Indoor Channel Modeling
Indoor Channel Modeling using Neural Networks -
Kanalmodellierung für Innenräume mit Hilfe von Neuronalen Netze

Research Area
Indoor channel modeling, machine learning, parameterization, statistical methods

Description
As indoor traffic increases, various solutions to increase capacity and mitigate interference indoors are being developed. These solutions need to be effectively modeled and compared in order to evaluate which solutions are appropriate for various scenarios. This starts with modeling the indoor channel using measurement data. Indoor modeling is especially challenging due to the large amount of reflection and non-uniformity that occurs indoors. This makes deterministic models far too complex. Neural networks and statistical modeling with measurement data, show more promise. For this thesis measurements taken at the Deutsches Museum Bonn will be used to train a neural network and/or parameterize and evaluate a number of indoor channel models.

Goal
- Train and evaluate neural network using measurements taken at the Deutsches Museum Bonn
- Parameterize appropriate channel model with measurement data
- Evaluate various existing models using measurement data

Requirements
- Thesis can be written in German or English
- Matlab and/or python
- Understanding of optimization and/or machine learning tools preferred

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