

10 challenges for validation and homologation of autonomous vehicles

Abstract:

A major trend in the automotive industry is the increase of automated driving functions starting advanced driving assisting systems (ADAS), that significantly increase the safety and comfort of the driving experience and ranging until autonomous driving (AD) functions that partially or fully control the vehicle creating the base for completely new mobility concepts.

A major unsolved challenge for the development of such systems is validation of the driving function against the required safety goals. This is a crucial step to release the vehicle on the road, independently of whether the certification is done via homologation (like in Europe, Japan or China) or via self-certification by the manufacturer (like in US). Due to the complexity of the modern traffic ecosystem, it is assumed that billions of kilometers must be validated before an ADAS/AD system can be considered as safe as a skilled human driver.

In this talk, dSPACE and BTC Embedded Systems will present 10 challenges for the efficient validation and homologation of autonomous vehicles and how the collaboration between the two companies is addressing them. Topics include the realistic virtualization of the real world, data management, scalability for simulation, scenario creation, automatic scenario generation as well as metrics which finally allow us to measure completeness of the overall validation process.

Speakers:

Janek Jochheim (dSPACE) studied Computer Science at the University of Paderborn. After his masters degree, he joined dSPACE in 2015. Today he works as a product manager in the area of virtual validation, cloud simulation, safety and homologation.

Markus Gros (BTC Embedded Systems) studied Mechatronics at the University of Darmstadt and at the Universidad Politecnica de Catalunya in Barcelona. After his Diploma in 2007, he began working for dSPACE in Paris with a focus on topics like model based development, automatic code generation, AUTOSAR and ISO 26262. In 2012, he joined BTC Embedded Systems AG where he is today responsible for global marketing & sales activities.