2020 IEEE 6th International Conference on Dependability in Sensor, Cloud and Big **Data Systems and Application** (DependSys 2020)

Nadi, Fiji 14 – 16 December 2020



IEEE Catalog Number: CFP20Y74-POD **ISBN:**

978-1-7281-7652-9

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:	CFP20Y74-POD
ISBN (Print-On-Demand):	978-1-7281-7652-9
ISBN (Online):	978-1-7281-7651-2

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 6th International Conference on Dependability in Sensor, Cloud and Big Data Systems and Application (DependSys) **DependSys 2020**

Table of Contents

Message from General Chairs viii
Message from Program Chairs ix
Message from Steering Chairs x
Organizing Committee xi
Program Committee xii

Regular Papers

Canada)

Security Fundamentals and Technologies I

Modeling and Analysis of Malware Propagation for Cluster-Based Wireless Sensor Networks .1 Xuejin Zhu (Southeast University, China), Jie Huang (Southeast University, China), Chunyang Qi (Southeast University, China), and Xiaowen Wang (Southeast University, China)
A Scalable Blockchain Based System for Super Resolution Images Manipulation .8 Antonio Rapuano (Universitá degli studi di Salerno, Italy), Gerardo Iovane (Universitá degli studi di Salerno, Italy), and Marta Chinnici (ICT Division (DTE-ICT) ENEA, Italy)
HBD-Authority: Streaming Access Control Model for Hadoop .16 Congwei Chen (Queen's University, Canada), Marwa A. Elsayed (Queen's

Security Fundamentals and Technologies II

University, Canada), and Mohammad Zulkernine (Queen's University,

A Secret Sharing Scheme Based on Game Theory and BP Neural Network .26..... Qiuxian Li (Kaili University, China), Quanxing Zhou (Kaili University, China), Qixin Pan (Kaili University, China), Linyun Wang (Kaili University, China), and Hongfa Ding (Guizhou University of Finance and Economics, China) Free Chain: Enabling Freedom of Expression through Public Blockchains .33..... Israa Alsarsour (Qatar University), Qutaibah Malluhi (Qatar University), and Yongge Wang (UNC Charlotte, USA)

An Ensemble Feature Selection Method for IoT IDS .41..... Alaa Alhowaide (Memorial University of Newfoundland, Canada), Izzat Alsmadi (Texas A&M University-San Antonio), and Jian Tang (Memorial University of Newfoundland, Canada)

Dependable and Secure Systems

(Carleton University, Canada), and Gabriel Wainer (Carleton University, Canada)

Physical Fingerprinting of Ultrasonic Sensors and Applications to Sensor Security .65..... Eric Cheek (University of Michigan - Dearborn, USA), Raghu Changalvala (University of Michigan - Dearborn, USA), Dhimant Khuttan (University of Michigan - Dearborn, USA), and Hafiz Malik (University of Michigan - Dearborn, USA)

Dependability and Security Measures and Assessments

Cognitive Privacy: AI-Enabled Privacy using EEG Signals in the Internet of Things .73..... Francesco Schiliro (Macquarie University, Australia), Nour Moustafa (University of New South Wales Canberra, Australia), and Amin Beheshti (Macquarie University, Australia)

Implementing a Solution for Monitoring SLA Violations in Cloud .80..... Andreea Floricu (University POLITEHNICA of Bucharest, Romania), Razvan Buzatu (University POLITEHNICA of Bucharest, Romania), Catalin Negru (University POLITEHNICA of Bucharest, Romania), Florin Pop (University POLITEHNICA of Bucharest, Romania, National Institute for Research – ICI Bucharest, Romania), and Aniello Castiglione (University of Naples Parthenope, Italy)

Short Papers

Security Fundamentals and Technologies

Khaldoon Dhou (Texas A&M University Central Texas, USA) and Christopher Cruzen (University of Missouri St. Louis, USA) An Attack Tree Template Based on Feature Diagram Hierarchy .92..... Rajesh Kumar (Birla Institute of Technology and Science, Pilani, India)

Dependable and Secure Systems

University)

Dependability and Security Measures and Assessments

Investigating Root Causes of Authentication Failures Using a SAML and OIDC Observatory .119... Jim Basney (NCSA University of Illinois), Phuong Cao (NCSA University of Illinois), and Terry Fleury (NCSA University of Illinois)

A Novel Approach for Predictive Maintenance Combining GAF Encoding Strategies and Deep Networks .127..... Antonino Ferraro (University of Naples "Federico II", Italy), Antonio Galli (University of Naples "Federico II", Italy), Vincenzo Moscato (University of Naples "Federico II", Italy), and Giancarlo Sperlì (University of Naples "Federico II", Italy)

Author Index 133