

# **2022 IEEE International Mediterranean Conference on Communications and Networking (MeditCom 2022)**

**Athens, Greece  
5-8 September 2022**



**IEEE Catalog Number: CFP22V80-POD  
ISBN: 978-1-6654-9826-5**

**Copyright © 2022 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:	CFP22V80-POD
ISBN (Print-On-Demand):	978-1-6654-9826-5
ISBN (Online):	978-1-6654-9825-8

**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)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# TABLE OF CONTENTS

Computational Offloading for the Industrial Internet of Things: A Performance Analysis .....	1
<i>Sirine Bouhoula, Marios Avgeris, Aris Leivadeas, Ioannis Lambadaris</i>	
Online Learning for Industrial IoT: The Online Convex Optimization Perspective.....	7
<i>Livia Elena Chatzieleftheriou, Chen-Feng Liu, Iordanis Koutsopoulos, Mehdi Bennis, Mérouane Debbah</i>	
A Delay-Aware Approach for Distributed Embedding Towards Cross-Slice Communication .....	13
<i>Ioannis Dimolitsas, Dimitrios Spatharakis, Dimitrios Dechouniotis, Symeon Papavassiliou</i>	
Energy Efficient Placement of ML-Based Services in IoT Networks .....	19
<i>Mohammed M. Alenazi, Barzan A. Yosuf, Sanaa H. Mohamed, Taisir E. H. El-Gorashi, Jaafar M. H. Elmirghani</i>	
An Unsupervised Machine Learning Approach for IoT Device Categorization .....	25
<i>Faiçal Sawadogo, John Violos, Aroosa Hameed, Aris Leivadeas</i>	
Sustainable Framework for Smart Assistive Living Improvement Through IoT-Based Integration Model .....	31
<i>Andreou Andreas, Constandinos X. Mavromoustakis, George Mastorakis, Jordi Mongay Batalla, Evangelos Pallis, Periklis Chatzimisios</i>	
Variants of VAMP for Signal Recovery in Wireless Sensor Networks .....	37
<i>Carmen Sippel, Robert F. H. Fischer</i>	
Reconfigurable Intelligent Surface Assisted Over-The-Air Computation in Multi-Cell Networks.....	43
<i>Jun Li, Youlong Wu, Yuanming Shi</i>	
Content-Aware Client Selection for Federated Learning in Wireless Networks.....	49
<i>Zhefeng Qiao, Yifei Shen, Xianghao Yu, Jun Zhang, S. H. Song, Khaled B. Letaief</i>	
Sine Cosine Algorithm for Reducing Communication Costs of Federated Learning.....	55
<i>Ammar Kamal Abasi, Moayad Aloqaily, Mohsen Guizani, Fakhri Karray</i>	
Deep Reinforcement Learning for Power Control in Multi-Tasks Wireless Cellular Networks .....	61
<i>Alexis Anzaldo, Angel G. Andrade</i>	
Mining News Data for Peripheral Culture Training in AGI.....	66
<i>Nicholas Dmytryk, Aris Leivadeas</i>	
Federated Learning in Vehicular Networks.....	72
<i>Ahmet M. Elbir, Burak Soner, Sinem Çöleri, Deniz Gündüz, Mehdi Bennis</i>	
5GASP's Approach to the Onboarding, Deployment and Validation of 5G NetApps.....	78
<i>Rafael Direito, Diogo Gomes, Kostis Trantzas, Christos Tranoris</i>	

