

Bachelor's Thesis

A Jupyter Notebook for Digital Modulation Schemes (LB)

Digital modulation schemes are prevalent in almost all communication systems. They can be used to either shift base-band signals to a region, which is suitable for transmission (in regards to some specific channel), or they can be used to simultaneously transmit multiple data streams over the same physical channel [1].

The students task is to implement a demonstration of two digital modulation schemes in Python [2] (Jupyter Notebook) and visualize the results. Additionally, the student also has to arrange code and surrounding text, such that the content becomes self-explanatory.

[1] Skript "Physical Layer Methods"

[2] "Python in 30 minutes" (<https://www.programiz.com/python-programming/tutorial>)

Prerequisites

Since the Jupyter Notebook is to be written in german language, the student should be able to write in german at least on a basic level.

While some basics in any programming language are beneficial, this is also a great opportunity for programming beginners, wishing to expand their programming skills.

For this topic students of the "Lehramtsstudiengänge" are preferred.

Advisors

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