

Bachelorarbeit, Masterarbeit

Robustness analysis of a DES model

Motivation

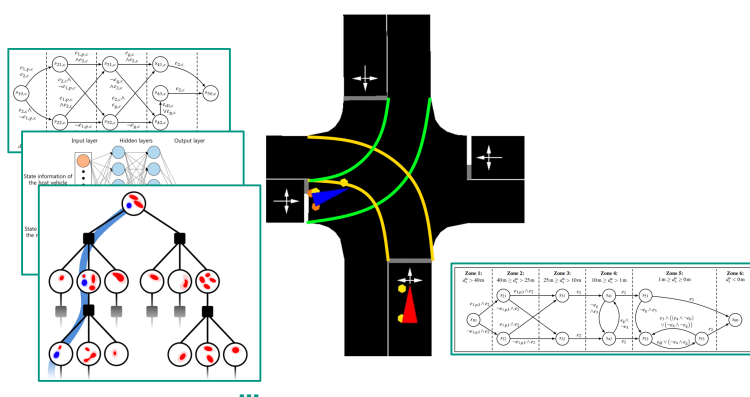
Autonomous vehicles are becoming increasingly important in road traffic. For reliable integration into existing traffic systems, it is crucial not only to model the individual behavior of individual vehicles but also to understand their effects on interactions at potential conflict points. Discrete-event decision models, which are based on the occurrence of clearly defined events, offer a promising foundation for the control of autonomous vehicles. Correctly interpreting the behavior of human-driven vehicles or other automated vehicles and being able to make the correct decision independently based on this information remains an open question at present.

Task

This thesis aims to examine the behavior of the existing decision-making algorithm for automated vehicles at intersections and roundabouts when applied to different models of non-automated vehicles. To this end, the existing decision-making logic will be integrated with different models representing other vehicles.

The main part of this thesis involves investigating how reliably the current modeling can handle the different vehicle models, what boundary conditions must be ensured for the models used, and what adjustments are necessary.

In addition to the theoretical development of the logic, it will also be integrated into the existing simulation. The necessary research on decision-making in other models, adaptation of the simulation environment, and validation of the developed models are also part of this thesis.



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Different modeling approaches for the CVs

Vorkenntnisse

- Basic knowledge of signal processing
- Programming skills in Python
- Enjoyment of scientific work

Forschungsgebiet

- automated driving
- signal processing
- discrete event systems

Studiengang

- Elektro- und Informationstechnik
- Mechatronik
- Informatik

Ausrichtung

- Recherche
- Entwicklung
- Implementierung
- Modellierung

Start

Ab sofort

Links

[Forschungsprojekt](#)
[Mitarbeiter](#)

Ansprechpartner

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