

VDI

2nd International VDI Conference

Safety Assurance for Highly Automated Driving

Developing & Validation Safety-Critical System for Self-Driving Vehicles

December 14 and 15, 2022, Frankfurt

- Homologation, Policy, Implementation & Acceptance
- Standards, Safety Engineering, Processes, Methods & Tools
- Virtual Validation, Real World Testing, Data Analytics & Data Management
- Safety of AI-based Systems & Perception Technology
- Current Industry Projects for AV Assurance in Germany & Beyond

+ Workshop: Attack on Safety Critical Systems – How Automotive Cyber Security is affecting Safety

Meet international Experts from:



An event organized by VDI Wissensforum GmbH
www.vdi-international.com/01K0948022



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09:00 Registration & Welcome Coffee

10:00 Chair's Welcome & Opening Address

I. Homologation & Policy

10:30 State of Future UN Homologation & Approval Regulations for AVs

- The context and the framework for AVs regulatory activities & review of existing regulation
- Review of the existing regulations related to Level 2 "ADASS"
- Focus on recent achievements related to Level 3 technologies (ALKS)

Opening
Keynote

Francois E. Guichard, Secretary to the Working Party on Automated/Autonomous & Connected Vehicles, UNECE, Switzerland

11:00 Applicability of Traffic Laws to Automated Driving

- Regulatory requirements for Level 3 and 4 vehicles in conjunction with traffic laws
- Current activities at the UNECE Global Forum for Road Traffic Safety (WP.1)
- National activities to amend traffic laws to facilitate safe operation of AVs

Bogdan Bereczki, CPO, and **Nico Wägerle**, CEO, both: Certivity GmbH, Germany

11:30 Homologation of Automated Vehicles: Overview and Current Challenges

- Automated Vehicles (AVs) on global markets needs uniform regulatory requirements
- Presentation provides an overview on autonomous driving regulations in particular the German Act for Autonomous Driving (AFGBV) and the EU regulations for Level 4
- It outlines the differences of both acts

Alexander Ersoy, Head of Automotive Security and Connectivity HAD and **Benjamin Koller**, Head of Safety and Regulations HAD, both: TÜV SÜD Auto Service GmbH, Germany

12:00  Lunch

II. Standards & Safety Engineering

13:30 Threat Analysis and Risk Assessment (TARA) – Experiences made – lessons learned – Outlook

- How is the standard accepted/implemented in practice?
- Pitfalls, observations, experiences, lessons learned from the implementation of TARAs
- Relationship to safety: How can safety analysis methods (e.g. HARAs/ FTAs) support TARAs? Future of TARAs: Open issues to be discussed for the 2nd edition of ISO/SAE
- Maintenance of TARA, interface to CSMS

Thomas Liedtke (PhD), Principal Consultant, KUGLER MAAG CIE GmbH and **Antonio Almeida (PhD)**, Senior Process & Quality Management Expert - Cybersecurity, VECTOR Informatik, both: Germany

14:00 How Can Safety Standards address AI-based Automotive Systems?

- Limitations of current standards
- Principles for new standards
- Striking the balance – Goals vs prescription


Prof. Dr. John McDermid, Director Assuring Autonomy International Programme, University of York, United Kingdom

III. Safety of AI & Perception

14:30 Building Confidence in the Safety of AI for Automated Driving

- How to define the safety of AI components for AD & what evidence to collect?
- How can this evidence be combined into a convincing safety case?
- How do we know whether our safety case is good enough?

Prof. Dr. Simon Burton, Director Vehicle Systems Safety, Robert Bosch GmbH, Germany

15:00  Networking & Coffee Break

15:30 System Integrity a metric towards safe automated vehicles

- Uncertainty is inherently present in AVs
- Integrity is a manner to measure the performance/confidence on the operation of certain functions e.g. localization, perception
- Application of the integrity concept to the perception, localization and map modules of an AD software stack
- Integrity is a fundamental component towards safe HAD

Dr. Javier Ibanez, Corporate Expert Autonomous Systems (AI), Groupe Renault, France

16:00 Engineering complex Systems & the Organizations creating them

- Challenges for a CASE automobile in a New Mobility World
- Shifting mobility paradigms & value creation chains: Not just a technical problem
- Engineering the new automotive organization: Activities, roles & structures

Maged Khalil, Principal Expert Mobility Systems Architectures / Head of Vehicle Architecture Frameworks, co-author: Stefan Dreiseitel, both: Continental AG, Germany

Closing
Keynote

16:30 Chair's Closing Remarks & End of Day 1



Get-together

We kindly invite you to use the relaxed and informal atmosphere for in-depth conversations with other participants & speakers.

