

Call for papers

8th IEEE ICC Workshop on Advances in Network Localization and Navigation

June 7, 2020

Scope

Network localization and navigation (NLN) has ever-growing relevance for a myriad of emerging location-based services in indoor and outdoor environments. The Internet of Things (IoT), cyber-physical systems, autonomous vehicles, and 5G communications will all benefit from NLN capabilities. All this potential can be unleashed by designing solutions for localization and navigation that exploit a combination of distributed algorithms and cost-effective technologies. These technologies are highly heterogeneous and encompass a multitude of sensory modalities such as RF, IMU, sonar, laser, IR, and visible light. In particular, RF signals can include WiFi/802.11x, UWB, RFID, Bluetooth, NFC, 3GPP/LTE, and the so-called signals of opportunity (e.g., TV). The availability of such technologies calls for methods that jointly fuse information from multimodal sensors and multiple agents. Such multimodal data create a unique opportunity to leverage artificial intelligence and machine learning techniques for developing novel data-driven predictive capabilities for NLN. The integration of predictive models, trained using deep neural networks on high-frequency signals data, will open up new avenues for impactful research problems. Data fusion, artificial intelligence, machine learning, cross-layer optimization, and new application scenarios are therefore the key aspects for further advances of the field and present exciting challenges for practitioners and researchers.

The goal of the workshop is to solicit the development of new localization strategies that leverage wireless communication technologies and of new location-aware procedures to enhance the efficiency of communication networks. This workshop will bring together researchers from academy and industry to identify and discuss technical challenges and recent results in localization research.

Topics of interest include, but are not limited to the following:

- Data fusion for heterogeneous technologies
- Cooperative localization and navigation
- Simultaneous localization and mapping (SLAM)
- Network operation and scheduling for localization
- Multi-agent control
- Intelligent Transportation
- Situational Awareness
- Fundamental limits
- Online Bayesian filtering
- Methods with robust performance
- Position-dependent parameter estimation
- Information coupling in distributed localization
- Machine learning for localization
- Multi-agent reinforcement learning
- Crowd-based enhanced positioning

- Testbeds and experimentation
- Distributed estimation and optimization
- Localization via signals of opportunity
- Location-awareness for wireless networks
- Hybrid IMU and magnetic pedestrian navigation
- Passive and active RFID
- Spectrum/Energy efficient positioning
- Sensor radar networks
- Localization methods for IoT and 5G
- Soft information for localization
- AI for location-awareness
- Joint localization and communication
- Security and privacy in localization
- Mobility models for tracking

Submission Guidelines

<https://icc2020.ieee-icc.org/call-submissions>

Submission Link

<https://edas.info/newPaper.php?c=26814&track=99517>

Workshop Website

<https://site.ieee.org/com-rc/anln-2020>

Deadline

January 20, 2020

Workshop Organizers and TPC Chairs

- Stefania Bartoletti
Univ. of Ferrara, Italy, stefania.bartoletti@unife.it
- Subhro Das
MIT-IBM Watson AI Lab, USA, subhro.das@ibm.com
- Andrea Giorgetti
Univ. of Bologna, Italy, a.giorgetti@ieee.org
- Santiago Mazuelas
BCAM, Spain, smazuelas@bcamath.org
- Florian Meyer
MIT, USA, fmeyer@mit.edu