

## **To Trust or not to Trust a Level 4 Automated Vehicle, That is the Question**

Automated Vehicles (AVs) are expected to increase road safety (e.g. fewer and less serious vehicle collisions). However there are also many challenges with AVs. One such challenge is ensuring drivers have an appropriate level of trust in the automation, as this has strong links with drivers' mental models and their driving behaviour. If drivers have a poor mental model for the capabilities and limitations of the automation, they may over-trust and activate the automation in inappropriate road conditions leading to a collision. To address this challenge, an online video-based training programme was developed to improve drivers' mental models for when a Level 4 AV can be activated, and this was evaluated in an online matched pairs experiment. Ninety-six UK drivers (54 males, 39 females, 1 non-binary gender) between the ages of 18 and 89 took part. Half the drivers read an owner's manual (current training for AVs) whereas the other half read the owner's manual and underwent the new online training programme. Their trust in automation was measured before and after training. This experiment found that both types of training reduced drivers' trust in automation. This suggests that drivers initially have misplaced trust in the capabilities of AVs, which, without training, may influence their unsafe interactions with them on the road. This online training programme can support the safe use of Level 4 AVs by helping drivers activate the automation in appropriate road conditions. This way the safety benefits of Level 4 AVs can be realised without the challenges.