

VDI

## 6th International VDI Conference Cyber Security for Vehicles

May 27-28, 2020, Dusseldorf, Germany

- Standards & Regulations
- Security for Automated Vehicles
- Intrusion & Anomaly Detection
- V2X Security
- Secure E/E Architectures
- Security Testing & Validation

+ Interactive World Cafés

+ Hands-on Workshops

+ Parallel Conference: Autonomous Driving

Meet international Experts from:



An event organized by VDI Wissensforum GmbH  
[www.vdi-international.com/01K0907020](http://www.vdi-international.com/01K0907020)





## About us



The Association of German Engineers (VDI) is one of the largest technical-scientific associations in Europe. Throughout the years, the VDI has successfully expanded its activities nationally and internationally to foster and impart knowledge about technology-related issues. As a financially independent, politically unaffiliated and non-profit organization the VDI is recognized as the key representative of engineers both within the profession and in public.

## Supporting Experts

**Dr. Mathias Dehm**, Head of Security & Privacy Research and Governance, Continental AG, Germany

**Prof. Dr. Christoph Krauß**, Head of Cyberphysical Systems Security, Fraunhofer-Institut für Sichere Informationstechnologie SIT, Germany

**Dr. Christian Köbel**, Project Engineer Cyber Security, Honda R&D Europe GmbH, Germany

**Roger Ordman**, Executive Vice President - Marketing, Aurora Labs, Israel

**Beau Woods B.Sc. (Hons)**, Cyber Safety Advocate, I Am The Cavalry, USA

## Reasons to attend

**Meet** the whole automotive security ecosystem.

**Network** with technical experts & key decision-makers from leading OEMs & suppliers.

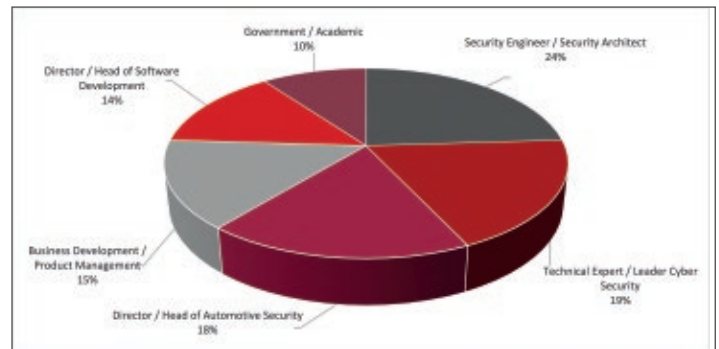
**Learn** where the industry is headed & how to stay ahead of the curve.

**Discuss** technical challenges, current developments & newest solutions.

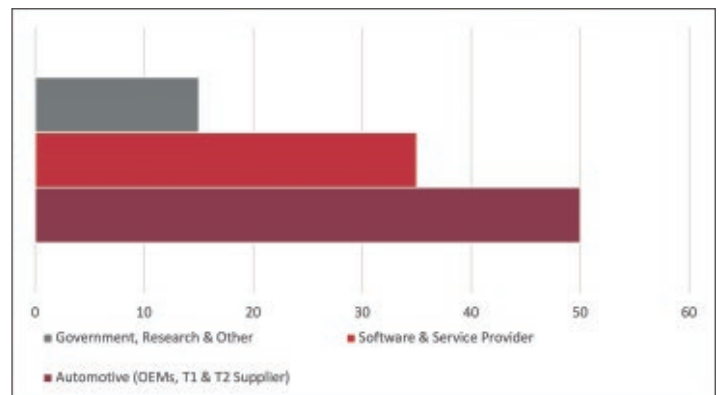
**Benefit** from interactive round-table discussions, hands-on workshops, and in-depth presentations.

