



# Machine Learning Based Hybrid Schedulability Analysis

## Description of Master's Thesis

March 24, 2023

Title: "Machine Learning Based Hybrid Schedulability Analysis"

Supervisor: Rubi Debnath

### Context

Time-sensitive network (TSN) enables deterministic transmission on standard Ethernet. Large-scale industrial network requires complex schedulability analysis tools to configure the network. In this topic, the student will implement a ML model for the schedulability of traffics in the TSN network.

The first step is to go through the current state of the art, followed by designing and developing an optimized model using the SOTA ML algorithms such as decision tree. Finally, perform a detailed comparison between the implemented algorithm and other tools.

### Requirements

- **Very good Python programming skills.**
- **Knowledge of communication networks.**
- **Knowledge of ML models and algorithms.**
- **Interest in ML based network optimization.**
- Independent and able to work with minimal supervision.

### Contact

If you are interested in this topic, please send your full application (CV, current transcript of records, research interests, possible start dates) to Rubi Debnath ([rubi.debnath@tum.de](mailto:rubi.debnath@tum.de)).