



Exploration of Shape Changing Interfaces in Autonomous Vehicles

Open Bachelor/Master Thesis

Background

With the introduction of autonomous vehicles, the interior interaction space will fundamentally change due to, e.g., usage of swivel seats, omitted control consoles, or non-driving related activities. This allows embedding rich computational experiences and physicalizing information by utilizing the available surfaces. In this context, shape changing interfaces provide dynamic shape as physical input and output. However, the usability of such interfaces regarding user interactions with in-vehicle systems is largely unknown. Besides, there are open questions in designing shape changing interfaces to enhance the communication between vehicle and passenger, e.g., signaling a vehicle state.

Research Goal

The aim of this thesis is to explore a suitable use case for shape changing interfaces in autonomous vehicles. A related work research should be conducted and a prototype, e.g., in virtual reality should be designed and implemented that investigates several of these aspects. Finally, the defined hypothesis should be evaluated by conducting a study.

Based on bachelor/master level
the scope is adapted.

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Images:

<https://www.mercedes-benz.com/en/vehicles/passenger-cars/mercedes-benz-concept-cars/vision-avtr/>

<https://press.kia.com/ie/en/home/media-resouces/press-releases/2019/Imagine-by-Kia.html>

<https://doi.org/10.1145/3428361.3428395>