**Prepare** for two days full of insights, contacts & new ideas!

## Expected Participants according to Functions



## Expected Participants according to Industries



08:45 Registration & Welcome Coffee

### 09:45 Chair's Welcome & Opening Address

Dr. Mathias Dehm, Head of Security & Privacy Research and Governance, Continental AG, Germany

## I. Regulations & Standards

### 10:00 Regulatory Approach to Cyber Security & Managing Software Updates at the UNECE

- Overview of the work undertaken at the UNECE in this field
- Proposed regulations & the approach adopted
- How an assessment might be made & supporting documents provided

**Dr. Darren Handley**, Chair of UN Task Force on Cyber Security & OTA Issues & Cyber Security Lead, Department for Transport, UK

Opening  
Keynote

### 10:30 ISO 21434 Road Vehicles – Cyber Security: Impact & Application

- Relation between UNECE WP 29 & ISO 21434
- Impact on the automotive industry & strategy to implement the requirements
- Audit & assessments

**Dr. Markus Tschersich**, Manager Security & Privacy Standardization & Regulatory Affairs, co-author: Dr. Mathias Dehm, Head of Security & Privacy Research and Governance, both: Continental AG, Germany

11:00 ☕ Networking & Coffee Break

### 11:30 AUTOSAR: Two Platforms enabling the Development of Secure Systems

- AUTOSAR release 19-11 & retrospective on cyber security features
- Adaptive & classic platforms: Compatibility on features & network level
- Securing service oriented communication

**Adrian Baruta**, Senior Engineer, Toyota Motor Europe, Belgium

## II. Strategy & Industry Collaboration

### 12:00 The ROI of Cyber Security for Automotive

- Current industry investments in security & status of attacks on automotive
- Misalignment between industry investments & real-world attacks
- Proposed investment methodology to address threats & manage risks

**Nir Berman**, CTO, Automotive Cybersecurity BU, Harman, Israel

### 12:30 Auto-ISAC in Europe: Addressing European Needs for Automotive Security Information sharing

- What is the mission of the Auto-ISAC & who leads the organization?
- Why does an integrated global Auto-ISAC make sense?
- How can the Auto-ISAC work in Germany & Europe?

**Robert Kaster**, Chief Technical Expert, Robert Bosch LLC., USA & **Dr. Christophe Jouvray**, Cybersecurity & Privacy Senior Expert, Valeo, France

13:00 🍴 Lunch

## III. Security Testing

### 14:00 Security Testing: From TARA to Test Coverage & Regression Strategies

- Standards & methods for security testing, ISO 21434 in practice
- Security verification & validation along the life-cycle
- Test-oriented requirements engineering for security
- Grey-box penetration testing for efficient testing

**Prof. Dr. Christof Ebert**, Managing Director, Vector Consulting Services, Germany

### 14:30 Automotive Pentesting: Implementation & Scaling Challenges

- Pentesting in the automotive industry: Challenges in theory and practice
- From product to project: Scoping
- Opportunities of pentest automation & use of secunet redbox

**Felix Friedrich**, Head of Sector Pentest & Hardware Security, Secunet Security Networks, Germany

### 15:00 Interactive World Café Session – Exemplary Topics:

- How to Successfully Establish & Prove Conformity of Cyber Security Management Systems – Escrypt GmbH
- Integrated Safety & Security Development – Kugler Maag Cie GmbH
- AI & Safety – Cyres Consulting Services GmbH
- Hardware Security from Rail to Road – Siemens AG

16:00 ☕ Networking & Coffee Break

## IV. Secure E/E Architectures

### 16:30 Bastion: A Trust Anchor in the E/E Architecture

- Bastion as trust anchor for connected & automated vehicle security & safety
- Different levels of security services to cover low- to high-end architectures
- Integration: How to segregate networks & operate such security elements
- Need for synergies between bastion security services

**Dr. Christophe Jouvray**, Cybersecurity & Privacy Senior Expert, Valeo, France

### 17:00 Cyber Security for Automotive Ethernet Networks

- Expanding coverage of attacks targeting Automotive Ethernet networks: In-vehicle IDS & Automotive SOC working together
- Case studies using real attack scenarios on Automotive Ethernet networks
- Analysis & mitigation of Automotive Ethernet attacks in an Automotive SOC

