

Interdisciplinary Project

Optimization-Based Velocity Planner for Autonomous Racecars

As part of the Roborace project, the Chair of Automotive Technology is developing software for a vehicle taking part in the first racing series for autonomous electric vehicles.

An important part of the software operating the vehicle is the velocity planner. This planner tries to achieve fastest lap times as well as to optimize the speed for the overtaking maneuvers. To do this, it has to consider several technical constraints. These are

- time
- available power
- available torque
- tire behavior
- the position of the opponent vehicles and
- maximum speed allowed by the race control.



The aim of this work is to extend the functionality of the current velocity planner. Different optimization methods shall be compared against each other. The computation time on the target control units within the racecar shall be evaluated.

Should you be interested in this project, send a short motivation letter, transcript and CV to:

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