



CERFUM

Project Proposal

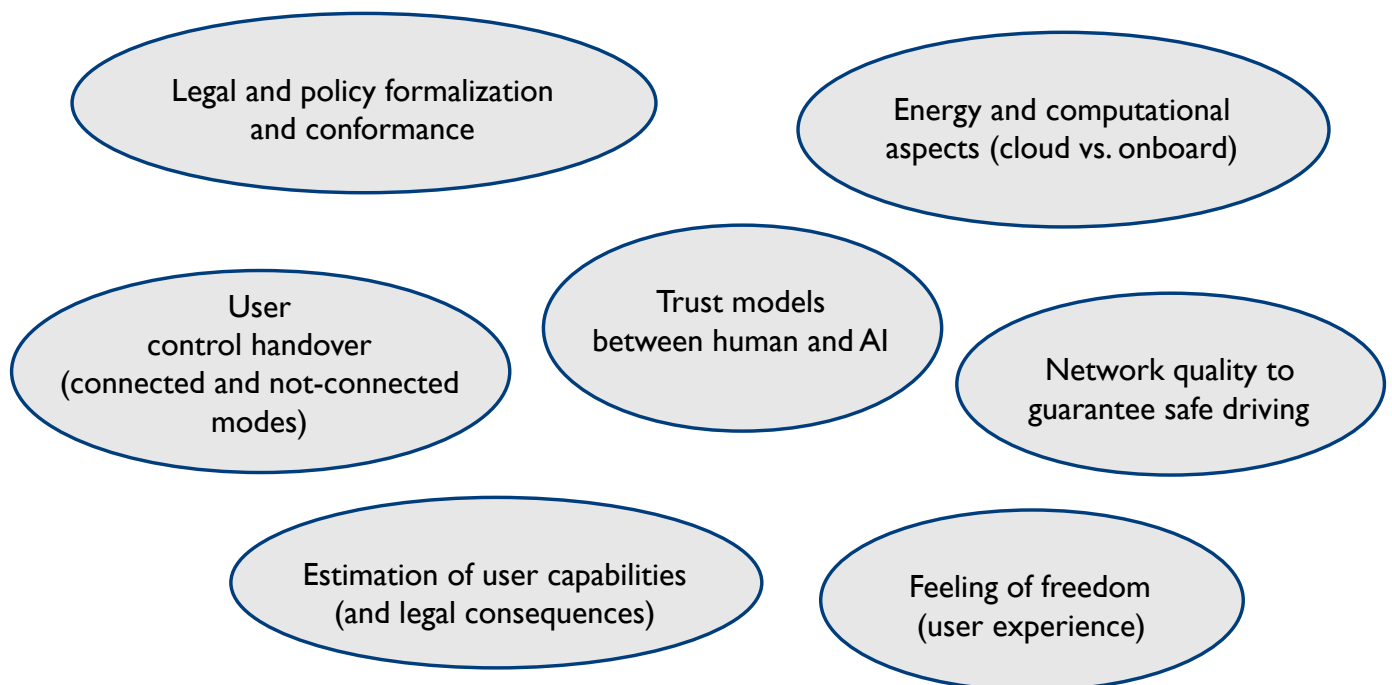
Trust in Vehicle-Artificial Intelligence-Human Interaction

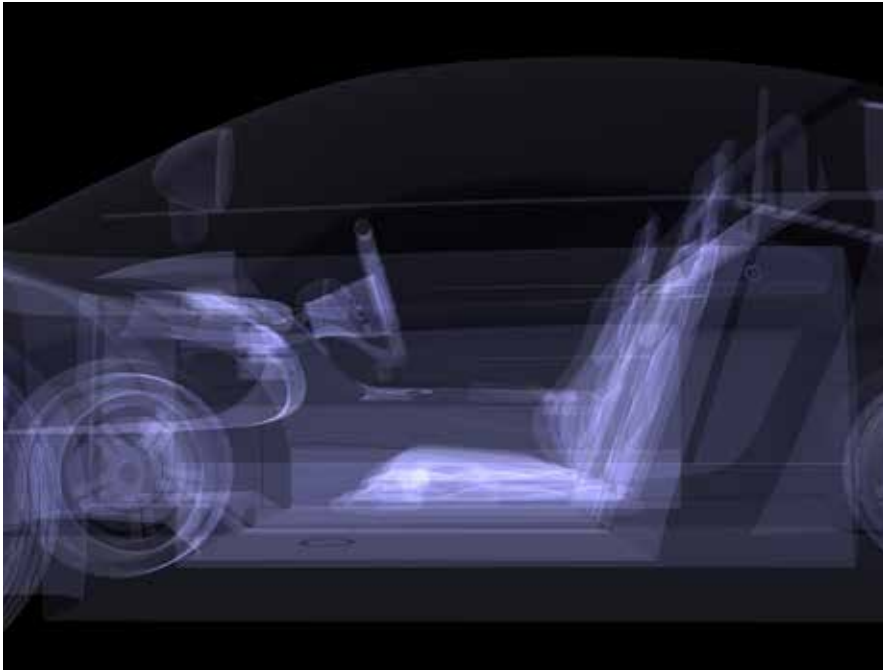
Project idea

In future automated mobility solutions, mutual trust among human, vehicle, and Artificial Intelligence (AI) is of central importance. The vehicle and AI should have a clear understanding about the human using the service and her capabilities and responsibilities. In unusual and emergency situations (e.g., faults in sensors and entering unknown and unstructured areas) the type of safety measure and the possible transfer of control builds upon this mutual understanding. The mutual understand-

ing and the appropriate decision making is a computationally intensive problem that may be performed on-board or on the cloud (with clear energy and efficiency implications) which need to be carefully designed with respect to different connectivity situations. Another aspect of establishing mutual trust is the user experience in the pattern of interactions in different situations. The project aims at studying this design space and coming up with algorithms, interaction patterns, and working prototypes.

Related Challenges





Short descriptions of challenges:

- Which interaction patterns give us the feeling of freedom to that a user gets when using a controllable manual
- What to do when the network goes away
- How to make safe decisions about control handover to the user
- What kind of the modalities can be used to instruct a smart car
- Which other interaction means may be available in the future (e.g., when there is no steering wheel)
- How to perform safe policy matching (whether a specific request from a specific type of user can be honored)
- What to do in an accident situation (how much and for which passenger should the car be obedient)
- How to estimate the effect of different connectivity situations (reduced connectivity / congestion / attack) on the possible patterns of interaction with the user and the cloud

Involved technologies/scientific expertise:

- User studies, user modeling, learning user type patterns
- Simulation
- Fault tolerance
- Wireless Communications and Networking

Call for partners

Halmstad University together with a number of partners will join to meet the challenges in the area. We are now looking for companies who want to take part in this work, and together with other companies and researchers from the university investigate the possibilities and challenges in Future Mobility Solutions.

Possible partners/industry sectors:

Combitech AB, Fengco AB, Halmstad municipality, Autoliv, IBM (Zurich and Ireland), Huawei (user interfaces and consumer appliances, electronics), Ericsson, OEMs (Scania, Volvo Cars, Volvo, Volvo Buses), Bosch, VW, RideCell

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Centre for Future Mobility Solutions

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