2020 IEEE 14th International **Conference on Big Data** Science and Engineering (BigDataSE 2020)

Guangzhou, China 29 December – 1 January 2020



IEEE Catalog Number: CFP20Y04-POD ISBN:

978-1-6654-0397-9

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:
 CFP20Y04-POD

 ISBN (Print-On-Demand):
 978-1-6654-0397-9

 ISBN (Online):
 978-1-6654-0396-2

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



2020 IEEE 14th International Conference on Big Data Science and Engineering (BigDataSE)

BigDataSE 2020

Table of Contents

Welcome Messages from IEEE BigDataSE 2020 General Chairs ix Welcome Messages from IEEE BigDataSE 2020 Program Chairs x IEEE BigDataSE 2020 Organizing and Program Committees xi	
Session BigDataSE-1	
Web Service Composition Sequence Learning Based on Neural Language Networks .1	
Profiling of Disease-Associated Proteins Neighborhood Networks .9. Sheheeda Manakkadu (Dakota State University, USA), Sourav Dutta (Ramapo College of New Jersey, USA), and Sam R. Thangiah (Slippery Rock University, USA)	
Big Data Science on COVID-19 Data .14	
Exploring the Application of Machine Learning Algorithms to the City Public Bus Transport 22 Michael Alicea (Texas A&M University-San Antonio, USA), Arlen P. McDonald (Texas A&M University-San Antonio, USA), Chunyang Tang (Texas A&M University-San Antonio, USA), and Jeong Yang (Texas A&M University-San Antonio, USA)	
Goal-Driven Look-Alike Modeling for Mobile Consumers .28 Nisha Verma (Data Science & Analytics Mobilewalla, Singapore), Kajanan Sangaralingam (Data Science & Analytics Mobilewalla, Singapore), and Anindya Dutta (Data Science & Analytics Mobilewalla, Singapore)	
Using GWAS SNPs to Determine Association between COVID-19 and Comorbid Diseases .36	

Real-Time Social Media Analytics with Deep Transformer Language Models: A Big Data Approach 41	
Ahmed Ahmet (University of Derby, United Kingdom) and Tariq Abdullah (University of Derby, United Kingdom)	
A Novel Bilateral Oblivious Transfer Protocol Based on Cut-and-Choose Technique .49 Lulu Ning (Nanjing University of Aeronautics and Astronautics, China) and Jian Wang (Nanjing University of Aeronautics and Astronautics, China)	
Animated Commentator Enhanced Network Monitoring and Visualization Application for Cyl Security Competition .57	ber
An Improved RFID-Based Authentication Protocol for Rail Transit .65	
DP-AP: Differential Privacy-Preserving Affinity Propagation Clustering .73	
A Machine-Learning Based Framework for Detection of Fake Political Speech .80	
IoTDefender: A Federated Transfer Learning Intrusion Detection Framework for 5G IoT .88 Yulin Fan (Institute of Information Engineering, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China), Yang Li (Institute of Information Engineering, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China), Mengqi Zhan (Institute of Information Engineering, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China), Huajun Cui (Institute of Information Engineering, Chinese Academy of Sciences, China), and Yan Zhang (Institute of Information Engineering, Chinese Academy of Sciences; University of Chinese Academy of Sciences, China)	

Hardware Trojan Detection Combines with Machine Learning: an Isolation Forest-Based Detection Method 96
Policy Enforcement for Secure and Trustworthy Data Sharing in Multi-domain Infrastructures.104 Xin Zhou (University of Amsterdam, Netherlands), Reginald Cushing (University of Amsterdam, Netherlands), Ralph Koning (University of Amsterdam, Netherlands), Adam Belloum (University of Amsterdam, Netherlands), Paola Grosso (University of Amsterdam, Netherlands), Sander Klous (KPMG, Netherlands), Tom van Engers (University of Amsterdam, Netherlands), and Cees de Laat (University of Amsterdam, Netherlands)
Reputation-Based Trust: A Robust Mechanism for Dynamic Adaptive Streaming over Named Data Networking .114
A Threat Modelling Approach to Analyze and Mitigate Botnet Attacks in Smart Home Use Case .12 Faisal Hussain (Al-Khawarizmi Institute of Computer Science (KICS) Lahore, Pakistan), Syed Ghazanfar Abbas (Al-Khawarizmi Institute of Computer Science (KICS) Lahore, Pakistan), Shahzaib Zahid (Al-Khawarizmi Institute of Computer Science (KICS) Lahore, Pakistan), Ghalib A. Shah (Al-Khawarizmi Institute of Computer Science (KICS) Lahore, Pakistan), and Muhammad Husnain (Al-Khawarizmi Institute of Computer Science (KICS) Lahore, Pakistan)
Side Channel Leakage Alignment Based on Longest Common Subsequence .130
A Systematic Study of AI Applications in Cybersecurity Competitions .138

Invariance of Algebraic Immunity of Vectorial Boolean Functions Under Equivalence
Relations .147.
Yan Tong (Huazhong Agricultural University, China), Huanguo Zhang (Wuhan University, China), Zhengwei Ren (Wuhan University of Science and Technology, China), and Shiwei Xu (Huazhong Agricultural University, China)
Blockchain-Based Multi-Levels Trust Mechanism Against Sybil Attacks for Vehicular Networks. 155 Achref Haddaji (Digital Research Center of Sfax (CRNS), Laboratory of Technology and Smart Systems (LT2S), Sfax, Tunisia), Samiha Ayed (Institute Charles Delaunay-ERA, University of Technology of Troyes, France), and Lamia Chaari Chaari (Digital Research Center of Sfax (CRNS), Laboratory of Technology and Smart Systems (LT2S), Sfax, Tunisia)
Author Index 165