CALL FOR PAPERS AND PROPOSALS

Selected Areas in Communications Backhaul/Fronthaul

Symposium Co-Chairs

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Scope and Motivation

Today's wireless services and systems have come a long way since the rollout of the conventional voice-centric cellular systems. The demand for wireless access in voice and multimedia applications has increased tremendously. In addition to these, new application classes, such as enhanced mobile broadband (eMBB-plus) communication, secure ultra-reliable and low latency communications (s-uRLLC), massive machine type communications (mMTC), and the Internet of Things (IoT), have gained significant interest recently for beyond 5G wireless networks. In order to address these technical challenges, new novel innovative waveforms and radio access technologies (RATs) should be much more flexible. It is anticipated that future networks will evolve from today's separate and incompatible fronthaul and backhaul into an integrated flexible smart wireless backhauling/fronthauling infrastructure that will support future cellular and ad hoc networks e.g., beyond 5G and 6G, IoT and emerging technologies such as driverless cars, autonomous vehicles or flying platforms, robotic control, smart buildings, and remote condition monitoring networks. The development of smart backhaul/fronthaul solutions for economical and ubiquitous networks will enable ultra-low latency, artificial intelligence, high data-rates and high reliability. Such integrated backhaul and fronthaul networks will meet the global information and communication requirements of future smart and resilient cities, providing ubiquitous connectivity and ensuring the convergence between the fixed and mobile side of the network and guarantee enhanced user experience and better scalability and latency.

Thus, a huge paradigm shift in backhaul/fronthaul network design is highly desirable for beyond 5G networks in order to dynamically manage the increasing traffic demands and cater new vertical use cases. The integration of both terrestrial and aerial network components is being considered as a promising solution to supplement the terrestrial infrastructure while improving flexibility and reliability of backhaul operations for future generation networks. Therefore, the purpose is to bring together researchers and practitioners to share their ideas, latest findings, and state-of-the-art results on fostering the promising benefits of beyond 5G backhaul

networks. High quality papers reporting on applications of fronthaul/backhaul technologies from both industry and academia are encouraged.

Topics of Interest

The SAC-Backhaul/Fronthaul Symposium seeks original contributions in the following topical areas, plus others that are not explicitly listed but are closely related:

- Sustainable Fronthaul/Backhaul solution for beyond 5G networks
- Energy Efficient Backhaul/Fronthaul technologies
- Topology, optimization and routing in integrated access and backhaul networks
- Machine Learning based solutions for integrated access and backhaul networks
- Wireless backhaul solution for 6G networks
- AI based technological solutions for backhaul/Fronthaul
- Heterogeneous backhaul solutions incorporating integrated access and backhaul, wireless backhaul and fibre backhaul.
- Emerging technologies and methods for THz communication
- An innovative fronthaul/backhaul solution for Non-Terrestrial Networks
- Wireless Access architecture for the networks beyond 2030
- Artificial Intelligence Enabled Integrated Aerial/Terrestrial Wireless Access Networks for 2030s
- Rate Splitting Multiple Access for Aerial Networks
- Innovation solution for mixed RF/FSO backhaul networks
- AI-Inspired Non-Terrestrial Networks for Industrial IoT
- Smart backhaul solutions for integrated LEOs and Aerial networks within a non-terrestrial network
- Smart and secure Backhaul solutions for autonomous vehicle communication
- Terrestrial Free Space Optical communications
- Backhaul Capacity Aware Framework for Internet of Things
- 5G and beyond 5G front/mid-haul networks •
- Flexible and on-demand access networks
- Integrated wired/wireless access
- Access networks integration in the Internet of Things (IoT)
- Optical-Wireless integration and radio over fiber
- Access network architectures and protocols
- Quality of Service (QoS)/Quality of Experience (QoE): characterization and provisioning
- Access network survivability and security
- Performance evaluation of access systems and networks
- New technologies and architectures in access networks

Important Dates

Paper Submission: 15 April 2022

Notification: 25 July 2022

Camera Ready and Registration: 1 September 2022

How to Submit a Paper

All papers for technical symposia should be submitted via EDAS. Full instructions on how to submit papers are provided on the IEEE Globecom 2022 website: https://globecom2022.ieee-globecom.org/