B.Sc. Thesis: Setting Up and Validating SDR based 3G and 4G test network

Background
New software defined radios have become powerful enough for implementation of 3G (WCDMA/UMTS) and 4G (LTE) base stations. Institute for Networked Systems is about to setup a test network that is capable for emulating both 3G and 4G systems. As a part of this work it is important to make performance measurements and validations for different implementations.

Tasks
In this thesis you will first get familiar with the state of the art software defined radios (SDRs). You will learn the tool chain to compile and install radio software for SDRs and then proceed to deploy small scale network installation in the premises of iNETS. Finally you will do basic measurements to validate that the installation works and to find out radio propagation properties of the devices.

Tools
You will be working with new and powerful USRP SDRs combined with open sourced software tools and protocol stacks. This gives you an unique possibility to learn very modern tools used both top universities and industry for research and development purposes. For final validation measurement you might also need to use our high frequency spectrum analysers.

Contact
Andreas Achtzehn
Institute for Networked Systems
aac@inets.rwth-aachen.de