

2019 3rd Cyber Security in Networking Conference (CSNet 2019)

**Quito, Ecuador
23-25 October 2019**



**IEEE Catalog Number: CFP19M97-POD
ISBN: 978-1-7281-3950-0**

**Copyright © 2019 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:	CFP19M97-POD
ISBN (Print-On-Demand):	978-1-7281-3950-0
ISBN (Online):	978-1-7281-3949-4

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

CURRAN ASSOCIATES INC.
proceedings
.com

Program

Invited Paper 1

Efficient Block Replication to Optimize the Blockchain Resources

El-hacen Diallo (Université Paris Sud (LRI), France); Alexandre Laube (Université Pierre et Marie Curie, France); Khaldoun Al Agha (LRI, France); Steven Martin (Paris-Sud University, France).....1

Technical Session 1: Security with Blockchain

A Blockchain-Encryption-Based Approach to Protect Fog Federations from Rogue Nodes

Mohammed Alshehri and Brajendra Panda (University of Arkansas, USA).....6

Towards Blockchain Services for Mobile Money Traceability and Federation

Pascal Urien (Télécom ParisTech, France); Edem Kodjo S. A. (Telecom ParisTech, Burkina Faso).....14

Going Beyond the Blockchain Hype: In Which Cases are Blockchains Useful for IT Applications ?

Nour El Madhoun (ISEP Engineering School, France); Julien Hatin (Orange/IMT/OLPS/ASE/SEC, France); Emmanuel Bertin (Orange Labs, France).....21

A Blockchain-based Lightweight Authentication Solution for IoT

Achraf Fayad (Télécom ParisTech, France); Rida Khatoun (Telecom ParisTech, France); Badis Hammi (Télécom ParisTech, France); Ahmed Serhrouchni (ENST, France).....28

A Secure and Fault-Tolerant Architecture for LoRaWAN Based on Blockchain

Pasknel Ribeiro and Raimir Holanda (University of Fortaleza, Brazil); Alex Ramos (Federal Institute of Ceara (IFCE), Brazil).....35

Technical Session 2: Trust and Security Management

Trust-based Collaborative Defences in Multi Network Alliances

Ralph Koning and Ameneh Deljoo (University of Amsterdam, The Netherlands); Lydia Meijer (TNO, The Netherlands); Cees de Laat and Paola Grosso (University of Amsterdam, The Netherlands).....42

Managing Effective Collaboration in Cybersecurity Alliances Using Social Computational Trust

Ameneh Deljoo, Ralph Koning and Tom van Engers (University of Amsterdam, The Netherlands); Leon Gommans (Air-France KLM, The Netherlands); Cees de Laat (University of Amsterdam, The Netherlands).....50

Information Sharing in Cybersecurity

Léonore Cellier (Université de Lausanne & HEC, Switzerland); Solange Ghernaouti (University of Lausanne & Faculty of Business and Economics, Switzerland); Bastien Wanner (HEC UNIL, France).....58

Information Security Management Frameworks in Higher Education Institutions: An Overview

Jorge Merchan-Lima (Universidad de Cuenca, Ecuador); Fabian Astudillo-Salinas (University of Cuenca, Ecuador); Luis Tello-Oquendo (Universidad Nacional de Chimborazo, Ecuador); Franklin Sanchez and Gabriel Lopez (Escuela Politecnica Nacional, Ecuador); Dorys Quiroz (Universidad de las Fuerzas Armadas ESPE, Ecuador).....63

Invited Paper 2

Dynamic Security Management Driven by Situations: An Exploratory Analysis of Logs for the Identification of Security Situations

Abdelmalek Benzekri and Romain Laborde (Université Paul Sabatier, France); Arnaud Oglaza (Université de Toulouse & Institut de Recherche en Informatique de Toulouse (IRIT), France); François Barrère (Université Paul Sabatier, France).....66

Technical Session 3: Security data analysis & Machine learning

Human Interaction Proofs (HIPs) Based on Emerging Images and Topological Data Analysis (TDA) Techniques

María Osorio Angarita (National University of Colombia, Colombia); Ebroul Izquierdo (Queen Mary, University of London, United Kingdom (Great Britain)); Agustín Moreno Cañadas (National University of Colombia, Colombia).....73

The EMV Payment System: Is It Reliable?

Nour El Madhoun (ISEP Engineering School, France); Emmanuel Bertin (Orange Labs, France); Guy Pujolle (Sorbonne University, France).....80

Technical Session 4: Cybersecurity of constrained & IoT systems

A Risk Management Framework and A Generalized Attack Automata for IoT Based Smart Home Environment

Fathima James (5720 Grand Ave, USA).....86

Hashing-based Authentication for CAN Bus and Application to Denial-of-Service Protection

Olivier Cros and Gabriel Chênevert (ISEN Lille, France).....91

Bluetooth Low Energy Makes Just Works Not Work

Karim Lounis and Mohammad Zulkernine (Queen's University, Canada).....99

IoT Cyber Security Based Smart Home Intrusion Prevention System

Fathima James (5720 Grand Ave, USA).....107

Cloud-based Sybil Attack Detection Scheme for Connected Vehicles

Anika Anwar (Queen's University, Canada & University of Asia Pacific, Bangladesh); Mohammad Zulkernine (Queen's University, Canada); Talal Halabi (The University of Winnipeg, Canada).....114

Technical Session 5: Cybersecurity of platforms and networks

Physical Layer Security for 5G Wireless Networks: A Comprehensive Survey

Jose David Vega Sanchez, Luis F Urquiza-Aguilar and Martha Cecilia Paredes Paredes (Escuela Politécnica Nacional, Ecuador).....122

Verification of Keyboard Acoustics Authentication on Laptops and Smartphones Using WebRTC

Christian Tietz, Eric Klieme, Lukas Behrendt, Pawel Boening and Leonard Marschke (Hasso Plattner Institute, Germany); Christoph Meinel (Hasso Plattner Institute, University of Potsdam, Germany).....130

Social Consensus-inspired Aggregation for Edge Computing

Zenon D Chaczko (University of Technology, Sydney & SEDE, Australia); Firas Al-Doghman (University of Technology Sydney, Australia); Wayne Brookes (UTS, Australia); Doan B Hoang (University of Technology Sydney, Australia); Lucia Carrion Gordon (UTS University of Technology Sydney, Australia).....138

Technical Session 6: Attacks Analysis and Detection

XSSStudent: Proposal to Avoid Cross-Site Scripting(XSS) Attacks in Universities

Germán Rodríguez, Jenny Torres, Pamela Flores and Diego Benavides (Escuela Politécnica Nacional, Ecuador); Daniel Agurto (Universidad de las Fuerzas Armadas, Ecuador).....142

A Precise Method for Monitoring and Detecting Recurrent Attacks on Wireless Networks Based on Link-Layer Traffic Classification

Andreane Spano Roza, Asr and João Vitor Valle (Universidade Federal Fluminense, Brazil); Diogo Mattos (Universidade Federal Fluminense & MídiaCom, Brazil).....150

TAG: Topological Attack Graph Analysis Tool

Marek Malowidzki, Damian Hermanowski and Przemyslaw Berezinski (Military Communication Institute, Poland).....158

Phishing Attacks: Detecting and Preventing Infected E-mails Using Machine Learning Methods

Diego Oña, Lenín Zapata and Walter Fuertes (Universidad de las Fuerzas Armadas ESPE, Ecuador); Germán Rodríguez and Diego Benavides (Escuela Politécnica Nacional, Ecuador); Theo Toulkeridis (Universidad de las Fuerzas Armadas ESPE, Ecuador).....161