74 Yourong Li (Shandong University of Science and Technology) and Weike Liu (Shandong University of Science and Technology)
Research on Dynamic Taxi Ride-Sharing Price Model
Research on Interpolation Method of Missing Traffic Flow Data Based on Improved Historical Trend Method
Measurement of Hotel Service Quality Based on Online Comment Sentiment Analysis
Session 3: Machine Learning & Data Mining I
Label Enhancement Manifold Learning Algorithm for Multi-label Image Classification
Hard Example Mining Based Adversarial Autoencoder Recommendation Algorithm
Spectral Clustering of Web Services by Fusing Document-Based and Tag-Based Topics Similarity
Multi-step Traffic Flow Prediction Method Based on the Conv1D + LSTM
Traffic Flow Prediction via Spatial Temporal Neural Network "ResLS-C" 119 Bei Su (Taiyuan University of Technology, China) and Wen Zheng (Taiyuan University of Technology, China; Ningbo University, China; Changzhi Medical College, China)
Fast Traffic Sign Recognition Algorithm Based on Multi-scale Convolutional Neural Network 125 Cai Zhao (Taiyuan University of Technology, China) and Wen Zheng (Taiyuan University of Technology, China; Ningbo University, China; Changzhi Medical College, China)

Collaborative Filtering Algorithm Based on SDAE and Time Mean Model
Session 4: Machine Learning & Data Mining II
CF-SSDAE:Symmetric SDAE for Collaborative Filtering Algorithm
Noise Processing and Multi-task Learning for Far-Field Dialect Classification
An Electric System Abnormal Analysis Framework Based on Natural Language Processing
Electric Power Load Prediction Based on Temporal Semantic Information and LSTM
Representation Learning on Networks for Community Detection
Research on User Interest Expression and Recommendation Service Based on Multi-dimensional Relationship between User and Item
Understanding Network Characteristics of Spam Users in Social Media
Session 5: Image and Video Applications
Video Object Detection Based on Non-Local Prior of Spatiotemporal Context

Image Registration Method Based on Generative Adversarial Networks Yujie Sun (North Automatic Control Technology Institute), Heping Qi (North Automatic Control Technology Institute), Chuanyou Wang (Institute of Systems Engineering Walter Reed Army Research), and Lei Tao (North Automatic Control Technology Institute)	183
Noise Image Segmentation Method Based on Offset Field Estimation Ling Zhang (Taiyuan University of Technology), Fangxing Shang (Taiyuan University of Technology), Jianchao Liu (Taiyuan University of Technology), Gang Li (Taiyuan University of Technology), Juming Zhao (Taiyuan University of Technology), and Yueqin Zhang (Shanxi Tizones Technology Co., Ltd.)	189
Application of CNN-1d Based on Feature Fusion in Bearing Fault Diagnosis	195
An Application Performance Optimization Model of Mobile Augmented Reality Based on hd Restoration	201
Face Recognition Algorithm Based on Weighted Intensity PCNN Hongxia Deng (Taiyuan University of Technology), Zijian Feng (Taiyuan University of Technology), Ying Liu (Taiyuan University of Technology), Dongsheng Luo (Taiyuan University of Technology), Xiaofeng Yang (Taiyuan University of Technology), and Haifang Li (Taiyuan University of Technology)	207
Pneumonia Detection in Chest X-rays a Deep Learning Approach Based on Ensemble RetinaNet and Mask R-CNN Liu Mao (Zhejiang Normal Univercity), Tan Yumeng (Zhejiang Normal Univercity), and Chen Lina (Zhejiang Normal Univercity)	213
Multi-scale 3D Convolutional Neural Network Lung Nodule Detection Method	219
Session 6: Cloud Security and Privacy	
Optimal Defense Policies for Cost-Constrained Cyber Physical System Yong Cheng (State Grid Shanxi Eelectric Power Company, Xian, China), Yonggang Yang (State Grid Shanxi Eelectric Power Company, Xian, China), Qian Guo (Global Energy Interconnection Research Institute Co., Ltd, Nanjing, China), Bingfeng Xu (Nanjing Forestry University, Nanjing, China), and Gaofeng He (Nanjing University of Posts and Telecommunications, Nanjing, China)	225
A Blockchain-Based Access Control Framework for Secured Data Sharing in Industrial Internet Wei Zhou (School of Cyber Science and Engineering Southeast University, China) and Jiahui Jin (School of Computer Science and Engineering Southeast University, China)	231

A Method of Conflict Detection for Cooperative Defense Strategy in Power Industrial Control System	237
Hongqin Zhu (State Grid Nanjing Power Supply Company, Nanjing, P.R. China), Zi Wang (NARI Group Co. Ltd./State Grid Electric Power Research Institute Co. Ltd., Nanjing, P.R. China), Wei Li (Southeast University, Nanjing, P.R. China), Dawei Su (State Grid Jiangsu Electric Power Co. Ltd., Nanjing, P.R. China), Jiawei Sun (State Grid Nanjing Power Supply Company, Nanjing, P.R. China), and Muye Li (NARI Group Co. Ltd. / State Grid Electric Power Research Institute Co.	
Ltd., Nanjing, P.R. China)	
A Novel Network Intrusion Detection System Based on CNN Lin Chen (Electric Power Research Institute, CSG, Guangzhou, China), Xiaoyun Kuang (Electric Power Research Institute, CSG, Guangzhou, China), Aidong Xu (Electric Power Research Institute, CSG, Guangzhou, China), Siliang Suo (Key Laboratory of Guangdong Electric Power System Network Security Enterprise, Guangzhou, China), and Yiwei Yang (Key Laboratory of Guangdong Electric Power System Network Security Enterprise, Guangzhou, China)	243
Session 7: Edge Computing & Miscellaneous	
An Edge-Cloud Framework Equipped with Deep Learning Model for Recyclable Garbage Detection	١
Qianqian Luo (School of Wuxi Vocational Institute of Commerce), Guohua Yang (School of Wuxi Vocational Institute of Commerce), and Xiaofeng Zhao (School of Wuxi Vocational Institute of Commerce)	
,	253
Feng Yu (Guangxi Normal University), Xixian Li (Guangxi Normal University), Huimin Zhang (Guangxi Normal University), and Li-e Wang (Guangxi Normal University)	
A BDS Wide-Lane Ambiguity Resolution Method Considering Carrier-to-Noise Ratio in Complex Environment	259
Junbing Cheng (Taiyuan University of Technology), Deng-ao Li (Taiyuan University of Technology), and Jumin Zhao (Taiyuan University of Technology)	
A Control Task Assignment Algorithm Based on Sub-Graph Isomorphism	265
Author Index	273