

# **2021 13th IFIP Wireless and Mobile Networking Conference (WMNC 2021)**

**Virtual Conference  
21 – 22 October 2021**



**IEEE Catalog Number: CFP2195K-POD**  
**ISBN: 978-1-6654-0880-6**

**Copyright © 2021, International Federation for Information Processing (IFIP)  
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:	CFP2195K-POD
ISBN (Print-On-Demand):	978-1-6654-0880-6
ISBN (Online):	978-3-903176-42-3
ISSN:	2163-4033

**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)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# Table of Content

Front cover	i
Copyright page	ii
Welcome message from the chairs	iii
Sponsors	iv
Organizing Committee	v
Technical Program Committee	ix
Table of Content	xi
Technical Program	xiii
Authors	xvii
Ahmed Al-dulaimy, Hannes Frey, <i>Subnetting Software Defined Wireless Sensor Networks to Support Mobility</i>	p. 1
John Kanwar and Niclas Finne, Nicolas Tsiftes, Joakim Eriksson, Thiemo Voigt, Zhitao He, Christer Åhlund, Saguna Saguna, <i>JamSense: Interference and Jamming Classification for Low-power Wireless Networks</i>	p. 9
Djibrilla Incha Adamou, Véronique Vèque, Alexandre Mouradian, Sahar Hoteit, Lynda Zitoune, <i>Efficient Data Collection using Aerial Mobile Sinks for Delay Tolerant Wireless Sensor Networks</i>	p. 17
Muath Obaidat, <i>A novel Paradigm for Access Control Trust in IoT Applications: A Distributed Cross-Communication Approach</i>	p. 25
André Scheibe, Luciano Paschoal Gaspar, Weverton Luis da Costa Cordeiro, <i>Managing Programmable Low-End Wireless Networks through Distributed SDN Controllers</i>	p. 32
Pedro Casas, Sarah Wassermann, Nikolas Wehner, Michael Seufert, Joshua Schüler, Tobias Hoßfeld, <i>Mobile Web and App QoE Monitoring for ISPs – from Encrypted Traffic to Speed Index through Machine Learning</i>	p. 40

Dimosthenis Tzanakos, Foivos Allayiotis, Vasileios Kokkinos, Christos J Bouras, <i>A mechanism for 5G MIMO performance optimization and evaluation</i>	p. 48
Dereje Mechal Molla, Hakim Badis, Laurent George, Marion Berbineau, <i>Coverage Extension of Software Defined Radio Platforms for 3GPP 4G/5G Radio Access Networks</i>	p. 55
Thomas Deinlein, Moustafa Roshdi, Tianxiang Nan, Thomas Heyn, Anatoli Djanatliev, Reinhard German, <i>On the Impact of priority-based MAC Layer Scheduling in 5G V2N multi-application Scenarios</i>	p. 63
Frank Loh, Dominique Bau, Johannes Zink, Alexander Wolff, Tobias Hoßfeld, <i>Robust Gateway Placement for Scalable LoRaWAN</i>	p. 71
Sadia Khizar, Marcelo Dias de Amorim, Vania Conan, <i>Offloading Computing Tasks Beyond the Edge: A Data-Driven Analysis</i>	p. 79
Karzan L Ibrahim, Luqman Azeez, <i>Investigate the impact of three wormhole attacks on MANET networks</i>	p. 84
JJ Garcia-Luna-Aceves, Dylan J Cirimelli-Low, <i>Key-Activation Multiple Access (KAMA)</i>	p. 92