

Proceedings

DISS 2020

**Workshop on
Decentralized IoT Systems and Security**

February 23, 2020
San Diego, California

Published by the





Internet Society
11710 Plaza America Drive
Suite 400
Reston, VA 20190

Copyright © 2020 by the Internet Society.
All rights reserved.

This volume is published as a collective work. The Internet Society owns the copyright for this publication and the copyrights to the individual papers are retained by their respective author[s].

Address your correspondence to: NDSS Program Manager, Internet Society, 11710 Plaza America Drive, Suite 400, Reston, VA 20190 USA, tel. +1 703 439 2120, fax +1 703 326 9881, ndss@elists.isoc.org.

The papers included here comprise the proceedings of the meeting mentioned on the cover and title page. They reflect the authors' opinions and, in the interest of timely dissemination, are published as presented and without change. Their inclusion in this publication does not necessarily constitute endorsement by the editors or the Internet Society.

ISBN Number (Digital Format) 1-891562-64-9

Additional copies may be ordered from:



Internet Society
11710 Plaza America Drive
Suite 400
Reston, VA 20190
tel +1 703.439.2120
fax +1 703.326.9881
<http://www.internetsociety.org>

Table of Contents

Organizing Committee

Protocols

Towards Securing the Internet of Things with
Lars Eggert

OAuth 2.0 Authorization using Blockchain-based Tokens
Nikos Fotiou, Iakovos Pittaras, Vasilios A. Siris, Spyros Voulgaris, George C. Polyzos

Learning and Sharing

Poisoning Attacks on Federated Learning-based IoT Intrusion Detection System
Thien Duc Nguyen, Phillip Rieger, Markus Miettinen, Ahmad-Reza Sadeghi

Information Leaks in Federated Learning
Anastassiya Pustozerovala, Rudolf Mayer

Sharing Economy in Future Peer-to-peer Electricity Trading Markets: Security and Privacy Analysis
Mehdi Montakhabi, Akash Madhusudan, Shenja van der Graaf, Aysajan Abidin, Pieter Ballon, Mustafa A. Mustafa

Attacks and Countermeasures

ADROIT: Detecting Spatio-Temporal Correlated Attack-Stages in IoT Networks
Dinil Mon Divakaran, Rhishi Pratap Singh, Kalupahana Liyanage Kushan Sudheera, Mohan Gurusamy, Vinay Sachidananda

Mining Threat Intelligence from Billion-scale SSH Brute-Force Attacks
Yuming Wu, Phuong M. Cao, Alexander Withers, Zbigniew T. Kalbarczyk, Ravishankar K. Iyer

UIDS: Unikernel-based Intrusion Detection System for the Internet of Things
Vittorio Cozzolino, Nikolai Schwellnus, Jörg Ott, Aaron Yi Ding

IoT Security Function Distribution via DLT
Le Su, Dinil Mon Divakaran, Sze Ling Yeo, Jiqiang Lu, Vrizlynn Thing

Drones

Defending Against Consumer Drone Privacy Attacks: A Blueprint for a Counter Autonomous Drone Tool

Lanier Watkins, Shane Sartalamacchia, Richard Bradt, Karan Dhareshwar, Harsimar Bagga, William H. Robinson, Aviel Rubin

Security Analysis against Spoofing Attacks for Distributed UAVs

Kyo Kim, Siddhartha Nalluri, Ashish Kashinath, Yu Wang, Sibir Mohan, Miroslav Pajic, Bo Li

Organizing Committee

Organizers

Farinaz Koushanfar, *UC San Diego*

Pekka Nikander, *Aalto University*

George C. Polyzos, *AUEB*

Vasilios A. Siris, *AUEB*

TPC Co-Chairs

Pekka Nikander, *Aalto University*

Vasilios A. Siris, *AUEB*

TPC Members

Ioannis Psaras, *UCL*

Matthias Waehlich, *FU Berlin*

Hamed Okhrav, *MIT*

Michal Krol, *University of Clouvain*

Dirk Kutscher, *Huawei*

Börje Ohlman, *Ericsson*

Jörg Ott, *TU Munich*

Alex Pazaitis, *Taltech*

Patrik Salmela, *Ericsson*

Bengt Sahlin, *Ericsson*