



# Potential of Active Safety Systems in Real World Side Crash Scenarios

## Background

**Advanced Driver Assistance Systems (ADAS)** are becoming **standard equipment** in more and more vehicles. Thus, it is necessary to **evaluate their effectiveness** in **avoiding** accidents or **mitigating their severity**. Since consumer testing programs (e.g. Euro NCAP) only use a **limited number of scenarios**, new approaches like **Virtual Forward Simulation (VFS)** are necessary to allow for a **prospective evaluation of the field performance** of these systems.



**Your goal** in this thesis is to **reconstruct Real World Side Impacts** and equip the involved vehicles with different (generic) Active Safety Systems. You will **develop different strategies** for the Active Safety Systems and **assess their potential to avoid accidents / mitigate their severity**.

## Tasks

- **Get familiar** with accident reconstruction and vehicle-based severity measures
- **Understand** the use of Active Safety Systems to mitigate the consequences MVCs (motor vehicle crashes)
- **Develop** different intervention strategies for a generic Active Safety System
- **Implement your ideas** to assess and optimize the system's performance
- **Build Skills** in the fields of Accident Reconstruction and Active Safety Systems

## Literature

- Kolk, H., Sinz, W., Tomasch, E., Bakker, J. u. Dobberstein, J.: Evaluation of a momentum based impact model and application in an effectivity study considering junction accidents. 7th International Conference on ESAR "Expert Symposium on Accident Research". 2016
- Alvarez, S., Page, Y., Sander, U., Fahrenkrog, F., Helmer, T., Jung, O., Hermitte, T., Düring, M., Döring, S. u. Op den Camp, O.: Prospective Effectiveness Assessment of ADAS and Active Safety Systems via Virtual Simulation: A Review of the Current Practices. The 25th ESV Conference Proceedings. ESV Conference Proceedings. NHTSA 2017

## Recommended as

- Master thesis for Mechanical Engineers

## Organizational

- Start: anytime
- Scholarship: min. € 2.500,- for successful completion of the thesis
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