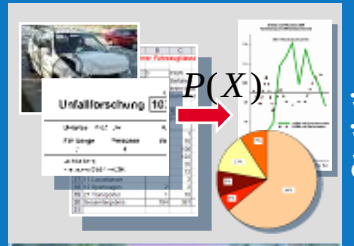


Analysis
Statistics
Research
Reconstruction

Bosch Accident Research

Introduction

BOSCH

Bosch Accident Research

Scientific crash analysis helps to identify road safety measures

- Integrated in Bosch Corporate Research
- **Since 2005** crash & vehicle safety research
- Interdisciplinary team w/ 7 employees
  (Mathematicians, Physicists, Automobile- and Mechanical Engineers)

- ▶ **Analysis** and **simulation** of real world crash data
- ▶ **Benefit assessment** of **all** vehicle safety technologies
- ▶ **Product strategy** and **sensor** requirements
- ▶ **International** expansion to establish **road safety**

Bosch Accident Research

openPASS – What does it mean to us?

- **Why?**
  - increasing complexity in evaluation of vehicle systems
    → simulations become method of choice
  - flexible tooling required
  - comparability and transparency: harmonising the simulation software (i.e. PEARS)

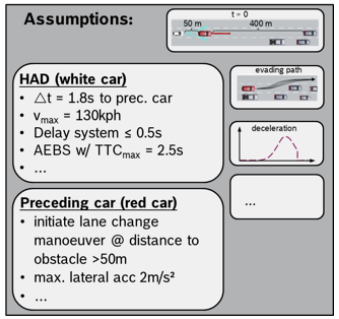
- **How?**
  - Yet: Matlab /Simulink, Perth, …

- **Application?**
  - benefit assessment of
    - advanced driver assistence systems
    - automated driving
  - Tool chain to assess injury severity
  - Support sensor requirement

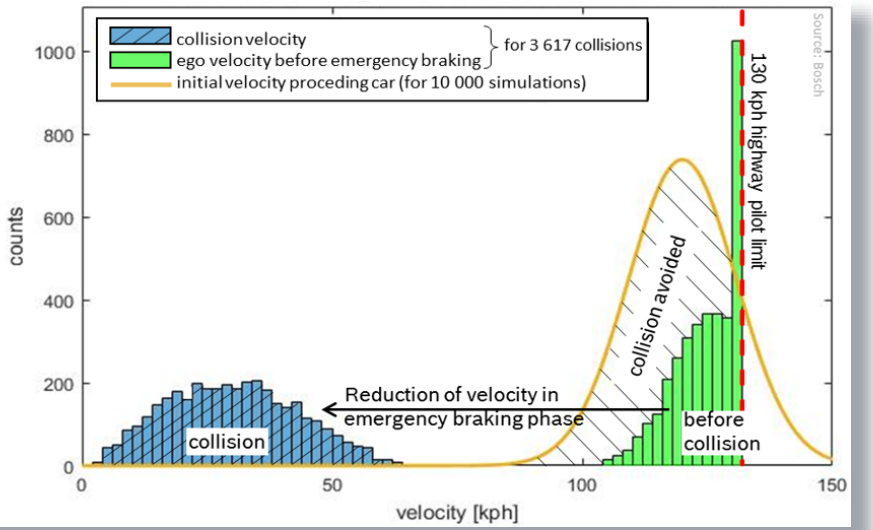
Bosch Accident Research
First application of openPASS within Bosch

- collaboration w/ Daimler, TU Dresden & TU Graz
- assess relevant, non-preventable accident scenarios on highways w/ high probability for large severity wrt highly automated driving
- implementation (e.g. sensor) and modification of openPASS modules

Tech Center i-protect



Data basis: 10 000 simulations
(for this set-up) 3 617 collisions



KAUSAL – a virtual tool chain to estimate the impact of automated driving on occupant restraint systems

D. Schmidt, H. Freienstein, G. A. D'Addetta, T. Lich, A. Georgi
Vehicle Safety and Assistance Systems, Corporate Sector Research and Advance Engineering, Robert Bosch GmbH, 70465 Stuttgart, Germany

J. Dobberstein, P. Lewerenz, A. Öztürk, C. Geisler
Daimler AG, 71059 Sindelfingen, Germany

K. Blenz, M. Mai
Institut für Automobiltechnik Dresden, TU Dresden, 01069 Dresden, Germany

F. Ressi, W. Sinz
Institut für Fahrzeugsicherheit, TU Graz, 8010 Graz, Austria

Abstract - Automated driving will not only fundamentally change today's traffic but also accident rates and crash situations. Within the project KAUSAL, a virtual tool chain is built that considers changes in future vehicle safety and allows for engineering of a comprehensive vehicle safety system. Two pillars carry KAUSAL: a traffic-accident simulation with automated vehicles to quantify future accidents and thereafter a state-of-the-art finite element simulation of the vehicle interior involving novel seating arrangements to measure the overall impact on occupant safety. Providing a complete tool chain from the appearance of a critical road situation to loads of car occupants for a given occupant restraint system offers a possibility to identify the optimal restraint system and strategy for future vehicles and the safety of car occupants will be maintained on today's high level.

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openPASS

- **Contacts**
  - Daniel Schmidt (daniel.schmidt6@de.bosch.com)
  - Alexander Skiera (alexander.skiera@de.bosch.com)
  - Thomas Lich (thomas.lich@de.bosch.com)

We are ready to contribute