Intelligent Vehicles Lab

Hochschule München University of Applied Sciences

Master Thesis

Release date: 13.02.2024

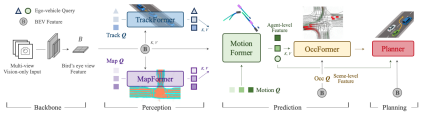

Figure 1: Modular Planning Algortihm (Hu, Yihan, et al. : Planning-oriented autonomous driving, 2023.).

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End-to-End Trajectory Planning with Modular Algorithms

Description

- The Intelligent Vehicles (IV)-Lab is looking for a Master student to support research in the field of autonomous driving.
- Planning the ego-vehicle (autonomous vehicle) trajectory is essential the reason of autonomous driving. For this purpose many different approaches are used and one of them is the end-to-end approach with partly seperated modules (Perception, Prediction, Planning). From this perspective, the goal of this thesis is to investigate a modular end-to-end approach for trajectory planning and the influence of modular or end-to-end training on the performance of the trajectory planning.

Your Project

- Review current methods on trajectory planning with a focus on end-to-end approaches and state-of-the-art modular methods.
- Design a model that can plan the ego trajectory in a modular end-to-end approach. You can start with the method by Hu, Yihan, et al. as a baseline.
- Examine the effects of training an algorithm end-to-end instead of modular and extensive ablation studies to answer the question if planning models performance is influenced by hand-selected features or not.

Your Profile

- Enrolled at Munich University of Applied Sciences
- Willingness to learn and interest in the topic of autonomous driving
- Ability to work independently, conscientiously, and accurately
- Previous experience with Python is required

What we offer

- Access to high-end GPU cluster for training
- Access to workstation with GPU for development
- Supervision and close cooperation with PhD candidate
- Depending on your results: possibility to publish your work at a conference

Does this appeal to you? Then reach out to us via mail and send a short introduction, your current grade report, and a CV with a photo.