09:00 Chair's Welcome & Opening Remarks

IV. Current Industry Projects for AD Validation

09:30 Test Field for Intelligent Mobility Concepts

- Insight in the Munich Cluster for the future of mobility in metropolitan regions (MCube)
- Research focus on automated and connected driving as well as inductive charging
- Status of the test field and future expansion stages
- Safeguarding of AI applications in the context of highly automated driving

M.Sc. Mario Ilic, Chair of Traffic Engineering and Control, PdD Candidate, **M.Sc. Martin Margreiter**, Chair of Traffic Engineering and Control, Research Group Lead, both: TUM, Germany and **Wolfgang Mohr**, Head of Innovation Center, IAB GmbH, Germany

10:00 SOTIF, Functional Safety and Regulatory Requirements for Automated Driving – How does it fit together?

- SOTIF (ISO 21448) overview and Functional Safety (ISO 26262) overview
- Regulatory overview for automated driving
- How SOTIF and FS fit into and support regulatory requirements: Required activities and processes for SOTIF and FS

Edith Holland, Chief Functional Safety Engineer, HORIBA MIRA Ltd., United Kingdom

10:30  Networking & Coffee Break

11:00 Data Base for Safety Assurance of Automated Vehicles: Results from the PEGASUS Project

- PEGASUS project overview
- Methods for assuring safety of automated vehicles
- Data base of relevant scenarios

Dr. Adrian Zlocki, Manager Business Unit Automated Driving, fka GmbH, Germany

11:30 VV-Methods: Safety Assurance and Risk-Modeling

- Integration of risk-modeling into overall safety assurance
- Base: Path from thread to accident – An alignment to standard, societal risk categories, stakeholders
- Core: Risk comparison and behavior derivation
- Conclusion: Distribution of risk analysis onto abstraction layers

Roland Galbas, Technical Expert&Project Lead, Robert Bosch GmbH, Germany, co-authors: VVM-Team

12:00  Lunch

V. Testing & Validation

13:00 Coverage-Based Test Case Generation & virtual Validation Framework for ADAS/AD Systems

- Virtual validation framework using scenario-based approach for XiL environment
- Automatic test cases generation guided by coverage metric using AVL ADAS LoadMatrix
- Critical-case-finding process optimization with big parameter space to identify functional boundaries

Jianbo Tao, Senior Simulation Engineer ADAS/AD and **Hermann Felbinger**, Senior Test Engineer Cyber Physical Systems, co-authors: Mihai Nica, Sebastian Frager, Jürgen Holzinger, all: AVL List GmbH, Austria and Cheng Wang, Geely Automobile Research Institute, China

13:30 SOTIF-Based Testing of L3+ Automated Vehicle Functions

- Quantified proof of safety of the intended functionality based on ISO/CD 21448
- Model-based safety assessment
- Analysis of sensor performance
- Benchmarking of design alternatives (sensor technology, function)

Christian Dörfler, Systems Engineer Highly Automated Driving, co-authors: Dominik Kuhn and Dr. Moritz Schulze, all: IABG, Germany

14:00 How to bridge the Gap between Virtual & Real World Testing

- What are the open gaps in virtual validation?
- Cost impact & disadvantages with real world testing
- How a hybrid test approach could help to fix the gap in both
- What would be the acceptance criteria?

Plato Pathrose, Head of Test & Validation, ADAS / Automated Driving, Visteon Corp., Germany

14:30 Chair's Closing Remarks & End of Conference

International VDI Workshop

Attack on Safety Critical Systems – How Automotive Cyber Security is Affecting Safety

Jürgen Belz, Senior Consultant and CEO, PROMETO GmbH, Germany

Date and Venue:

December 13, 2022
Frankfurt am Main

10:00 - 16:00

Content:

Successful attacks on vehicle networks have made its way to the news. Furthermore, consumers expect a high level of interactivity between smartphones and vehicle. Under the hood, modern vehicles have a lot of software that needs to be updated regularly. Over-the-Air technologies offer an efficient and convenient solution here, but also pose risks for attacks by hackers. The workshop offers an overview of how security mechanisms can be used in the field in the best possible way and - above all - securely. First of all, you will learn in a playful way how hackers proceed and which attack paths there are. Then the workshop will introduce practical possible solutions to protect your vehicle, its software and yourself, which include signatures for updates or user authentication.

