2020 Seventh International Conference on Software Defined Systems (SDS 2020)

Paris, France 20 – 23 April 2020



IEEE Catalog Number: CFI ISBN: 978

CFP20CMO-POD 978-1-7281-7220-0

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:	CFP20CMO-POD
ISBN (Print-On-Demand):	978-1-7281-7220-0
ISBN (Online):	978-1-7281-7219-4

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



Table of Contents

Keynote speech 1: 5G and the Wireless Road Ahead	1
Keynote speech 2: Advanced architectures of Next Generation Networks	2
Keynote speech 3: Towards a hybrid Edge-Cloud platform for Self-Adaptive Machine Learning based	3
IoT applications	
Keynote speech 4: Big data Computing and Machine Learning for Intelligent Transportation and	4
Connected Vehicles	
SDS2020	
IoT-NETZ: Practical Spoofing Attack Mitigation Approach in SDWN Network	5
Hamzeh Mohammadnia	
GPRS network prototype based on SDR and OpenBTS, as an IoT-Lab Testbed.	14
Oscar Enrique Llerena Castro	
Accelerating Platform Deployments in the Cloud A qualitative assessment based on CORD	20
Angelos Mimidis Kentis, Jose Soler, Adam Broadbent, Paul Veitch	
Spectrum-time Availability-aware Routing Mechanism for Software-Defined Networks	24
with Out-of-band Full-Duplex Capabilities	
Haythem Bany Salameh, Haneen Khasawneh	
Using Digital Twin Data for the Attribute-Based Usage Control of Value-Added Networks	29
Alexander Kern, Reiner Anderl	
Possibilities and Challenges for Reconfigurable Hardware and Cloud Architectures in	37
Data-Intensive Scientific Applications	
Mohammed Bawatna	
A Parameter Selection Process by Data Analysis for Tuning Multi-threaded Time-Stepping	43
Algorithms	
Thomas Rauber, Gudula Ruenger	
Comparison of Fast-Reroute Mechanisms for BIER-Based IP Multicast	51
Daniel Merling, Steffen Lindner, Michael Menth	
Analysis of trends in scientific publications by an NLP toolkit: A case study in Software	59
Development Methods for Enhanced Living Environment	
Melaku Girma, Nuno Garcia, Nuno Pombo, Eftim Zdravevski, Vladimir Trajkovik, Mesfin Kifle	
Development of OpenFlow native capabilities to optimize QoS	67
Maohmed Al Breiki, Suiping Zhou, Yuan Luo	
Behavior-Driven Re-engineering For Testing the Cloud	75
Behailu Getachew Wolde, Abiot Sinamo Boltena	
Network Obfuscation for Net Worth Security	83
Louma Chaddad, Ali Chehab, Imad H. Elhajj, Ayman Kayssi	
Android CompCache based on Graphics Processing Unit	89
Muder Almiani, Abdul Razaque, Ziqi Shen, Ge Yaqin, Mohammed Alweshah, Ayman Al-Dmour	
Secure Password-Driven Fingerprint Biometrics Authentication	95
Abdul Razaque, Kalkamanova Kamila Myrzabekovna, Spanova Yerkezhan Magbatkyzy, Muder Almiani,	
Baktygulova Aray Doszhanovna, Awny Alnusair	
Exploiting SDN to Improve QoS of Smart City Networks Against Link Failures	100
Razan Alzoman, Mohammed Alenazi	
Programmable Dataplane Architecture for Distributed Services at the Network Edge	107
Mario Baldi, Diego Crupnicoff, Silvano Gai	
Latency-Sensitive Web Service Workflows: A Case for a Software-Defined Internet	115
Pradeeban Kathiravelu, Peter Van Roy, Luis Veiga, Elhadj Benkhelifa	
Sequential Wave Imprinting Machine (SWIM) Implementation using SDR (Software-	123
Defined Radio)	
Steve Mann, Phillip V. Do, Zhao Lu, Jacky K.K. Lau	

