

Motion Planning for Autonomous Vehicles

Silvia Magdici

Technische Universität München

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- Ultimate goal: Compute **safe** and **comfortable** trajectory for self-driven vehicles.

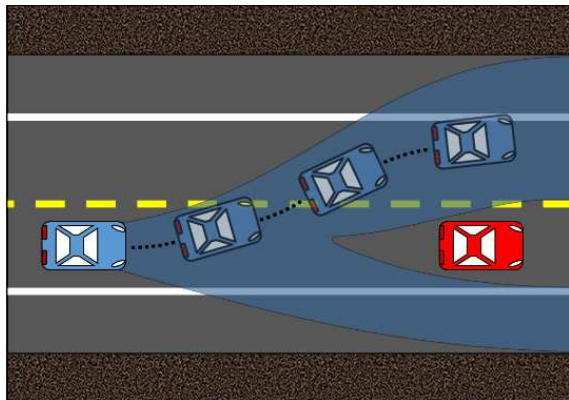


Figure: Possible trajectories for host vehicle¹

¹http://controlfreaks.mne.psu.edu/Research_IntelligentSystems.html

- To guarantee **safety**: Compute the occupancy prediction of other vehicles.

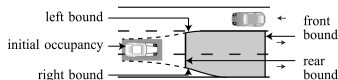


Figure: Occupancy prediction²

- To achieve **comfort**: Predict other vehicle most probable trajectory.

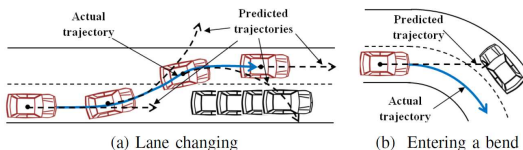


Figure: Possible vehicle trajectories³

² *Online Verification of Automated Road Vehicles Using Reachability Analysis*, M. Althoff et al., 2014

³ *Vehicle Trajectory Prediction based on Motion Model and Maneuver Recognition*, A. Houenou et al., 2013

- **Tasks:**

- Read related literature for motion planning;
- Comparison between existing algorithms (advantages & disadvantages);
- Implementation of planning algorithms;

- **Interested? Contact me!**

Silvia Magdici
silvia.magdici@tum.de

Thank you!