

Latency analysis of mesh networks using ray tracing

Master's Thesis

Project

The basis for the next generation of mobile communications (6G) is formed by revolutionary technology components that require new measurement procedures and simulations. Ray tracing methods can be used to simulate environment-specific and physically accurate channel implementations for a specific scenario. Such simulations are particularly valuable in a production hall, where communication with high reliability and low latency is necessary. In this project, you will further develop a simulation with ray tracing in order to carry out latency investigations of mesh networks in a SEW-Eurodrive production hall.

Tasks

1. Introduction to existing ray tracing-based simulation.
2. Analysis of suitable scheduling and routing algorithms.
3. Conducting simulations with ray tracing in a 3D model.
4. Evaluation and analysis of the results.

Requirements

- ✓ Programming skills in Python.
- ✓ Knowledge of mobile communication and mesh networks is an advantage.
- ✓ Knowledge of 3D modeling/rendering (Blender) is an advantage.

Institute

Communications
Engineering
Lab

Hertzstr. 16
Gebäude 06.45
76187 Karlsruhe
www.cel.kit.edu

Contact

Prof. Dr.-Ing.
Peter Rost

Room 103
peter.rost@kit.edu