March 6, 2017

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

AG·SE

# V&V for advanced driver assistant systems

Projekt Grundlagen des Software Engineering/Project Fundamentals of Software Engineering

## General description

Goal of the project in summer term 2017 is to apply the knowledge learnt in the lecture "Grundlagen des Software Engineering" to the domain of advanced driver assistant systems (ADAS). You will learn how to apply verification and validation (V&V) systematically to ensure the quality of ADAS. We will implement and test ADAS with commercial driving simulators.

## Planning of the iterations

| Iteration | Goals | Details |
|---|---|---|
| Kickoff-Meeting: Wednesday April 5, 15.30 – 17.00 h in 32-439 | | |
| 1<br>Create virtual sensors and design ADAS<br>(3-4 Weeks) | * Define specification for virtual sensors<br>* Create virtual sensors based on the simulator API<br>* V&V of virtual sensors<br>* Define plan and architecture for next iterations<br>* Elicit specification for ADASs | * Get familiar with working environment (lab, git, simulator, …)<br>* Customer workshop to elicit project requirements<br>* Verify specs by creating TC<br>* Implement functionality in C++<br>* Create appropriate testing infrastructure<br>* Test with simulations<br>* Define project plan<br>* [Create TC for ADASs] |
| Milestone: Testat 1 (April 24–28) in 32-426 | | |
| 2<br>Implement ADASs<br>(3-4 Weeks) | * Implement an ADAS (i.e. Adaptive cruise control on single lane, take-over assistant, …)<br>* V&V of ADAS functionality | * Implement functionality in C++<br>* Code review<br>* Test of ADASs |
| Milestone: Testat 2 (May 15–19) in 32-426 | | |
| 3<br>Combination of ADASs<br>(3-4 Weeks) | * Implement approach to derive test cases automatically<br>* Evaluate build test suite | * Get familiar with SE research about ADAS validation<br>* Evaluate and discuss different test case generation approaches |
| Milestone: Testat 3 (June 6–9) in 32-426 | | |
| 4<br>(2-3 Weeks) | * Project clean up<br>* Final presentation | * Wrap-up of everything ☺ |
| Milestone: Final presentation (t.b.d.) | | |

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