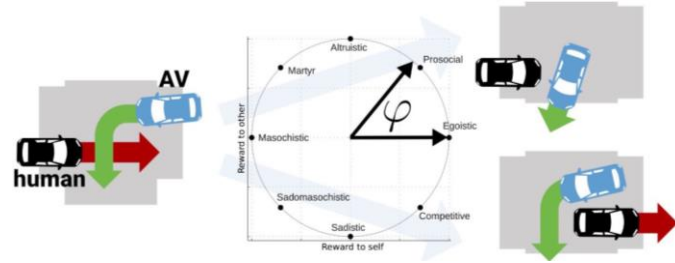# How could automated vehicles (AVs) be socially compliant? Insights for social behavior of AVs



## Problem description

The gradual implementation of Automated Vehicles (AVs) on the road network will lead to a transition period in which these vehicles will interact 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 remains an unexplored topic. As human drivers possess different social/psychological traits, understanding how humans perceive others' driving intents/behaviors/styles, and accordingly adapt their own driving behavior under different scenarios can provide valuable insights for developing human-like socially compliant driving behaviors for AVs. The aim of this research is to understand what makes a driving behavior social in different types of interactions in current traffic. For this an online questionnaire and expert interviews methods will need to be designed to collect knowledge and insights for developing AVs' social driving behaviors. The outputs of this Master thesis could provide useful input for adjusting the regulations for mixed traffic by road authorities, for researchers, and for car manufactures. This research can be done, and highly encouraged, in collaboration with external partners (e.g., SWOV).

## Assignment

- Review literature regarding social driving behavior and past studies for developing of AVs social behaviors;
- Based upon literature review, develop an online questionnaire and expert interview questions. The surveys/ questionnaires can include illustrations, lively videos, animations and demos;
- Distribute the online questionnaire and conduct the expert interviews;
- 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:**

- Familiar with basic terms of traffic, transportation and AVs;
- Good communication and writing skills.

## Research group

Transport & Planning

Thesis supervisors: Dr. ir. Haneen Farah

Daily supervisors: Dr. ir. Haneen Farah; Yongqi Dong

External supervisor: Researcher from SWOV

## Information

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