

# **2020 10th International Symposium on Telecommunications (IST 2020)**

**Tehran, Iran  
15 – 17 December 2020**



**IEEE Catalog Number: CFP2009F-POD**  
**ISBN: 978-1-7281-8013-7**

**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:	CFP2009F-POD
ISBN (Print-On-Demand):	978-1-7281-8013-7
ISBN (Online):	978-1-7281-8012-0

**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

Towards Generating Benchmark Datasets for Worm Infection Studies .....	1
Capacity Upper Bound and Minimum Energy-per-Bit for AWGN Relay Channel with Channel Side Information .....	9
A New Architecture for Massive MIMO Testbed Laboratory in 5G .....	15
Full-Duplex Radio Frontend Architecture with Enhanced Transmitter-Receiver Isolation.....	20
An Image Dataset of Vehicles Front Views and Parts for Vehicle Detection, Localization and Alignment Applications.....	25
A Novel Compact Reflectarray Antenna Unit-Cell Operating at 5 GHz.....	31
Broadband Tunable Terahertz Polarization Converter Based on Graphene-Shaped Metasurfaces.....	36
A Fast Reliable Technique for Frequency Identification of Generally Lossy Filters via Complex Analysis.....	40
Integrated Active Diplexer-Leaky Wave Antenna Using Distributed Amplifier and CRLH Transmission Line.....	46
Similarity Preserving Unsupervised Feature Selection based on Sparse Learning.....	50
Uncoordinated Channel Tracking for High-Rate Internet of Things in Multiuser Massive MIMO.....	56
Statistical Channel Modeling for Long-Range Ground-to-Air FSO Links.....	62
A Reliability Aware Algorithm for Workflow Scheduling on Cloud Spot Instances Using Artificial Neural Network.....	67
Joint Pairing and Resource Allocation for V2X Communications.....	72
Persian Sentiment Analysis without Training Data Using Cross-Lingual Word Embeddings.....	78
Queue based Resource Allocation for Tactile Services.....	83
Point-to-Point Threshold Freshness for the Relay Channel: Age of Information Perspective.....	90
Joint User Association and Power-Bandwidth Allocation in Heterogeneous Cellular Networks....	96
Area-Efficient Non-Uniform Lowpass Filter Design.....	103
Optically Controlled Reconfigurable Substrate Integrated Waveguide Slot Array Antenna for 5G Applications.....	107
Power Allocation for Downlink Training in Cell-Free Massive MIMO Networks.....	111





Relaxing Pairwise Conditional Dependency of NB Attributes using Hidden Variables.....	116
An Analog Demodulation Scheme for Cross-QAM Constellations.....	123
Measuring Image Blooming using Blurriness Metrics.....	128
Design and Implementation of Reconfigurable Integrated FPGA-based PSK Demodulator.....	132
Robust Audio Watermarking Using Graph-based Transform and Singular Value Decomposition.....	137
Impulsive Noise Removal from Gray-Scale Video Sequences via Adaptive Thresholding.....	142
Training Doc2Vec on a Corpus of Persian Poems to Answer Thematic Similarity Multiple-Choice Questions.....	146
Enhancing Classification Performance between Different GNSS Interferences using Neural Networks Trained by TAC-PSO Algorithm.....	150
Compact WLAN/C-Band Multiple-Input Multiple-Output Antenna.....	155
Full Wave Simulation of Antenna Efficiency Characterization by Using a Reverberation Chamber With and Without Reference Antenna.....	160
Scattering Analysis of Periodic Thin Film Sandwiched by Plasmonic Nano-antenna Gratings...	166
Reduction of the Acquisition Time in GPS Receiver by Multi-Stage Frequency Bins.....	170
A Graph-based Multi-Label Feature Selection using Ant Colony Optimization.....	175
Max-Link Relay Selection with Physical Layer Network Coding in Two-Way Relay Networks.....	181
MSIoT: Mobile Social Internet of Things, A New Paradigm.....	187
An Analysis of GitLab's Users and Projects Networks.....	194
An Energy-Efficient Cell Outage Detection Algorithm for Self-Organizing Networks.....	201
SAR Calculation of a Pregnant Woman Model Exposed to LTE and Wi-Fi Signals.....	207
On Multi-Session Website Fingerprinting over TLS Handshake.....	211
An Architecture for National Information Sharing and Alerting System.....	217
Private Classical Information over a Quantum Multiple Access Channel: One-shot Secrecy Rate Region.....	222
A Variational Auto-Encoder Approach for Image Transmission in Noisy Channel.....	227
Compact and Narrow-Band Waveguide Filters Using TM Dual-Mode Cavities for Input Multiplexer in Communication Satellites.....	234
Practical Framework for 5G None Stand Alone Deployment: Iran 5G Pilot Case Study.....	240





Topological Data Analysis for Classification of DeepSat-4 Dataset.....	246
Security Framework of IoT-Based Smart Home.....	251

