

Visibility of Road Markings for Human Detection and Driving Performance Assessment



Problem description

Visible road markings on the road is a key factor to ensure road safety by delineating the boundaries of the road and as a result increasing the spatial awareness of drivers. Visible road markings reduce the risk of head-on and run-off collisions. However, the visibility of road markings depends on many factors, some of which are related to the physical properties of the materials of which the road markings are made of, while others are related to external factors, such as road curvature, pavement conditions, lighting conditions, weather conditions, dry or wet surface, and maintenance level. Therefore, in certain circumstances different road markings could lead to different driving performance and comfort levels of drivers. The main aim of this research is to reproduce (as realistically as possible) the physical properties of different road markings in terms of visibility, and assess the driving performance and comfort level of different drivers (gender, age, driving styles, etc.) using the driving simulator AV Simulation.

Assignment

- Review of the state-of-the-art on lane-markings' types and quality, factors affecting their visibility, and driving performance measures, and surrogate safety measures;
- Designing a driving simulator experiment using AV Simulation (driving simulator available at T&P) in which different scenarios are developed, in terms of road curvature, weather and lighting conditions, etc.;
- Recruiting participants from different age groups with different backgrounds, and executing the experiment;
- Analyze driver performance in these different scenarios as well as the comfort level of drivers and their subjective safety in the different scenarios and draw conclusions regarding the visibility and safety;
- Writing a thesis report (and optionally a scientific paper for international journal).

Research group

Transport & Planning

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Information

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