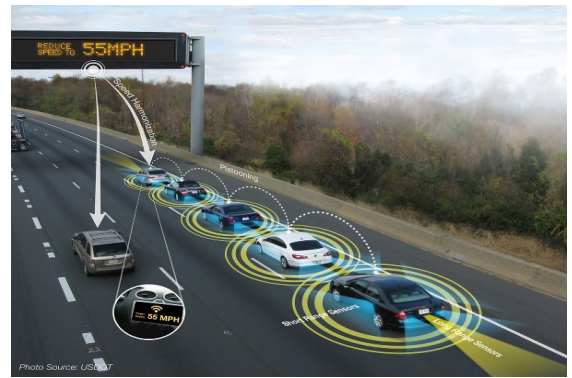


How will we drive in the future?



Problem description

The road of the (near) future is expected to be significantly different from that of today. The rapid deployment of automated vehicles (AVs) and the advent of communication technologies are certain to bring a change in the experience of human drivers, who would still be significantly present at least in the near future. For one, drivers will start encountering AVs more frequently in traffic. AVs could have significantly different behaviour than that of human driven vehicles (HDVs) and also may or may not be recognisable as AVs. This can change the tactical and operational driving behaviour of HDVs. Additionally, communication technologies will be able to provide in-vehicle information such as speed advice in dynamic speed limit sections. The adherence of human drivers to these advices could be quite different from that of AVs, especially when the reliability of the advices is not perfect while AVs might always adhere by design. This could also lead to changes in driving behaviour of HDVs, also known as behavioural adaptation. Such behavioural adaptation at the tactical and operational level would naturally have an effect on traffic safety and traffic flow. Therefore, studying and understanding HDVs' behavioural adaptation will be critical to foresee the state of future traffic.

Assignment

- Review of the state-of-the-art on human driving behavior and behavioral adaptation in mixed (AVs and HDVs) traffic, and the effect of in-vehicle information on human driving behavior;
- Designing and executing a driving simulator experiment using the driving simulator AV Simulation (available at T&P) in which different scenarios are developed, taking into account AV driving behavior/style, in-vehicle information types and timing, AV market penetration rate, etc.;
- Analyzing human driving behavior in these different scenarios and drawing conclusions on the effect of the various factors considered (AV market penetration rate, information types, etc.) on traffic flow and safety;
- Writing a thesis report (and optionally a scientific paper for an international journal);

Research group

Transport & Planning

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Information

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