

Announcement for Bachelor/Master Research Project/Thesis

Trajectory Planning in Autonomous Driving

Motivation

Trajectory planning is a central component in the field of autonomous driving. Particularly in the realm of highly automated and autonomous driving, the consideration of uncertainty is of paramount importance. The system must autonomously handle situations, as the human driver as fallback level is no longer available. The inherent complexity of the task, coupled with diverse uncertainties, poses challenges that need to be overcome.

Task description

A variety of diverse challenges exists, and the following provides a broad overview of current research questions:

- Optimization-based local trajectory planning
- Prediction of the behavior of other road users
- Quantification and propagation of uncertainties
- Investigation of AI approaches in trajectory planning
- Examination of the safety of AI approaches in trajectory planning

The specific task assignment can be further defined based on the existing knowledge, the required nature of the work (e.g. Research Project / Master Thesis), and the current themes in research.

Requirements

- Strong motivation and commitment, along with the ability to work independently.
- Advanced studies in Electrical Engineering, Mechatronics, Computer Science, Autonomy Technologies, or a related field with a focus on autonomous systems.
- In-depth knowledge of mathematical modeling, optimization, and algorithmic development.
- Proficient knowledge in at least one of the following areas: control systems, optimization, artificial intelligence, safety verification.
- Solid programming skills, preferably in Python, C++, or MATLAB.
- Strong research orientation with the ability to develop and implement innovative ideas.

Application Notice

Inquiries will only be considered if accompanied by a CV and transcript of records.

Contact

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