Measuring the Impacts of Virtualization on the Performance of Thread-Based Applications Rahaf Al-Hamour, Heba Al-Jarrah, Ziad Al-Sharif, Yaser Jararweh	
BAT2020	
Improving Farmers' Participation in Agri Supply Chains with Blockchain and Smart	139
Contracts	
Malni Kumarathunga	
Health Care Insurance Fraud Detection Using Blockchain	145
Gokay Saldamli, Krishna Sai Siva Bojja, Yashaswi Doddaveerappa, Manjunatha Koni Gururaja, Vamshi	
Reddy Verama Reddy, Loai Tawalbeh	
Securing car data and analytics using blockchain	153
Gokay Saldamli, Kavitha Karunakaran, Vidya Kodihalli Vijaykumar, Weiyang Pan, Siddesh Puttarevaiah,	
Levent Ertaul	
A Decentralized Voting Mechanism: Engaging ERC20 token holders in decision-making	160
Panayiotis Christodoulou, Klitos Christodoulou	
Rationale and practical assessment of a fully distributed blockchain-based marketplace of	165
fog/edge computing resources	
Miguel Pincheira, Massimo Vecchio, Raffaele Giaffreda	
Identity-of-Things Model using Composite Identity on Permissioned Blockchain Network	171
Anang Hudaya Muhamad Amin, Nabih Abdelmajid, Fred N. Kiwanuka	1/1
Trends in Development of Databases and Blockchain	177
Mayank Raikwar, Danilo Gligoroski, Goran Velinov	1,,
The Genesy Model for a Blockchain-based Fair Ecosystem of Genomic Data	183
Federico Carlini, Roberto Carlini, Stefano Dalla Palma, Remo Pareschi, Federico Zappone, Daniele	100
Albanese	
Mobile Encounter-based Social Sybil Control	190
Martin Martinez, Arvin Hekmati, Bhaskar Krishnamachari, Seokgu Yun	1,0
Blockchain Analysis Tool For Monitoring Coin Flow	196
Aman Framewala, Dhiren Patel, Shreya Khatal, Yann Busnel, Sarvesh Harale, Muttukrishnan Rajarajan	170
Towards Valid Use Cases: Requirements and Supporting Characteristics of Proper	202
Blockchain Applications	202
Ulrich Gallersdörfer, Florian Matthes	
Blockchain-Based Solution to Prevent Plastic Pipes Fraud	208
Yury Yanovich, Yash Madhwal, Sergey Kudryashov, Ivan Maslov	200
	214
Using Blockchain Technology for Continuing Medical Education Credits System Jash Rathod, Ashutosh Gupta, Dhiren Patel	214
Jash Kathou, Ashutosh Oupta, Dhiren Fater	
SDE2020	
An Efficient Cold Start Solution for Recommender Systems Based on Machine Learning	220
and User Interests	220
Bilal Hawashin, Shadi Alzubi, Ala Mughaid, Farshad Fotouhi, Ahmad Abusukhon	
Efficient Context-aware File System Approach	226
Abdul Razaque, Fathi Amsaad, Muder Almiani, Wan Xiaoya, Li Shiyu, Raouf Ganda, Majdi Rawashdeh,	220
Amer Al-Rahayfeh	
Successes and Failures in Exploring Biometric Algorithms in NIST Open Source Software	231
and Data	231
Fathi Amsaad, Abdul Razaque, Muder Almiani, Duisen Gulsezim, Mohammad Adnan Almahamed,	
Ayman Al-Dmour, Meer Jaro Khan, Raouf Ganda	
	235
New Direction of Cryptography: A Review on Text-to- Image Encryption Algorithms Based on RGB Color Value	433
Ahmad Abusukhon, Shadi Alzubi	
	240
Load Balancing Techniques in Software-Defined Cloud Computing: an overview	240

Ahmad Aa Alkhatib, Thaer Sawalha, Shadi Alzubi	
Maintenance Requests Labeling Using MachineLearning Classification	
Mohammed Lafi, Bilal Hawashin, Shadi Alzubi	
Power measurement system in a microwave link using SDR for rain rate estimation.	250
Boris Ramos, Alvaro Bustamante, Maricela Freire	
5GET2020	
Formal Verification and Analysis of Primary Authentication based on 5G-AKA Protocol	256
Ed Kamya Kiyemba Edris, Mahdi Aiash, Jonathan Loo	
5G Radio Access Network Slicing in Massive MIMO Systems for Industrial Applications	262
Haorui Peng, Emma Fitzgerald, William Tärneberg, Maria Kihl	
SDN-NFV2020	
Reinforcement Learning for Task Offloading in Mobile Edge Computing for SDN based	268
Wireless Networks	
Nahida Kiran, Chunyu Pan, Yin Changchuan	
Flow-based QoS forwarding strategy: a practical implementation and evaluation	274
Santiago Bentancur, Martn Fernndez Bon, Gabriel Gómez Sena, Claudina Rattaro, Ignacio Brugnoli	