Notice of dissertation defense 29.03.2018

5G Technologies – Practical Implementation Aspects

Title
Algorithms, Protocols and Cloud-RAN Implementation Aspects of 5G Networks

Content
In order to meet the increasing demand for high-speed mobile data access, Radio Access Technologies (RATs) are evolving constantly. This has led to a growing number of cellular standards. Recently, the 3rd Generation Partnership Project (3GPP) has started a process to identify and define enabling technologies for the future 5th Generation (5G) system which will meet the IMT-2020 targets. While the main driving force behind these 5G targets is the huge demand for network capacity resulting from the exponential increase in connected smart phones, tablets and other devices, there is also a need for flexibility to accommodate the requirements of different services and applications. The future 5G mobile networks will support a number of use cases such as extreme Mobile BroadBand (eMBB), Ultra Reliable and Low Latency Communication (URLLC) and Machine Type Communications (MTC) with massive number of connected devices. These use cases have diverse, and seemingly conflicting, requirements in terms of latency, coverage, reliability and power consumption. The future evolution of LTE and new RATs that will be added to the 5G standards are expected to meet these requirements. The thesis studies implementation constraints of 5G requirements and proposes practical physical layer algorithms together with protocol and architectural designs that could support the 5G use cases.

Field of research
Communications Engineering

Doctoral candidate
Yihenew Dagne Beyene, MSc.
Born in Ethiopia

Date and time
20.04.2018 at 12:00

Place
Aalto University School of Electrical Engineering, hall AS1, Maarintie 8, Espoo

Opponent
Professor Dong Ku Kim, Yonsei University, South Korea

Supervisor
Professor Riku Jäntti, Aalto University School of Electrical Engineering, Department of Communications Engineering

Dissertation website
https://aaltodoc.aalto.fi/handle/123456789/53

Contact information
Yihenew Dagne Beyene, yihenew.beyene@aalto.fi

The dissertation is publicly available on the notice board of the Aalto University Learning Hub Atrium, Maarintie 8.