SET Level

Simulation-based Development and Testing of Automated Driving

Conclusions and international perspectives

Prof. Frank Köster (DLR) and Dr. Stefan Rude (BMW)

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Simulation-based development and testing
Summary and outlook

ASAM OpenSCENARIO®
ASAM OpenDRIVE®
ASAM OSI®

TR 4804 - Safety and cybersecurity for automated driving systems — Design, verification and validation
https://www.iso.org/standard/80363.html

PROJECT of the PEGASUS FAMILY

Overall Concept

Simulation based development and testing of automated driving (SET Simulationsbasiertes Entwickeln und Testen) is beside of VVMethoden a project of the PEGASUS Family. It is providing technical basics for scenario based and modular built simulations of AD functions and sensor models, based on further developed IT standards.

Simulation Use Cases – criticality analysis, closed loop simulation for an integrated system and open loop simulation of component models

Developing tool-chains based on some commercial tools (dSPACE, IPG, u.a.) and some open source tools (in the picture on the left hand side an example based on openPASS) show, that simulations can be built in a modular way based on further developed IT standards.

Open Standards

Based on requirements from simulation based engineering tasks development needs are identified towards the used standards (FMI, SSP, OpenSCENARIO, OpenDRIVE, OpenSimulationInterface). Based on pilot implementations findings are offered in standardization working groups.

Dissemination

ASAM standards are cited in ISO TR 4804. ALKS scenarios have been licenced and internationally published as OpenSCENARIO files. The SET Level crossing has been licenced as OpenDRIVE file and licenced e.g. also for the projects of the AI family. Final results are expected to be presented on the final public event around project end 08/2022