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Titel des Beitrags:
Highly Automated Driving with a Decoupled Steering Wheel

Abstract:
Future cars will almost certainly provide an increasing level of automation. Under certain conditions, they will allow the driver to withdraw from the control loop and deal with non-driving related tasks. To provide a convenient and safe user interface for this case, it can be advantageous to have the steering wheel decoupled from the steering link and stationary. In this study, we evaluated two alternative steering wheel concepts. The first concept represents a state of the art steering wheel that decouples from the steering link and remains stationary at an angle of 0° during highly automated driving. In the second concept, the steering wheel shows the same behavior but does not have visible spokes. Hence, it does not display its physical orientation to the driver. Using a dynamic driving simulator, we evaluated the concepts in a comparison drive and a take-over scenario in a curve. A permanently coupled state of the art steering wheel served as control condition. Results show that the decoupling was only noticed by a small number of participants. Further, no negative impacts on the take-over process could be determined. The steering wheel with no visible spokes led to an even better performance compared to the control condition.

Kongress- / Buchtitel:

Band / Teilband:
Vol. 58, no. 1

Verlag / Institution:
Human Factors and Ergonomics Society

Verlagsort:
Santa Monica, CA

Jahr:
2014