Master Thesis. Academic Year 23/24.

Título: Leveraging Mobile Crowdsourced Data for Anomaly Detection in Complex Radio Access Networks

Tutores: Zoraida Frías y Luis Mendo, Departamento de Señales, Sistemas y Radiocomunicaciones

Fecha inicio: February 1, 2024

Remuneración: Posibilidad de beca de 700€/mes por 20h/semana

Requisitos: Estudiante de Máster de un título oficial de la ETSIT, preferiblemente MUIT.

Solicitudes: Enviar CV y expediente académico a zoraida.frias@upm.es antes del 7 de enero de 2024.

Background:

The evolution of Radio Access Networks (RAN) has led to increased complexity, characterized by the coexistence of multiple technologies, overlapping frequencies, varying cell sizes, and diverse network elements. This poses significant challenges in maintaining an optimal user experience.

Objectives:

This Master Thesis aims to investigate the feasibility of utilizing mobile crowdsourced data to detect anomalies within the RAN. The study aims to address the challenges posed by the complex RAN architecture by assessing the extent to which mobile crowdsourced measurements can effectively identify and diagnose anomalies.

Methodology:

This research will employ a quantitative approach, utilizing mobile crowdsourced data collected from diverse RAN environments. The methodology will involve data preprocessing, feature engineering, and anomaly detection algorithms tailored to analyze mobile crowdsourced measurements. Various statistical and machine learning techniques will be applied to identify irregularities, deviations, or abnormalities within the collected data.

Expected Outcomes:

The Thesis aims to present empirical findings regarding the potential of mobile crowdsourced data in detecting anomalies within complex RAN environments. The outcomes will contribute to a collaborative research project ongoing with mobile crowdsourced companies and mobile operators.