

# **2020 IEEE International Conference on Fog Computing (ICFC 2020)**

**Sydney, Australia  
21-24 April 2020**



**IEEE Catalog Number: CFP20S53-POD  
ISBN: 978-1-7281-1087-5**

**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:	CFP20S53-POD
ISBN (Print-On-Demand):	978-1-7281-1087-5
ISBN (Online):	978-1-7281-1086-8

**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](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# 2020 IEEE International Conference on Fog Computing (ICFC)

## ICFC 2020

### Table of Contents

<b>Foreword to the ICFC 2020 Proceedings .....</b>	<b>7</b>
<b>Organizing Committee .....</b>	<b>8</b>
<b>Steering Committee .....</b>	<b>9</b>
<b>Program Committee .....</b>	<b>10</b>
On Decentralized Route Planning Using the Road Side Units as Computing Resources .....	11
<i>Jose Paolo Talusan (Nara Institute of Science and Technology), Michael Wilbur (Vanderbilt University), Abhishek Dubey (Vanderbilt University), and Keiichi Yasumoto (Nara Institute of Science and Technology)</i>	
Managing Latency and Excess Data Dissemination in Fog-Based Publish/Subscribe Systems .....	19
<i>Jonathan Hasenburg (TU Berlin &amp; Einstein Center Digital Future), Florian Stanek (TU Berlin &amp; Einstein Center Digital Future), Florian Tschorisch (TU Berlin &amp; Einstein Center Digital Future), and David Bermbach (TU Berlin &amp; Einstein Center Digital Future)</i>	
tinyFaaS: A Lightweight FaaS Platform for Edge Environments .....	27
<i>Tobias Pfandzelter (Technische Universität Berlin &amp; Einstein Center Digital Future) and David Bermbach (Technische Universität Berlin &amp; Einstein Center Digital Future)</i>	
Towards Auction-Based Function Placement in Serverless Fog Platforms .....	35
<i>David Bermbach (Technische Universität Berlin &amp; Einstein Center Digital Future), Setareh Maghsudi (Technische Universität Berlin &amp; Einstein Center Digital Future), Jonathan Hasenburg (Technische Universität Berlin &amp; Einstein Center Digital Future), and Tobias Pfandzelter (Technische Universität Berlin &amp; Einstein Center Digital Future)</i>	
Joint Power Allocation for Non-Orthogonal Multiple Access in Wireless Backhaul Networks .....	42
<i>Xiaoqi Yang (Shanghai Jiao Tong University), Cunqing Hua (Shanghai Jiao Tong University), Pengwenlong Gu (Shanghai Jiao Tong University), and Wenchao Xu (The Hong Kong Polytechnic University)</i>	
Development and Optimization of an MTConnect Based Edge Computing Node for Remote Monitoring in Cyber Manufacturing Systems .....	48
<i>S M Nahian Al Sunny (University of Arkansas), Xiaoqing "Frank" Liu (University of Arkansas), and Md Rakib Shahriar (University of Arkansas)</i>	

Based on Fog Computing Towards Unmanned Surface Vehicle Cloud Collaborative Control .....	N/A
<i>Yinku Xue (Dalian Maritime University), Tingting Yang (Dongguan University of Technology), and Wei Guan (Dalian Maritime University)</i>	
Towards Information-Centric Edge Platform for Mesh Networks: The Case of CityLab Testbed ..	60
<i>Mennan Selimi (Max van der Stoel Institute, South East European University, North Macedonia), Leandro Navarro (Universitat Politècnica de Catalunya BarcelonaTech, Spain), Bart Braem (University of Antwerp - imec - IDLab, Belgium), Felix Freitag (Universitat Politècnica de Catalunya BarcelonaTech, Spain), and Adisorn Lertsinsrubtavee (Asian Institute of Technology, Thailand)</i>	
Fog Computing for Augmented Reality: Trends, Challenges and Opportunities .....	66
<i>Mohammed Salman Shaik (ABB, Mälardalen University), Taufik Akbar Sitompul (CrossControl, Mälardalen University), Alessandro Vittorio Papadopoulos (Mälardalen University), and Thomas Nolte (Mälardalen University)</i>	
R-MStorm: A Resilient Mobile Stream Processing System for Dynamic Edge Networks .....	74
<i>Mengyuan Chao (Texas A&amp;M University) and Radu Stoleru (Texas A&amp;M University)</i>	
FLIC: A Distributed Fog Cache for City-Scale Applications .....	83
<i>Jack West (Loyola University Chicago), Neil Klingensmith (Loyola University Chicago), and George K. Thiruvathukal (Loyola University Chicago)</i>	
<b>Author Index .....</b>	<b>89</b>