



Call for Papers

Symposium on Selected Areas in

Communications: Aerial Communications Track

Co-Chairs

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Scope and Motivation

The rapid evolution of communication networks has opened up new opportunities for aerial platforms, including drones, balloons, and manned aircraft, to become integral components of next-generation wireless systems. These aerial nodes, operating at altitudes far above traditional ground-based infrastructure, offer unique capabilities that can transform how we deliver and access wireless services. Aerial platforms can function as mobile base stations, relays, or access points, providing on-demand wireless coverage and enhancing connectivity in underserved or hard-to-reach areas. Their ability to be rapidly deployed, cover wide areas, and offer flexible positioning makes them invaluable for critical applications such as urban air mobility, disaster recovery, emergency response, public safety, environmental monitoring, and large-scale data collection. Therefore, aerial platforms themselves are increasingly being integrated as network users. From autonomous drones conducting surveillance or delivering packages, to high-altitude balloons connecting remote regions, these aerial nodes require reliable and low-latency command and control communication links as well as payload communications. This growing role of aerial platforms, both as service providers and network users, is driving new research challenges and opportunities. This track invites original and groundbreaking contributions that address the unique technical challenges posed by aerial communications.

Topics of Interest

Original research articles are solicited in, but not limited to, the following topics:

- Communication and networking protocols for aerial platforms
- Agile, intelligent, and resilient aerial communications
- Manned and unmanned aerial systems communication
- Air-ground and air-air channel modelling & measurements
- Spectrum management and multiple access schemes
- Aerial platforms in 5G and beyond (cellular-connected drones, interreference management)

- Aerial swarm communications and control
- Communication architectures and technologies for urban air mobility (UAM)
- Machine Learning and Artificial Intelligence
- Mobile edge computing for UAVs
- 3D aerial node placement and trajectory planning
- Joint trajectory design and resource allocation
- Internet connectivity using aerial platforms
- UAV-supported data offloading
- Integrated sensing and communications for UAVs,
- Aerial video streaming for virtual/augmented reality
- Physical and cyber security in aerial platforms
- Energy consumption and energy supplying methods
- UAV-assisted broadband services
- Cyber-physical models
- Onboard AI for UAV intelligence
- MIMO, mmWave, and THz networking for UAVs
- Human and machine teaming in UAV
- Wireless power transfer for UAVs
- Wireless localization for UAVs or wireless localization using UAVs
- Digital twins for UAVs
- UAV networking and communication simulation platforms
- Experiments, demonstrations, and field tests
- Economic frameworks and business models
- Regulation, standards, and best practices
- Security and Privacy
- UAV-supported emergency communications

Biographies of the Co-Chairs

Fatemeh Afghah is an Associate Professor with the Electrical and Computer Engineering Department at Clemson University and the director of the Intelligent Systems and Wireless Networking (IS-WiN) Laboratory. Her research interests include wireless communication networks, decision-making in multi-agent systems, UAV networks, security, and artificial intelligence. Her recent project involves autonomous decision-making in uncertain environments, using autonomous vehicles for disaster management and IoT security. She is the recipient of several awards including the Air Force Office of Scientific Research Young Investigator Award in 2019, NSF CAREER Award in 2020, and NSF CISE Research Initiation Initiative (CRII) Award in 2017.

How to Submit a Paper

All papers for technical symposia should be submitted via EDAS. Full instructions on how to submit papers and important deadlines are posted at <https://icc2025.ieee-icc.org/>

The authors of selected papers from this symposium will be invited to submit an extended version of their work for fast-track review and possible publication in the IEEE Open Journal of the Communications Society.