



# Predicting User Interaction/Intention in Highly Automated Vehicles Using Machine Learning

## Open Bachelor/Master Thesis

### Background

Highly automated vehicles are about to be introduced, at least for some use cases. By predicting the interaction users might want to perform, the vehicle can anticipate their intention in a specific situation. This can help streamline UIs and input/output modalities to support the intended interaction effectively. Such interaction/intention prediction may be based on a machine learning approach that fuses several biometric sensor inputs (e.g., heart rate, eye movement, or skin conductance) and the state of objects in the vehicle environment (e.g., points of interest, parking spots, yaw-rate, velocity, or temperature) into a single prediction.

### Research Goal

This thesis aims to create a concept for a machine-learning based interaction or intention prediction model that can be applied in autonomous vehicles. A related work research should be conducted, and interdisciplinary and information science approaches should be considered. A virtual reality prototype 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.

Pascal Jansen  
Institute of Media Informatics  
O27 / 336  
[uulm.de/?pjansen](http://uulm.de/?pjansen)

[pascal.jansen@uni-ulm.de](mailto:pascal.jansen@uni-ulm.de)



Images:

<https://www.press.bmwgroup.com/global/article/detail/T0292196EN>

<https://www.istockphoto.com/de/portfolio/BluePlanetStudio?mediatype=photography>

<https://pixabay.com/de/illustrations/system-netz-netzwerk-verbinding-3699542/>