

## Master assignment

Project: [Self-optimizing scheduling for next generation cellular networks](#)

Duration: 6 to 9 months



**Figure 1 Traffic diversity in cellular networks**

Former generations cellular technologies, i.e. GSM networks, have defined several service classes in order to provide quality of service differentiation. However such static division is not well suited for the large diversity of applications already available or under development for the new generation cellular technologies, i.e. LTE networks. Mobile traffic even if belonging to the same traffic class, i.e. video, might differ in preferences towards the quality of service. New approaches, which can adapt to the quickly changing traffic demands, are necessary.

Scheduling is the strategy according to which users are assigned service. It is a very attractive part of the network where modifications can be made to accommodate the increasing demands of mobile traffic. A scheduler can be described by several features such as assigned transmit powers, number of simultaneous transmissions, etc. By dynamically changing the setting of the parameters a mobile operator can provide an appropriate service to mobile users with different traffic demands. The best strategy is a scheduler which can independently select the parameters settings according to the incoming traffic, i.e. self-optimizing scheduler.

The goal of the assignment is to evaluate the possibilities to define self-optimizing scheduling schemes for a LTE network. Several test schemes should be proposed along with a common scheduler and evaluated in performance. The steps included in this research are:

- Get familiar with the LTE technology.
- Research the possibilities for modifying the scheduling in LTE.
- Define at least two possible self-optimizing scheduling schemes.
- Evaluate the proposed schemes in terms of delivered performance, i.e. service rates and transfer times.

Supervisors

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