**Matan Atad**, Director, Security Architecture, Argus Cyber Security Ltd., Germany

### 17:30 Building a Vehicle Security Architecture

- Security assets & goals
- Attacker & threat model
- Technologies to secure

**Dr.-Ing. Andre Kohn**, Security Engineer, co-author: Alexander Tschache, Security Engineer, both: Volkswagen AG, Germany

18:00 End of Conference Day one



### Get-together

Relaxed and informal atmosphere for in-depth conversations with other participants and speakers.

## V. V2X Security

## 09:00 V2X Communication Security &amp; Cyber Security

- V2X security protocols, PKI & key management
- Differences between the USA & China
- Cyber security & hardware security requirements of the V2X unit
- Crypto-agility in V2X

Dr. André Weimerskirch, VP Cybersecurity & Functional Safety, Lear Corporation, USA

Opening  
Keynote

## 09:30 Cellular V2X Standards &amp; Security

- Current status & overview of C-V2X standardization
- 4G LTE & 5G NR
- C-V2X security
- Industry collaborative efforts

Ian Smith, IoT Security Director, GSMA, UK

## 10:00 Security &amp; Privacy Challenges of Connected Vehicles to Cloud Based Infrastructures &amp; Services

- Cloud based infrastructure for connected vehicles & security issues
- Privacy & security of cloud based services & impact on automotive areas
- Tools for & attacks on cloud based infrastructures
- Role of regulations

Dr. Hosnieh Rafiee, Cockpit Electronic/ Security Expert in Automotive, Cloud and IT Systems, Volkswagen AG, Germany

## 10:30 Intrusion &amp; Anomaly Detection in Cooperative Intelligent Transportation Systems (C-ITS)

- Overview: C-ITS Security (as part of overall vehicle cyber security)
- Overview of intrusion & anomaly detection in C-ITS
- Principles and framework(s)

Tim Leinmüller, Manager Corporate R&D, Denso International Europe, Germany

11:00 ☕ Networking & Coffee Break

## VI. Intrusion &amp; Anomaly Detection

## 11:30 CANet: An Unsupervised Intrusion Detection System for High Dimensional CAN Bus Data

- Machine learning based intrusion detection system for the controller area network
- Synthetic benchmark data set for CAN intrusion detection systems
- Comparison between learning based methods

Dr. Holger Ulmer, Chief Expert Machine Learning, co-authors: Dr. Markus Hanselmann, Machine Learning Expert, Dr. Thilo Strauss, Machine Learning Engineer, all: ETAS GmbH, Germany

## 12:00 Security Areas and Modular IDPS – Architecture Design Elements protecting Automotive Ethernet Networks

- Two architecture design elements: Security Areas and IDPS; definition of security areas to restrict attack surface
- Modular IDPS consisting of vehicular sensors, actuators & controllers & cloud-based SOC platform
- Anomaly detection on different levels considering latency, automation level & impact

Dr. Michael Ziehensack, VP Automotive Networks, co-author: Dr. Georg Gaderer, Senior Manager Automotive Networks, both: Elektrobit Austria GmbH, Austria

## 12:30 Automotive-IDS, SIEM &amp; SOC for Connected Vehicles

- ECU-installed automotive Intrusion Detection System (IDS) for monitoring in-vehicle network traffics & host
  - Cloud-based Security Incident and Event Management (SIEM) system with visualization of the related logs
  - Automotive Security Operation Center (SOC) for efficient incident response
- Yoshihiro Ujiie, Staff Engineer, Business Innovation Division, Panasonic Corporation, Japan, co-author: Ryo Hirano, Senior Security Professional, both: Panasonic R&D Center Germany GmbH, Germany