PALANTIR Demo: Leveraging SecaaS Model for Managing Threats in Industrial Environments .....	82
<i>Carolina Fernández, Davide Sanvito, Orestis Kompougias, Valentino Safran, Maxime Compastié, Ignazio Pedone, Antonio López Martínez, Manuel Gil Pérez, Akis Kourtis, George Xylouris, Izidor Mlakar, Stylianos Tsarsitalidis, Dimitrios Klonidis, Daniele Canavese, Vangelis Logothetis, Diego Lopez, Antonio Pastor, Antonio Lioy, Ludovic Jacquín, Supreshna Gungung, Roberto Bifulco, Athanasios Priovolos, Ilias Balampanis, Theodoros Rokkas, Nikolaos Papadakis, Dimitris Paraschos, Primoz Jeran, George Athanasiou, Dimitris Papadopoulos</i>	
QMP: A Cloud-Native MLOps Automation Platform for Zero-Touch Service Assurance in 5G Systems.....	86
<i>Georgios Samaras, Vasileios Theodorou, Dimitris Laskaratos, Nikolaos Psaromanolakis, Marinela Mertiri, Alexandros Valantasis</i>	
Benchmarking Real-Time Image Processing for OffLoading at the Edge .....	90
<i>Olivier Brochu, Dimitrios Spatharakis, Dimitrios Dechouniotis, Aris Leivadeas, Symeon Papavassiliou</i>	
SWIPT with Diplexer-Based Multiple-Antenna Rectification .....	94
<i>Eleni Goudeli, Constantinos Psomas, Ioannis Krikidis</i>	
Time-Invariant Prefix-Free Source Coding for MIMO LQG Control .....	99
<i>Travis C. Cuvelier, Takashi Tanaka, Robert W. Heath</i>	
Amplitude-Constrained Gaussian Wiretap Channel: Computation of the Optimal Input Distribution .....	106
<i>Luca Barletta, Alex Dytso</i>	
Enhanced Precoder Designs for Spatial Modulation MIMO Systems with Single-Layer Beamforming.....	112
<i>Chiao-En Chen</i>	
On the Uplink Performance of Finite-Capacity Radio Stripes .....	118
<i>Ioannis Chiotis, Aris L. Moustakas</i>	
A Scalable Approach of Practical Byzantine Fault Tolerance Algorithms for IoMT Blockchains .....	124
<i>Filippos Pelekoudas-Oikonomou, Georgios Zachos, Georgios Mantas, Jose Ribeiro, Joaquim Manuel C. S. Bastos, Jonathan Rodriguez</i>	
An Adaptive Framework for Attack Mitigation in SDN Environment .....	130
<i>Mohd Mat Isa, Lotfi Mhamdi</i>	
Physical Layer Continuous Authentication for Wireless Mesh Networks: An Experimental Study.....	136
<i>Elmehdi Illi, Anshul Pandey, Lina Bariah, Govind Singh, Jean-Pierre Giacalone, Sami Muhaidat</i>	
Neural Network Based Digital Pre-Distorter Design for DCO-OFDM Visible Light Communications.....	142
<i>Omer Narmanlioglu, Bugra Turan, Sinem Coleri, Murat Uysal</i>	
Secure Service Implementation with Slice Isolation and WireGuard.....	148
<i>Sondre Kielland, Ali Esmaeily, Katina Kravevska, Danilo Gligoroski</i>	
Designing Stateless Control-Plane for Next-Generation Telecom Networks.....	154
<i>Savita Sthawarmath, Eric Renault, Thierry Lejkin</i>	

Belief Propagation for Near-Field Cooperative Localization and Tracking in 6G Vehicular Networks .....	160
<i>Ruoxiao Cao, Hengtao He, Xianghao Yu, Jun Zhang, S. H. Song, Yi Gong, Khaled B. Letaief</i>	
Multi-AP Coordination in Wi-Fi 7 Exploiting Time Resources Sharing .....	166
<i>Pasquale Imputato, Stefano Avallone, Davide Magrin</i>	
A Low-Cost Home Monitoring Architecture for Human Activity Recognition using Smartwatches.....	172
<i>José-Borja Castillo-Sánchez, Eduardo Casilari, Jose Manuel Cano-García, Eva González-Parada, Francisco J. González-Cañete</i>	
Asynchronous Transmission Strategy and Optical IntraCluster Connectivity for Hyperscale Data Centers.....	178
<i>Peristera Baziana</i>	
Traffic-Aware OTN-Over-WDM Optimization in 5G Networks.....	184
<i>Abdallah Moubayed, Abbas Javadtalab, Mahdi Hemmati, Yuren You, Abdallah Shami</i>	
Reinforcement Learning-Based Unlicensed Spectrum Sharing for IoT Devices of 5G New Radio .....	191
<i>Rabbia Saleem, Wei Ni, Muhammad Ikram</i>	
A Model Drift Detection and Adaptation Framework for 5G Core Networks .....	197
<i>Dimitrios Michael Manias, Ali Chouman, Abdallah Shami</i>	
Monitoring and Evaluation of 5G Key Performance Indicators in Media Vertical Applications.....	203
<i>Dimitris Vordonis, Dimitris Giannopoulos, Panagiotis Papaioannou, Christos Tranoris, Spyros Denazis, Ran Rahav, Baruch Altman, Anne-Marie Bosneag, Shubham Jain, Udi Margolin, Bader Mawasy, Konstantinos Oikonomou, Ioannis Markopoulos</i>	
Link Budget Analysis for Line of Sight Communications in D-Band: Radio Coverage Vs. Antenna Gain .....	209
<i>Aris Tsolis, Vasileios Vlachodimitropoulos, Stefanos Lampiris, Fotis Lazarakis, Antonis A. Alexandridis</i>	
Analytical Modeling of Multiple Access Interference in C-V2X Sidelink Communications .....	215
<i>Abdul Rehman, Piergiuseppe Di Marco, Roberto Valentini, Fortunato Santucci</i>	
A Network Simulator as a Service for Demanding Performance Evaluation of Wireless and IoT Scenarios .....	221
<i>Konstantinos Antonopoulos, Dimitrios Ringas, Eleni Christopoulou, Georgios Keramidas, Christos Antonopoulos, Nikolaos Voros</i>	
Capacity and Energy Efficiency Trade-Off in Multi-Packet Reception Wireless Systems.....	227
<i>Ayman T. Abusabah, Rodolfo Oliveira</i>	
Performances Evaluation and Congestion Analysis in IoT Network: Simulation and Emulation Approach .....	232
<i>Hanane Benadji, Lynda Zitoune, Véronique Vèque</i>	
Playing with and Against Hedge in Interdiction Games.....	238
<i>Miltiades E. Anagnostou, Maria Lambrou</i>	
Availability Evaluation of Service Function Chains Under Different Protection Schemes.....	244
<i>Jean-Pierre H. Asdikian, Leila Askari, Omran Ayoub, Francesco Musumeci, Stefano Bregni, Massimo Tornatore</i>	

