

# Preface

The potential provided by innovative transmission systems, supercharged combustion engines, and hybrid or electric drive concepts for reducing fuel consumption and emissions is far from exhausted. Developments in this regard however, are limited to the motor vehicle system. Intelligent mobility, on the other hand, also involves the human element, other road users and the environment. As a result, modern driver assistance systems offer considerable scope for broadening the potential in reducing fuel consumption and exhaust emissions.

Modern automotive engineering is inconceivable without virtual development processes. The use of validated simulation and test methods is necessary to ensure that the decisions taken in the early concept phase are justifiable and future-proof. Constantly rising numbers of electrical components in vehicles increase the complexity of processes, models, and methods and call for new strategies to control complete systems and boost efficiency in the development process.

Just a few years ago, the use of simulation was concentrated on the area of ECU testing using HiL simulation, the current environment uses a wide range of simulation methods at all stages of the V-model development process. Car2Car communication and driver assistance systems that have developed to the point of autonomous driving demand further development methods to validate complete systems, the aim being to achieve end-to-end, model-based processes that integrate a virtual application process alongside hardware and software development.

This objective, however, can only be met with validated methods in data-based and physically-oriented modeling. Complex, non-linear, and dynamic system effects must also be modeled with finite effort if growing numbers of ECU functions are to be efficiently developed with the help of simulation in the future. The advantages of simulation will only bear fruit, however, when tests, applications and optimization can be carried out automatically in dry runs.

Organized jointly by the Chair of Electronic Measurement and Diagnostic Technology (Technische Universität Berlin) and Ingenieurgesellschaft Auto und Verkehr (IAV GmbH), the seventh conference on simulation and testing for vehicle technology in May 2016 picks up on current trends in modeling, simulation, and

control unit testing in connection with developing automotive electronics. Competent experts from industry and universities will be reporting on current research and development projects on modeling and simulating driver assistance systems, internal combustion engines, transmission systems, and e-vehicles. Besides modeling and simulation, the conference will devote equal attention to the subject of “testing”. In addition to examining new testing concepts and test methods up to system testing level, test case generation and testing tools will also be discussed in detail.

We hope the presentations delivered will give all conference documentation readers and conference participants’ insight and ideas for them to use in their own development and research projects.

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