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Dynamic On-Road Method for Evaluation of Advanced Driver Assistance Systems (ADAS)

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Abstract: The introduction of autonomous vehicle systems to existing Advanced Driver Assistance Systems (ADAS) presents the need for research into the way drivers receive and respond to "self-driving" vehicle functions. Existing research highlights problems with driver engagement and safe driving practices in both the presence and absence of functional automation. However, the issues identified may be artifacts of the testing environment, which is often in driving simulators. We present an updated method of examining driver response to autonomous vehicle systems which utilizes an instrumented vehicle on a closed-course test track. We further describe an experiment designed to test Forward Collision Mitigation systems to exemplify the use of this method. This approach addresses a methodological need in the current and future study of autonomous ADAS technologies.

Keywords: Human Factors, ADAS, Forward Collision, Automation, HCI