Simulation as Tool – Continuous Software Testing in Simulation

**MOTIVATION**
- Simulation as analysis method is used at different steps in the development process.
- To use simulation as method for verification and validation, the automated driving function can be placed in a virtual environment and the interaction with it can be observed.
- The virtual driving function is mainly realized by software, which is thus a focal point in the development efforts.

**BACKGROUND**
- The functionality of the automated vehicle is defined by performance of the used hardware e.g. sensors and the applied software.
- Software is always developed against its environment context.
- For this reason, while developing software, it is meaningful to avoid changes of hardware which is in the context of the software.

**SIMULATION STRATEGY**
- For verification of the cooperative driving function, a three step size approach was chosen in order to test at different levels of systems hierarchy.
- At the end of each successful test, the software reaches a higher gate. Each gate lies at a different systems architecture level.
- As higher the gate as more complex is the simulation environment which is needed to execute test on this level.
- By this approach valuable simulation resources are used efficiently for mature software

**PRACTICAL APPROACH**
- A continuous test environment based on a Jenkins platform has been set up to automate all simulations after a code change.
- Each code change triggers test tool chain execution in order to show improvements while development of the cooperative driving function.