From Simulation Data to Test Cases for Fully Automated Driving and ADAS - A Multilayer Model Concept

Within this paper we present a new concept on deriving test cases from simulation data and outline challenging tasks when fully testing and validating fully automated driving functions and Advanced Driver Assistance Systems (ADAS). Open questions on topics like virtual simulation and identification of relevant situations for consistent testing of highly automated vehicles are given. Well known criticality metrics are assessed and discussed with regard to their potential to test fully automated vehicles and ADAS. Most of them are not applicable to identity relevant traffic situations which are of importance for fully automated driving and ADAS. To overcome this limitation, we present a concept including filtering and rating of potentially relevant situations. Identified situations are described in a formal, abstract and human readable way. Finally, a situation catalogue is build up and linked to system requirements to derive test cases using a Domain Specific Language (DSL).

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