Human Driver Model Calibration (optional)

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February 2, 2024

Human Driver Models

Motivation

- Applied for traffic simulation and autonomous driving.
- Often only calibrated with synthetic scenarios.
- We developed a data-driven calibration approach.

Human driving behavior.

Goal

Investigate the current state of human driver model verification and calibration $\rightarrow$ Derive weaknesses and suggest imporved approach.

Tasks

- Literature review on human driver models with
- Focus on validation and calibration.
- Comparison of calibration methods in terms of
  - Applicability (human driver model),
  - Data-basis,
  - Goodness of fit measures,
  - Numerical optimization strategy.

Qualifications

- Ideally some background / interest in statistics, numerical optimization.

Interested? Contact me!

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Relevant papers

- Punzo et al. (2021): About calibration of car-following dynamics of automated and human-driven vehicles: Methodology, guidelines and codes
- Brown et al. (2020): A taxonomy and review of algorithms for modeling and predicting human driver behavior
- Dai et al. (2022): Calibration of human driving behavior and preference using vehicle trajectory data