

## TOPIC FOR A MASTER'S THESIS

### Realistic Simulation of Rescue Vehicles in SUMO

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##### MOTIVATION

The creation of an Emergency Lane (EL) has received a lot of media attention in recent years. Many accidents have been reported in which Emergency Vehicles (EVs) only reach the scene of the accident with effort and loss of time. Even though creating the EL is mandatory for all traffic, many issues exist: Drivers do not react immediately, they do not make room for EVs, or wait in front of red lights instead of carefully crossing the stop line.

Hectic and wrong reactions and resulting driving decisions are dangerous for other traffic as well as for EVs.

##### GOALS OF THIS THESIS

This thesis focuses on realistic simulations of EVs as well as human drivers in corresponding situations. The goal of this thesis is to analyze existing data and models to improve the models in SUMO such that a more realistic simulation of EVs is possible.

Possible milestones are as follows:

- Literature research on legal requirements for emergency vehicles and human drivers in corresponding situations (in Germany).
- Literature research on data for driving behavior of emergency vehicles and human drivers in corresponding situations.
- Literature research on models for driving behavior of emergency vehicles and human drivers in corresponding situations.
- Analysis of existing driving models for emergency vehicles and human drivers in SUMO.
- Design of new/extended driving models for SUMO.
- Implementation of the proposed driving models/changes into SUMO (C++).
- Evaluation of the proposed driving models in simulations with SUMO.

##### CONTACT

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