SUNDAY 13:50 – 17:50

The Path to 2030: Joint Communication and Sensing in the 6G Internet-of-Everything Era

WS11
EuMC/
EuMIC

Chair: Padmanava Sen[1]
Co-Chair: Sam Lemey[2]
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Room: Juliana 3

Joint Communications and Radio Sensing (JCAS), also referred to as Integrated Sensing and Communications (ISAC), has been a key focus of several 6G projects, discussions, and standardization platforms worldwide in recent years. It has been extensively explored as a critical part of next-generation communication systems beyond cellular networks. To expand the utilization of JCAS, a system-level co-design approach will serve as a key enabler, with RF hardware (frontend and antenna system) playing a pivotal role.

This workshop aims to cover the state-of-the-art advancements and emerging enabling technologies, with a specific focus on antenna systems, beamforming and array processing techniques, reconfigurable frontends, signal processing, privacy-preserving mechanisms and related demonstration platforms to identify the remaining gaps between ideas and actual deployments in real-world scenarios (aiming 2030 as the year of 6G deployments).

The workshop will span applications that use frequencies from sub-10 GHz (e.g., FR1, UWB) to sub-THz (e.g., D-band and 256 GHz), with multiple talks highlighting flexible architectures and dual-/wide-band methodologies. Comprising of six talks, the sessions emphasize deployable concepts for the 6G Internet-of-Everything era. They address deployment challenges and solutions across diverse frequency bands, showcasing innovations such as reconfigurable frontends and antennas, repurposing existing systems for new use cases, and promoting energy-efficient operation.

PROGRAMME

Reconfigurable frontends for Deployable Privacy-preserving ISAC/JCAS

Padmanava Sen[1]
[1]Barkhausen Institut

Ultra-wideband Joint Communication and Sensing for the Internet-of-Everything: from Self-Shielding Antenna System Design in the FR3 Band to Machine-Learning-Based Algorithms

Sam Lemey[1]
[1]Ghent University-imec

Novel Reconfiguration Techniques for Wideband and Low -profile Antenna Frontends in Joint Communication and Sensing Systems

Akram Alomainy[1]
[1]Queen Mary University of London

Practical aspects of integration of sensing functionality with radio communication systems

Marko E. Leinonen[1]
[1]University of Oulu

Dual -band Active Antenna Array System and Duplexer Transition for future JCAS applications in W-and D-band

Kevin Van Hastenberg[1]
[1]TU Eindhoven

SiGe BiCMOS Integrated Circuits and Systems for sub-THz Communication and Sensing

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