

RS3: Unfolding the AV Dream

Lancaster University, Cranfield University

Context

As part of the TAS Security Node, our work at Lancaster examines the User environment of Autonomous Systems (AS) particularly Autonomous Vehicles (AVs).

At Cranfield, we look at how and why the individual trust/use/accept autonomous technology like AVs, if the forecasts of safety of AVs can be trusted, and if behavioural adaptation (contra-productive actions) happens in AVs.

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 Investigators: Prof. Corinne May-Chahal, Dr. Joe Deville, Dr. Lisa Dorn, Prof. Catherine Easton.

The AV dream



"Attacks"
 Security measures can anticipate and/or prevent attacks

"Correct" use
 The imaginaries of AV designers, manufacturers, and promoters, match those of users. Users have correct mental models of the vehicles. Driver behaviour match expectations of the makers

Safety & Security
 Safety forecasts for automated features; crashes reduced by tens of percent
 Roads and road users are safer

Convenience and Quickness
 AVs increase efficiency on roads, they make people's lives easier, more productive, and generate benefits for road networks

Description of map

The AV reality



Stockholm shuttle
 Running since 2018
 Six passenger seats
 No seat for the safety driver
 20 km/h max
 Brakes hard for unknown reasons
 Stops at every junction for OK from driver
 10-15 passengers/day
 Service a limited area like a taxi

Have autonomous features of vehicles delivered expected safety gains, or has behavioural adaptation countered the effects?

Cranfield field study on behavioural adaptation using a Tesla postponed because the Autopilot feature of the car malfunctioned.

Do people trust AVs? Why not?

Tesla crash



How is AV reality?

This vision from the fifties has still not come true



Security & Ethics

These evolving realities open opportunities for rethinking technological imaginaries. Working with communities of potential users can help researchers understand, not just how they may or may not **adapt**, but what they **actually want and need** in their region.

Other ways of doing AS: Indigenous Protocols
 One value from engagements with National Highways is Two-Spirit: encompassing bodily and intellectual relationships with AS technologies
 Āina, from the Hawaiian for 'land'
 AI as Āina: 'we should treat these relations as we would all that nourishes and supports us.' (Lewis et al., 2018)