

Analysis of RF-Spectrum Correlations

M.Sc. Thesis

Background

In this thesis you will develop your skills on spatio-temporal analysis of large datasets from RF measurements or simulations. The key aim is to study geographical correlations on spectrum usage and signal strengths, mostly using different correlation analysis methods. The department has been acquiring with its own research campaigns some extremely large datasets on RF-behaviour: once you have familiarised yourself with the methodology, you will implement key algorithms (with agreed programming environment such as Matlab or R) and analyse this real-world data as a part of your thesis research. This thesis topic provides excellent opportunity to learn about spatial and spatio-temporal data analysis, which is becoming one of the most highly demanded skills in data analytics industry.

Tasks

After the literature review, you will select with the help of the supervisor suitable algorithms and data for further analysis. The practical part is to implement computationally efficient algorithms for correlation analysis so that millions of data points can be processed efficiently. After the implementation and validation of the algorithm with test data, you will analyse some real world data to make a proper (performance) analysis of RF Spectrum Correlations.

Other Information

In this work you will have an opportunity to learn both data analytics and wireless communications specific work. An interest on learning new analysis methods and adequate programming skills would be helpful for conducting this thesis work.



Contact

Shaham Shabani, M.Sc.

Institute for Networked Systems

0241 80-209 00

sha@inets.rwth-aachen.de

Prof. Petri Mähönen

Institute for Networked Systems

0241 80-209 00

pma@inets.rwth-aachen.de