Press Release
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3rd Symposium on Driving Simulation

Experts discuss the technical progress of driving simulation en route to autonomous driving

Fellbach/Stuttgart, 19 December 2017 - Around 75 participants gathered in Braunschweig on 8 and 9 November 2017 for the 3rd Symposium on Driving Simulation to discuss current developments and trends in driving simulation. The event held at the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt - DLR) focused on future challenges in the field of virtual development, testing and validation of systems for automated vehicles.

"Virtual Environments for Testing of Automated Vehicles": This guiding idea definded the program at the 3rd Symposium on Driving Simulation on 8 and 9 November 2017 in Braunschweig. For the third time already, decision-makers and experts from the fields of automotive and commercial vehicle construction, research and IT discussed topics related to driving simulation. The event aimed to offer representatives from science and industry better

access to the field of driving simulation: "With the Symposium on Driving Simulation, we are offering a forum for exchange among specialist colleagues who would like to inform themselves independently of technologies and manufacturers. We are pleased that this offer has been met with a positive response," said Dr. Christoph Runde, Managing Director of *VDC Fellbach*. The 3rd Symposium on Driving Simulation was organized jointly by the *Automotive Simulation Center Stuttgart (asc(s),* the *German Aerospace Center (DLR)* and the *Virtual Dimension Center (VDC) Fellbach.*

At the OpenSCENARIO User Meeting on the first day of the symposium, the participants discussed the current status of the standardization measure. OpenSCENARIO is an open file format for describing dynamic content in driving simulation applications. Marius Dupuis, Managing Director of *VIRES Simulationstechnologie GmbH*, gave an overview of the current status of the project and its technical implementation. Furthermore, user examples from, among others, the FZI and Volvo Cars Cooperation were discussed, as well as the necessary software tools and the embedding in the PEGASUS project. Afterwards, the participants of the symposium met for a get-together and a tour of the *DLR* driving simulator, to which Martin Fischer, group leader for validation technologies at *DLR*, had invited them.

The second day of the symposium began with the keynote address by Martin Fischer from *DLR*. In his lecture, he described the importance of simulation as an essential tool for development and validation of autonomous vehicles, thus laiying the foundations for the following lectures and discussions. Further specialist lectures were given by representatives of *VIRES, TESIS DYNAware, FKFS, OPTIS, rescale, Microsoft, Daimler, Fraunhofer, 3D Mapping, Navigation Data Standard*, *sepp.med* and *VISCON*. “The lectures have shown that simulation methods contribute importantly to turning the vision of autonomous driving into reality. The shift in the enormous validation effort from the real to the virtual world enables engineers to push ahead with innovative system technologies quickly and cost-effectively," Walser explained.

All lectures at a glance:

- Stochastic Traffic Simulation Based on Driver Behavior Modeling | Christopher Kober, Daimler AG
- Standardized Classification of Driving Simulators | Thomas Tüschen, TU Dresden
- Automotive Industry and the new Challenges / Azure Big Compute for Automotive | Wolfgang Dreyer, rescale & Kurt Niebuhr, microsoft

- Model based Test Generation for Virtual Test Driving - 1000 Test Scenarios Generated in 10 Minutes | Dr. Martin Beißer, sepp.med gmbh
- Stereoscopic Driving Simulation | Klaus Schmalenbach, VISCON GmbH
- The Impact of Driving Model and Visual Complexity on the Subjective Simulator Experience | René Reinhard, Fraunhofer ITWM
- Scenarios for the Virtual Testing of ADAS Functions Using OPTIS Physics Based Sensor Simulation | Holger Helmich, OPTIS Deutschland GmbH
- Virtual Experiments for the Interactive Test of Highly Automated Driving Functions | Martin Kehrer, FKFS
- Single Point of Truth for Sensor Signals for Virtual Development of Autonomous Vehicles | Christian Gnandt, TESIS DYNAware GmbH
- Project ENVITED - Simulation Examples and Test Tracks for the Road Data Collection | Christiane Radies, 3D Mapping Solutions GmbH
- NDS on the Road to Auto Drive | Dr. Volker Sasse, Navigation Data Standard e.V.
- OpenX - On-Track for the Future | Marius Dupuis, VIRES Simulationstechnologie GmbH
- Simulation as an Essential Tool for Development and Test of Automated and Connected Vehicles | Martin Fischer, DLR

Company profile asc(s – Automotive Simulation Center Stuttgart

The asc(s is a non-profit association for know-how carriers in the field of automotive simulation. The company provides its members with the possibility to advance new simulation methods for the virtual vehicle development fast and efficiently – particularly if these place high demands on the computing power and data volume. The asc(s promotes, supports and realises the method development in the field of automotive simulation. Being an interest group and multiplier the association can offer its members a wide range of services and activities. The main focus of the activities is the concentration of expertise from automotive and supply industry, software and hardware manufacturers, engineering service providers and research institutes. The asc(s provides the environment for smooth cooperations. Enterprises work hand in hand at the asc(s, thus gaining new impulses for the development of their products.

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Company profile DLR

The German Aerospace Center (DLR) is the national aeronautics and space research center of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport, digitalization and security is integrated into national and international cooperative ventures. DLR has approximately 8000 employees at 20 locations. About 170 scientists from various fields like engineering, psychology and computer sciences research and develop for automotive and railway systems as well as for traffic management in the Institute of Transportation Systems at the sites Braunschweig and Berlin. With this research they make a contribution to increasing safety and efficiency of road and railway traffic. While doing so, they keep the demands and impacts within the whole traffic system in mind. The close cooperation between the institutes and facilities of the DLR enables synergies between aviation, aeronautics and energy management.

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Company profile VDC

The Virtual Dimension Center (VDC) is Germany's leading network for Virtual Engineering and Virtual Reality. Since 2002 the VDC creates synergies between the network members and supports technology transfer. More than 100 members and partners - among them research institutions, technology suppliers, service providers, users and multipliers - are cooperating in the topics of simulation, visualisation, product lifecycle management (PLM), computer aided engineering (CAE) and virtual reality (VR) along the entire virtual engineering value chain. Hence the cluster members benefit from a higher innovation activity and productivity due to information and cost advantages compared to companies outside the network. These competitive advantages are a result of transparent competences, raised information flow and easier business contacts. The services of the VDC include information search and processing, marketing and dissemination, match making on national and international level, - technology

transfer and funding management. The VDC organizes each year many workshops, match making events and congresses like the Virtual Efficiency Congress (VEC, www.virtual-efficiency.de).

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