



# IoT & Sensor Networks Symposium

## Co-Chairs

- Bomin Mao, China. <maobomin@nwpu.edu.cn>
- Moez Esseghir, France. <moez.esseghir@utt.fr>
- Khalid Elgazzar, Canada. <Khalid.Elgazzar@ontariotechu.ca>
- Lotfi Mhamdi, U.K. <L.Mhamdi@leeds.ac.uk>

## Scope and Motivation

The Internet of Things (IoT) has revolutionized the domains of living, working, and manufacturing, gaining considerable traction in both industrial and academic sectors. Driven by escalating connectivity and relentless miniaturization of computers and smart devices as well as the Artificial Intelligence (AI), IoT is poised to generate vast amounts of data, offering ample opportunities for analysis to uncover hidden patterns, correlations, and profound insights in 5G and future 6G. In the context of industrial settings (Industry 4.0), smart spaces (buildings, homes, etc.), and connected vehicles, service requirements emphasize heightened reliability, scalability, reduced latency and energy. To address these demands, various technologies such as BLE, Zigbee, WirelessHART, IEEE Std 802.15.4 TSCH, 6TiSCH, LPWAN (LoRa, Sigfox, NB-IoT, LTE-M) have emerged. Current 5G and future 6G networks provide augmented data rates and ultra-low latency communication, catering to critical IoT applications requiring unparalleled reliability. Meeting the anticipated demands of high traffic, low latency, and seamless coverage in IoT and Machine-to-Machine (M2M) communications necessitates radical shifts in architectural and communication solutions. The development of Non-Terrestrial Networks (NTNs) composed by satellites and Unmanned Aerial Vehicles (UAVs) enables the connection of IoT devices in remote areas. The Fog/Edge-to-thing continuum has been widely studied to alleviate the burden on centralized IoT data processing and storage networks, ensuring closer processing proximity to devices. Recently, the development of AI, especially the Large Language Models (LLM), has been expected to drive the intelligent operation and management of IoT. Thus, the IoT and Sensor Networks Symposium at IEEE ICC 2025 will provide a forum that brings together scientists and researchers to present their cutting-edge innovations in all aspects of the field.

## Topics of Interest

This track solicits technical papers describing original, previously unpublished papers on trends, issues, and challenges of the Internet of Things and sensor networks. You are invited to submit research paper(s) related to the following topics of interest (but not limited to):

- 5G and beyond 5G/6G networks and IoT
- Protocols, architectures and applications for IoT
- Design space exploration techniques for IoT devices and systems
- Design principles and best practices for IoT application development

- IoT and Tactile Internet
- IoT and social networks
- IoT and AR/VR technologies
- IoT for smart manufacturing (industry 4.0) and smart spaces
- IoT protocols and standards (IPv6, 6LoWPAN, RPL, 6TiSCH, RAW, WoT, oneM2M, etc.)
- Low-power wide area networks and technologies
- Ultra-low power IoT technologies and embedded system architectures
- Distributed storage, data fusion for IoT
- Wearables, body sensor networks, smart portable devices
- Messaging technologies for the Industrial IoT and Factory of Things
- Non-terrestrial Network-assisted IoT
- Space and aerial sensor networks
- Underwater and underground sensor and actuator networks
- IoT networks for smart cities, smart grids, smart living spaces, Intelligent Transportation Systems
- Nano ad hoc, sensor and IoT networks
- RFID sensing technology
- Ambient intelligence
- Autonomic computing for IoT
- Artificial intelligence and machine learning for IoT
- Large Language Models for IoT
- IoT big data mining and analytics
- IoT large scale pilots and portability, interoperability and multi-platform integration
- Low-power computing
- Massive MTC (mMTC)
- Mobility, localization and context adaptive IoT
- Data aggregation and dissemination in multi-hop IoT networks
- Fog/edge computing and IoT: architectures and implementations
- Security, privacy, and trust issues in IoT networks
- Blockchain technology for IoT
- Semantics-aware communications
- Modeling and performance evaluation
- Testbeds and real-world implementations

## Biographies of the Co-Chairs

**Bomin Mao** is currently a Professor with the School of Cybersecurity, Northwestern Polytechnical University, China. His research interests are involving satellite networks, Internet of Things, vehicular networks, and edge computing. He received several Best Paper Awards from international conferences, namely IEEE GLOBECOM'17, GLOBECOM'18, IC-NIDC'18, ICC'23, and WOCC'23. He was a recipient of the prestigious IEEE COMSOC Asia Pacific Outstanding Paper Award (2020), Niwa Yasujiro Outstanding Paper Award (2019), and IEEE Computer Society Tokyo/Japan Joint Local Chapters Young Author Award (2020). He has served as an associate editor of IEEE Transactions on Vehicular Technology and IEEE Internet of Things Journal, the TPC chair of HPSR 2022, and the symposium co-chair of IEEE ICCT 2023 and IEEE ICC 2024.

**Moez Esseghir** is currently an Associate Professor with the University of Technology of Troyes, Troyes, France, where he has been the leader of the autonomic network environments research team from January 2017 to December 2019. He is the author and the coauthor of more than 90 publications, including international journals and conferences. His research interests include energy management, resource allocation, and performance evaluation in different kinds of networks, such as HetNets, WSN, CRN, VANET, smart grids, cloud environment, and IoT. Dr. Esseghir actively participated in numerous projects and has served as a technical program committee member and a reviewer for well-known international conferences and journals.

**Khalid Elgazzar** is a Canada Research Chair in the Internet of Things and an Associate Professor with the Faculty of Engineering and Applied Science at Ontario Tech University, Canada. He is also an adjunct professor at Queen's University. Dr. Elgazzar is the founder and director of the IoT Research Laboratory at Ontario Tech University. Prior to joining Ontario Tech, he was an Assistant Professor at the University of Louisiana at Lafayette and a research scientist at Carnegie Mellon School of Computer Science, Pittsburgh, PA, USA. Dr. Elgazzar is a leading authority in the areas of the Internet of Things (IoT), intelligent software systems, real-time data analytics, and mobile computing. Dr. Elgazzar is

currently an associate editor for Frontiers Internet of Things Journal, Springer Peer-to-Peer Networking and Applications, Future Internet, and others. He also chaired several IEEE conferences and symposia on mobile computing, communications, and IoT. Dr. Elgazzar is a Senior IEEE Member and an active volunteer in technical program committees and organizing committees in both IEEE and ACM events.

**Lotfi Mhamdi** is currently a Lecturer with the School of Electronic and Electrical Engineering, University of Leeds, U.K. His research interests include high-performance networks, including the architecture, design, analysis, scheduling, and management of high-performance switches, and internet routers. He is/was a Technical Program Committee Member of various conferences, including the IEEE International Conference on Communications (ICC), the IEEE GLOBECOM, the IEEE Workshop on High Performance Switching and Routing (HPSR), and the ACM/IEEE International Symposium on Networks-on-Chip (NoCS). He was the TPC Co-Chair of the Green Computing, Networking, and Communications Symposium (GCNC 2020) and the TPC Co-Chair of GLOBECOM (NGNI Symposium) in 2020. Currently, he is serving as the Vice-Chair of the IEEE ComSoc Technical Committee on Communication Switching and Routing (CSR-TC).

## 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.