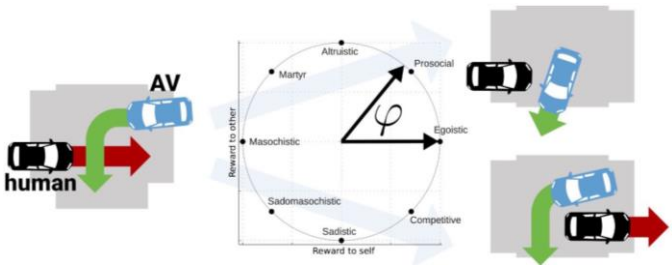
MSc. Thesis Project

How could automated vehicles (AVs) be socially compliant in mixed traffic? Insights for social AVs



Problem description

With the gradually implement of automated vehicles (AVs) on road, there is bound to be a transition period for the mixed traffic AVs running with human driven vehicles (HDVs). How to make the AVs socially accepted by human drivers is vital for the overall traffic safety and efficiency, but remained unexplored. As human drivers possess different social/psychology traits, understanding how human perceive others' driving intents/behaviors/styles, and adapt their own driving reactivity under different scenarios can provide valuable insights for developing human-like socially compliant driving behaviors for AVs. The aim of this research is to adopt online questionnaire, survey and expert interview methods to collect knowledge and insights for developing AVs' social driving behaviors. The outputs of this Msc. thesis could be useful dedicating to suggested regulations for authorities, researchers, and car manufactures. Research intern/cooperation at external partners (e.g., SWOV) is possible and highly encouraged.

Assignments

- Review literature regarding social driving behavior and past survey studies for developing of AVs social behaviors;
- Based upon literature review, develop online questionnaires, surveys (and expert interview operation procedure);
- Distribute the questionnaires, carry out the surveys, collect data, and conduct the expert interview;
- The surveys/ questionnaires should be attractive with lively videos, animations and demos (the research group will provide support);
- Collect the multi-source data, organize and analyze the collected data;
- Results presentation, explanations, demonstration, and propose insights;
- (Optional) High quality journal/conference publication is possible and highly encouraged.

Requirements:

- Experience with questionnaires, survey development (and interview);
- Familiar with basic terms of traffic, transportation and AVs;
- Good communication skills.

Research group

Automated Mobility in Mixed Traffic; Transpiration AI; Transport & Planning

Thesis supervisors: Yongqi Dong (https://yongqidong.github.io/)

External supervisor: possibility with researcher from SWOV or other industry partners

Information

For further information on this Master topic, please contact: y.dong-4@tudelft.nl