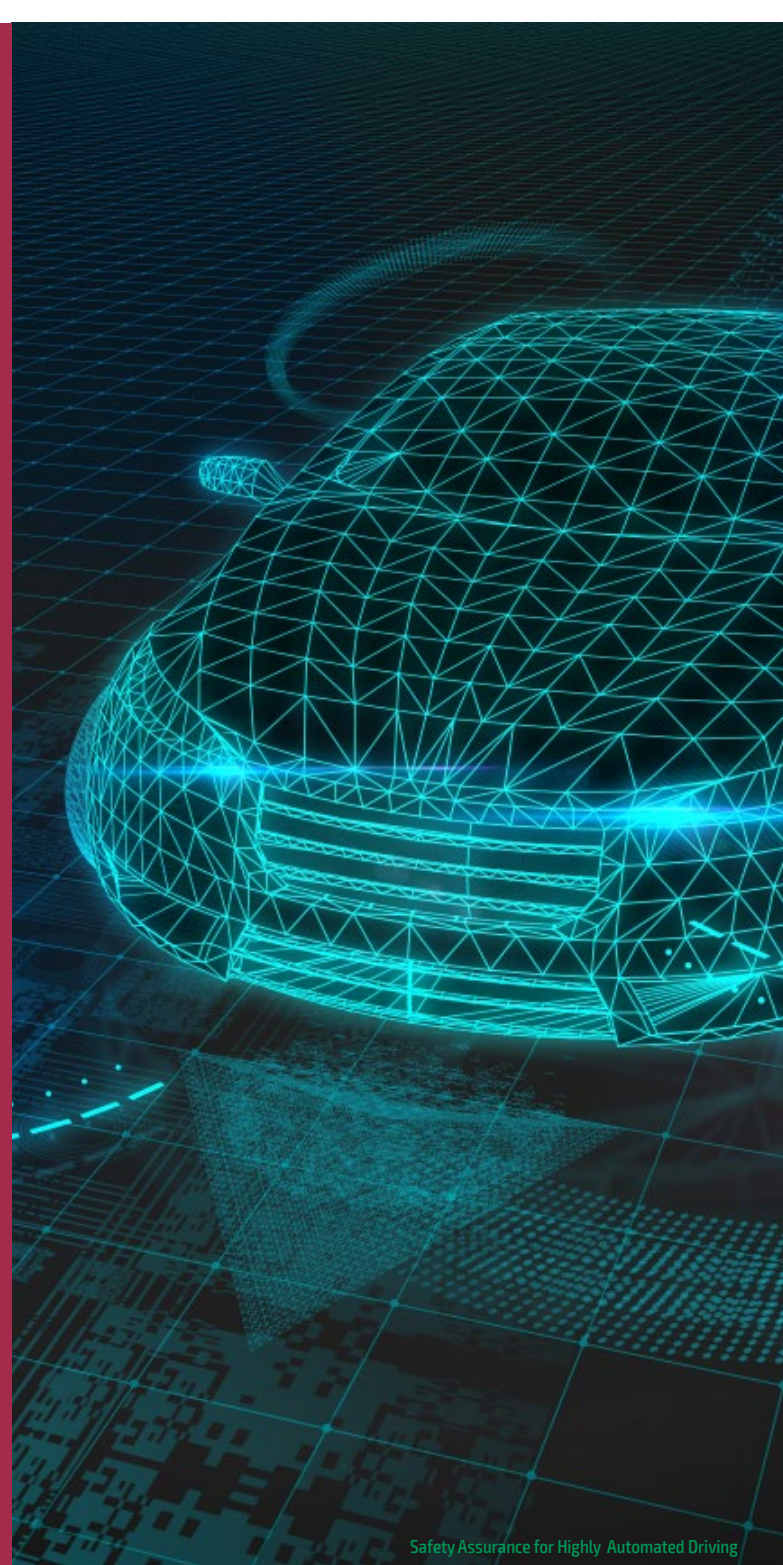
Agenda:

This international VDI workshop will address the following topics and participants will be able to learn about risks, dangers but also possible solutions with some interesting exercises and demos:

- Communication between consumer, OEM and vehicle
- Leveraging the OEM's Cyber Security: risks and dangers
- Control over wired and wireless networks on vehicle level
- Technical solutions for OTA (Over-the-Air) and FOTA (Firmware-Over-the-Air)
- Cyber Security for mobile devices
- Best practice - examples

The workshop will conclude with a discussion round open to all participants.

A topic of interest of the participants relating to Automotive Network Cyber Security may be addressed in this session.



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If you want to meet with and reach out to the first-rate experts attending this VDI conference and to powerfully present your products and services to the well-informed community of conference participants, please contact:

Martina Slominski
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Become a speaker at our international VDI Automotive Conferences. Make yourself known in the industry and discuss best practice examples with other international experts. We are looking for speakers on: ADAS and AD Innovative Sensor Technologies, Sensor Data Processing & AI, Additive Manufacturing and Simulation in Automotive Lightweight Engineering.

Please submit your topic to:

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Registration

Terms and Conditions

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Conference venue

Leonardo Royal Hotel Frankfurt
Mailänderstr. 1
60598 Frankfurt am Main, Germany
Phone: +49 69 6802-0
Email: reservations.frankfurt@leonardo-hotels.com



You will find more hotels
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Hotel room reservation: A limited number of rooms has been reserved for the benefit of the conference participants at the Leonardo Royal Hotel Frankfurt. Please refer to "VDI Conference". For more hotels: www.vdi-wissensforum.de/hrs

VDI Wissensforum service package: The conference package includes the conference documents (online), beverages during breaks, lunch and the get-together on December 14, 2022.

Conference attendance conditions and terms can be found on our website: www.vdi-wissensforum.de/en/terms-and-conditions/

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Register online!

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Yes, I will participate as follows:

Participation Fee + VAT

VDI Conference 14.-15.12.2022
(01K0948022) € 1890

and/or

Workshop 13.12.2022
(015T970022) € 1290

and/or

Package Price (Please tick the boxes)

(Conference + 1 Workshop) € 3030

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