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Titel des Beitrags:
Overriding the ACC by keys at the steering wheel: Positive effects on driving and drivers’ acceptance in spite of a more complex ergonomic solution

Abstract:
Partial automation of the driving task by driver assistance systems (e.g. ACC) is often criticized for changing the driving task to a monitoring one. Therefore, it is in discussion to offer the driver additional possibilities of control. In this study, a new type of ACC (so-called `ACC-plus-keys`) was introduced which allowed the driver to override the ACC temporarily. By pressing additional keys at the steering wheel the driver could choose between different ACC characteristics: a key on the left led to stronger deceleration at shorter distances, a key on the right initiated stronger acceleration. Twenty participants drove a motorway simulator-ride three times: without ACC, with ACC and with ACC-plus-keys. Each ride took about 20 minutes. The ACC-plus-keys had positive effects on driving and drivers’ judgements. Firstly, driving safety of ACC and ACC-plus-keys were comparable, although the additional keys were used frequently. Secondly, driving with ACC-plus-keys resembled manual driving more (e.g. while overtaking). Thirdly, drivers gave higher acceptance ratings for ACC-plus-keys. Thus, ACC-plus-keys is a successful attempt to give the driver control without losing the advantages of this assistance system.

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