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Traffic Psychology in Switzerland and Europe – Past, Present, Future

Title:

Safety Challenges in the Context of automated Driving and Human-Machine Interaction

Abstract:

Around 3900 serious traffic accidents were registered on Swiss roads last year. The police accident reports show that 95% of these accidents are due to human error. As vehicle technology develops, the public and decision-makers expect that automated driving can solve more or less all of today's important traffic problems. These follow the assumption that, in the future, increasing automation of the driving task by means of driver assistance and automation functions in the vehicles will make it possible to achieve a safe and reliable vehicle control that is independent of people and their psychological and physical performance limits. Scientists also agree, however, that developments in the context of automated driving are far from guaranteeing accident-free road traffic in the future.

Driving on the road is a social activity and challenge. Different road users share a central social resource with the road space. They are forced (and have learned) to coordinate their actions and cooperate with each other. Communication and anticipation of the behavioural intentions of other road users play a decisive role in ensuring a safe and efficient flow of traffic. However, what happens if not only people but also automated vehicles participate in traffic that strictly adhere to rules and do not (yet) understand the informal rules and parts of the communication? How do human drivers react to these new road users, especially in the transition phase of mixed traffic, where automated vehicles are still the minority? Are people able to solve difficult or seemingly unsolvable situations cooperatively with automated vehicles? And, what are the minimum characteristics or markings that automated vehicles should have in order to be able to participate in mixed traffic and communicate with human drivers and pedestrians?

The aim of this presentation is to present the current state of research on the topic of automated driving with a special focus on the safety challenges posed by the complex constellations of mixed traffic. The results of a research project on safety potentials of automated driving in Switzerland are demonstrated. Psychological aspects in general and the importance of an intuitively understandable human-machine interaction in particular are highlighted.

Agreement to release of abstract:

I agree, that my abstract will be published in conference related materials and on the website.

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