

Master Thesis / Bachelor Thesis (2019)

Global Planning Algorithm for Autonomous Vehicles in Dynamic Environments

In intelligent vehicles it is important to plan trajectories that connect a start and a goal. Usually this is done in two stages: a global plan that uses only the map information and a local plan that uses also the perception of the vehicle.

In this thesis we propose to incorporate dynamic information to the map, that will be obtained from sensors in the infrastructure, to improve the global plan.

The goals are:

1. Include the motion model of the car and vehicle restrictions (such as maximum acceleration or velocities) into the global planner.
2. Include information about changes on the environment (such as traffic lights, traffic volume information) to improve the path planned.
3. Optimize the path between two points based in different parameters, such as km travelled, time spent, number of lane changes, energy consumption, etc.

This thesis will be developed in simulation, and can be also tested in real vehicles.



We are happy to answer questions regarding the topic, reference literature or alternative topics. In this case please contact the supervisor below for further information.

Requirements: Knowledge of C++ or Python
Knowledge of ROS (Robot Operating System)
Independent, diligent and structured way of working

Keywords: Autonomous Vehicles, Motion Planning, Dynamic Environments

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