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Anthropomorphic Interfaces For User Trust in a Highly Automated Driving

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Abstract : Trust in automated driving systems is receiving growing attention in the research community. Anthropomorphism has been identified by past research as a trust-building factor. In this paper, we consider three anthropomorphic interfaces integrating three versions of a virtual assistant. We attempt to measure the impact of each of these interfaces on trust in the automated driving system. An experiment following a between-subject design was conducted in a driving simulator (N = 36) to evaluate participants' performance and experience in two handover situations (a simple one and a critical one). Perception of anthropomorphism and trust was measured using scales, while participants' experience was measured during elicitation interviews. We found no significant difference between the three interfaces regarding the perception of anthropomorphism, trust levels, or experience. However, regarding participants' performance, we found a significant difference between the three interfaces in the simple handover situations but not the critical one. Learnings from anthropomorphism and trust measurement scales are discussed and suggestions for further research are proposed.

Keywords : highly automated driving, trust, anthropomorphic design, mindful anthropomorphism, mindless anthropomorphism
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