Lehrstuhl für Fahrzeugtechnik
Fakultät für Maschinenwesen
Technische Universität München

MA

Trajectory Enhanced Object Detection with Transformers for Autonomous Driving

Autonomous vehicles rely heavily on an accurate representation and understanding of their surroundings. Object detection contributes to this goal by detecting objects of different semantic classes around the ego vehicle.

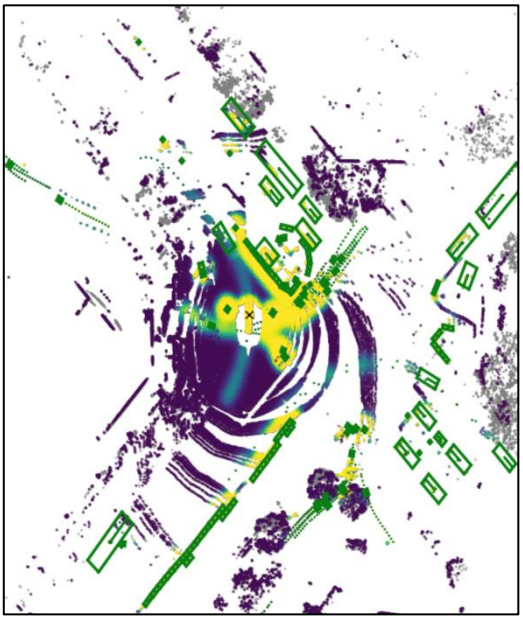
To improve existing object detection, this thesis explores the impact of motion prediction feedback on object detection. Specifically, by providing approximate information about the intentions of agents around the vehicle, an object detector may enhance its ability to detect these agents. This proposed thesis builds on existing work to optimize the existing architecture and develop alternatives. Specifically, the use of transformer-based architectures should be investigated and evaluated in a representative way.

Work packages:

- Literature review on 3D object detectors and trajectory feedback.
- Development of a robust evaluation pipeline
- Development and optimization of the trajectory enhanced object detector
- In-depth evaluation.

Requirements:

- Very good programming skills in Python.
- High personal motivation and independent working style.
- Very good language proficiency in German, English or French.



The thesis should clearly document the individual work steps. The candidate undertakes to complete the term paper independently and to indicate all scientific aids used.

The submitted work remains the property of the chair as an examination document.

Prof. Dr.-Ing. M. Lienkamp

Betreuer: Loïc Stratil, M. Sc.

Ausgabe:_____

Abgabe: _____