



SMT/OMT based routing and scheduling in TSN

Description of Topic

April 3, 2022

Title: "SMT/OMT based routing and scheduling in TSN"

Supervisor: Rubi Debnath

Context

Time-sensitive network (TSN) enables deterministic transmission on standard Ethernet. For large-scale industrial networks, we require complex schedules to configure the network. In this topic, the goal is to formulate constraints and use SMT/OMT solvers to generate the scheduling of time-triggered traffic in a TSN network.

Requirements

- **Knowledge of computer networks.**
- **Good programming skills in Python, C++.**
- **Experience with solvers such as Z3, Gurobi or OR-tools.**
- **Knowledge of optimization techniques and ILP.**
- Basic understanding of Time Sensitive Networking.
- Independent and motivated to work on networking optimization problems.

Contact

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