18th International Conference on Wireless Networks and Mobile Systems (WINSYS 2021)

Online 7 – 9 July 2021

Editors:

Joel Rodrigues
Jaime Lloret Mauri

ISBN: 978-1-7138-4001-5

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2021) by SCITEPRESS – Science and Technology Publications, Lda. All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact SCITEPRESS – Science and Technology Publications, Lda. at the address below.

SCITEPRESS – Science and Technology Publications, Lda. Avenida de S. Francisco Xavier, Lote 7 Cv. C, 2900-616 Setúbal, Portugal

Phone: +351 265 520 185 Fax: +351 265520 186

info@scitepress.org

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

Email: curran@proceedings.com Web: www.proceedings.com

CONTENTS

INVITED SPEAKERS

| KEYNOTE SPEAKERS | |
|--|----|
| 6G: Vision, Requirements, Technical Challenges, Standardization & Implementations <i>Shahid Mumtaz</i> | 5 |
| LPWAN Technologies: The Use Case of LoRa-based WSNs and Its Applications <i>Sandra Sendra</i> | 7 |
| Efficient Deep Learning Methods for IoT Applications: Current Challenges and Future Directions <i>Muhammad Sajjad</i> | g |
| Fusing Intelligence into Big Data Transfer in High-performance Networks <i>Chase Wu</i> | 11 |
| PAPERS | |
| FULL PAPERS | |
| Optimized Line-of-Sight Assessment Algorithm for 5G mmW Network Design using LiDAR Information Reza Soosahabi and Magdy Bayoumi | 17 |
| Simulation-based Study of Interference Impact in ISM Bands in Smart Cities: Connected Traffic Light for Visually Impaired People Use-case <i>Mohammad Rahal, Marc Ibrahim and Gerard Chalhoub</i> | 25 |
| Deep Reinforcement Learning for Dynamic Power Allocation in Cell-free mmWave Massive MIMO Yu Zhao, Ignas Niemegeers and Sonia Heemstra de Groot | 33 |
| Multi-layer Fog Computing Framework for Constrained LoRa Networks Intended for Water Quality Monitoring and Precision Agriculture Systems Laura García, Jose M. Jimenez, Sandra Sendra, Jaime Lloret and Pascal Lorenz | 46 |
| SHORT PAPERS | |
| Feasibility and Usability of Wearable Devices for Ambulatory Monitoring of the Rehabilitation Process of Older Patients after Hip Fracture Surgery Dieuwke van Dartel, Johannes H. Hegeman and Miriam M. R. Vollenbroek-Hutten | 59 |
| Opportunistic Routing towards Mobile Sink Nodes in Bluetooth Mesh Networks Marcelo Paulon J. V., Bruno José Olivieri de Souza and Markus Endler | 67 |
| On a Wireless Sensor Network Problem with Spanning Tree Backbone Pablo Adasme and Ali Dehghan Firoozabadi | 76 |
| Towards Federated Learning-based Collaborative Adaptive Cybersecurity for Multi-microgrids Svetlana Boudko, Habtamu Abie, Ethiopia Nigussie and Reijo Savola | 83 |
| Design of a Tag Antenna for IoT Applications in the Healthcare Field Amine Rghioui, Loubna Berrich, Jaime Lloret and Abdelmajid Oumnad | 91 |

| Comparative Analysis of Short-range Wireless Technologies for m-Health: Newborn Monitoring Case Study Fernando Crivellaro, Anselmo Costa and Pedro Vieira | 99 |
|--|-----|
| A Double Auction Mechanism for Coded Distributed Computing in Smart Vehicles Jer Shyuan Ng, Wei Yang Bryan Lim, Zehui Xiong, Sahil Garg, Yang Zhang, Dusit Niyato and Cyril Leung | 107 |
| AUTHOR INDEX | 115 |