On the Modelling and Analysis of Edge-Serverless Computing .....	250
<i>Shuo Li, Ejder Bastug, Marco Di Renzo</i>	
Online and Scalable Virtual Network Functions Chain Placement for Emerging 5G Networks.....	255
<i>Ramy Mohamed, Aris Leivadeas, Ioannis Lambadaris, Todd Morris, Petar Djukic</i>	
Implementing a Holistic Approach to Facilitate the Onboarding, Deployment and Validation of NetApps.....	261
<i>Kostis Trantzas, Christos Tranoris, Spyros Denazis, Rafael Direito, Diogo Gomes, Jorge Gallego-Madrid, Ana Hermosilla, Antonio Skarmeta</i>	
Energy-Efficient VM Placement in PON-Based Data Center Architectures with Cascaded AWGRs.....	268
<i>Mohammed Alharthi, Sanaa H. Mohamed, Barzan Yosuf, Taisir E. H. El-Gorashi, Jaafar M. H. Elmirghani</i>	
Bonding Functionality for Live Video Streaming Over 5G Networks.....	274
<i>Baruch Altman, Ran Rahav, Dimitris Vordonis, Dimitris Giannopoulos, Panagiotis Papaioannou, Christos Tranoris, Spyros Denazis, Davide Desirello, Luca Vignaroli</i>	
Teleoperated Support for Remote Driving Over 5G Mobile Communications .....	280
<i>Grigorios Kakkavas, Kwame Nseboah Nyarko, Charbel Lahoud, David Kühnert, Peter Küffner, Matthias Gabriel, Shahab Ehsanfar, Maria Diamanti, Vasileios Karyotis, Klaus Mößner, Symeon Papavassiliou</i>	
Experimental Evaluation of Handover Strategies in 5G-MEC Scenario by using AdvantEDGE .....	286
<i>Rosario G. Garroppo, Marco Volpi, Gianfranco Nencioni, Prachi Vinod Wadatkar</i>	
Multi-User Active RIS Communications: Joint Power, Gain and Phase Shifts Optimization.....	292
<i>Mohamed M. H. Shalma, Engy Aly Maher, Ahmed El-Mahdy</i>	
Lattice Quantization for Centralized and Scalable Cell-Free Massive MIMO with Realistic Fronthaul .....	298
<i>Zhihan Ren, Angela Doufexi, Mark A. Beach</i>	
Optimal Time-Switching for Simultaneous Wireless Information and Power Transfer.....	304
<i>Richard Ketcham, Jeroen Verdyck, Marc Moonen</i>	
Improving Joint Planning of MEC and Fiber Deployment with Duct and Optical Cable Sharing.....	310
<i>Camilo Anzola-Rojas, Ramón J. Durán Barroso, Ignacio De Miguel, Noemí Merayo, Juan Carlos Aguado, Patricia Fernández, Rubén M. Lorenzo, Evaristo J. Abril</i>	
Joint Beam Placement and Load Balancing Optimization for Non-Geostationary Satellite Systems .....	316
<i>Van-Phuc Bui, Trinh Van Chien, Eva Lagunas, Joël Grotz, Symeon Chatzinotas, Björn Ottersten</i>	
Resource Allocation for Ultra-Reliable Low-Latency Vehicular Networks in Finite Blocklength Regime .....	322
<i>Nasir Khan, Sinem Coleri</i>	
Convergent Approximate Message Passing .....	328
<i>Dirk Slock</i>	

**Author Index**