WIRELESS COMMUNICATION NETWORKS

THE WIRELESS COMMUNICATION NETWORKS SECTION (WCN)
DEPARTMENT OF ELECTRONIC SYSTEMS
TECHNICAL FACULTY OF IT AND DESIGN, AALBORG UNIVERSITY

The section works with development of new methods and technologies for future wireless communication demands, standardization of new technologies and proving their practical applications. The section established the IoT Living Lab and is co-creator of the 5G smart production lab, contributing to the societal adaptation of wireless IoT technologies.

RESEARCH

KEY RESEARCH

The section researches wireless communication technologies in general and with a special focus on 5G and industrial use of the 5G technology.

The section also works with artificial intelligence as a fundamental technology for 6G design.

WHAT WE DO

The section's research has been very influential in defining the 5G/NR standards.

Our broad research in radio propagation has directly impacted the various models used for 5G standardization, such as models for radio wave propagation at mm frequencies, models radio propagation for industrial environments, and models for radio propagation related to UAV connectivity.

Experimental research within IoT and I.4.0 has contributed to Danish public and private companies gaining insight into the potentials and challenges of the technologies.

COLLABORATION

WHO BENEFITS FROM OUR RESEARCH

The research is of interest to researchers at universities and private companies as well as industrial and private users of wireless communication technologies.

EXTERNAL PARTNERS

Industry: Nokia Bell-Labs, Huawei, Telenor, TDC, Intel, Keysight, R&S, RTX, National Instruments, Samsung, Bosch, and Terma and MIR.

Authorities: North Denmark Region, City of Aalborg (BusinessAalborg), Danish Energy Agency.

PUBLICATIONS

IMPORTANT PUBLICATIONS

- Interference Measurements in the European 868 MHz ISM Band with Focus on LoRa and SigFox
- From LTE to 5G for Connected Mobility
- Radio Channel Modelling for UAV Communication over Cellular Networks
- A Flexible 5G Frame Structure Design for Frequency-Division Duplex Cases
- Fundamental Tradeoffs among Reliability, Latency and Throughput in Cellular Networks
- 3D mmWave Channel Model Proposal

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KEY PROJECTS

H2020 ONE 5G

The project works wih developing new radio technology for 5G, boosting the capacity of mobile networks, energy efficiency and vertical use cases to enable a swift move towards 5G NR and advance digitilization.

H2020 BIG IOT

A European project to advance IoT Ecosystems in order for European companies to develop and exploit business potentials in the IoT sector.

H2020 SESAR DROC2OM

The project targets datalinks of unmanned Aerial Systems (UAS) for integration of drones into civil airspace, i.e. enabling sharing of the airspace between manned and unmanned systems.

VIDEO PRESENTATION

CONTACT

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