

Trajectory Planning for Automated Driving

Focus Racing

Motivation:

Path-planning and motion control for automated driving is done in several layers (route-planning, behavioral planning, trajectory planning and low level motion control).

Especially for autonomous racing (and known tracks) the last 2 layers decide the race:

- a) racing line planning
- b) path following (long. & lateral control)

Goals:

The Thesis shall focus on

- race line planning and appropriate data representations (points/splines).
- racetrack simulation using a vehicle model
- robust lap-time optimization assuming a controlled non nominal vehicle

Research, discuss pros and cons, implement and combine state of the art approaches, summarize theory, test approach



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Type: Masters' Thesis

Start: now 😊

Target group: Students with racing interest, and knowledge in advanced control, and good MATLAB / python skills (to reuse existing frameworks and toolboxes)