Mobile Communication Message Security Analysis with Machine Learning (Bachelor/Master Thesis)

Background

In this topic an analysis of mobile communication messages in 5G should be done. There are several different kinds of these messages with different functions and level of information content. The analysis should be done using state of the art machine learning algorithms like random forest or neural networks. A focus should be on how to identify differences between network vendors.

Objectives

This thesis provides an opportunity for students to gain hands-on experience with 5G technology through the following activities (varying complexity, depending on the type of thesis):

- Security and privacy analysis of Mobile Communication Messages
- Focus on machine learning algorithms
- Documentation and Reporting: Document the research process, experimental setups, findings, and challenges encountered during the research.

Requirements

Candidates should possess basic programming skills (Python) and machine learning skills. Interest in networking and wireless communication technologies is required. Although prior knowledge of 5G technology is beneficial, it is not mandatory. Familiarity with wireless communication protocols and network security principles is advantageous.

Application Process

All applications must be submitted through the application website INTERAMT:
https://www.interamt.de/koop/app/trefferliste?partner=339
(Abschlussarbeiten Bachelor / Master)

Carefully note the information provided on the site to avoid any issues with your application.
Your application should include

- a short CV
- a current transcript of records
- the keyword “T3-MK-MLANALYSIS” as a comment

For any questions or further details regarding this thesis and the application process, please feel free to contact ZITiS T3 (t3@zitis.bund.de) or PD Dr. Corinna Schmitt.