13:00 🍴 Lunch

## VII. Security for Automated Vehicles

## 14:00 Conquering Safety &amp; Security in Autonomous Vehicles

- Safety & security needs & requirements of autonomous cars
- Considering safety & security already in concept phase
- Multilayer measures & validation techniques

Dr. Daniel Große, DFKI CPS Bremen, Germany

## 14:30 Adversarial Attacks on AI-Based Automotive Systems

- Machine learning applications in the automotive industry
  - Consequences in vehicle's behaviour when misclassifying objects
  - Methods for generating adversarial attacks and reality check
- Elpidoforos Arapantonis, Cyber Security Engineer, Active Safety, Volvo Cars, Sweden

## 15:00 Autonomous Security for Self Driving Vehicles

- Baking security into the development lifecycle is easier said than done
  - Most agile development teams struggle to shift left
  - Self defending systems are the way to go to scale security development
- Suchit Mishra, CISO, Autonomous Intelligent Driving GmbH, Germany

## 15:30 Chair's Closing Remarks

15:45 End of Conference

## International VDI Workshop 1

# Agile Automotive Product Development

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### Workshop Chair:

Dr. Philipp Diebold, Managing Director, Bagilstein GmbH, Germany

### Date and Venue:

May 26, 2020, Dusseldorf Germany

### Time:

10:00 - 16:00

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### Content:

This workshop provides an overview on agility from cultural aspects to concrete agile methods/frameworks and agile practices with focus on the automotive domain. Due to the fact that this domain is highly regulated, it is necessary to adapt agility to these specific needs. Therefore, the workshop includes an interactive part on identifying the right agility (agile methods and/or practices) for your individual goals and specific context, e.g. team, project, and organization. Thus, every participant gets her/his individual results coming up from the group-work.

### Agenda:

- Introduction into Agility: Start with Why
- Cultural Agility
- Technical Agility: Agile Methods like Scrum, Kanban, SAFe, etc.
- Agile Leadership Agile in regulated Domains, specifically in the Automotive Development
- How to find my individual Agility (context and goal-specific)
- Wrap-Up, Question & Answer and Conclusion

## International VDI Workshop 2

# Automotive Security Testing

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### Workshop Chair:

Prof. Dr. Christof Ebert, Managing Director, Vector Consulting Services GmbH, Germany

### Date and Venue:

May 26, 2020, Dusseldorf, Germany

### Time:

10:00 - 16:00

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### Content:

If you don't actively attack risks, they will actively attack you. Security is never comprehensive but can be vastly improved with risk-oriented testing using an optimized mix of test strategies and suitable tools, starting with static code analysis, proceeding with unit test, and further advancing with dedicated methods such as fuzzing and robustness tests up to the level of penetration testing. Cyber security testing needs experience and competence to select the best methods, determine test end criteria, and a lean yet effective regression strategy suitable for continuous integration and deliveries. This workshop will briefly look at risk-oriented security engineering, and then deep-dive into appropriate test methods and tools; it is based on our hands-on experiences from numerous security consulting projects. Participants are invited to actively engage with their questions.

### Agenda:

- Motivation: Connectivity and convergence
- Risk-oriented cyber security engineering
- Optimizing security testing methods: From static analysis to PenTesting
- Hands-on case study: Grey-Box security testing
- Test tools overview

### Discussion Groups – Topics include:

- Cost versus benefit: How to optimize security testing along the life-cycle
- Making penetration test effective: From black box to grey box
- Which tools and methods for which purpose
- Future Outlook, Discussion and Conclusion

7th International VDI Conference

# Autonomous Driving

From Concept to Product

## Date and Venue:

May 27-28, 2020

Dusseldorf, Germany

While the process of developing the first market-ready autonomous vehicle is often described as race, it is becoming increasingly clear that it is more about finding the right route than about being quick – and that it is impossible to go at it alone. The 7th International VDI Conference „Autonomous Driving“ will help you map the unknown territory ahead.

## Renowned Speakers will discuss the following topics:

- Strategy, Productization & Processes
- Perception, Prediction & Planning
- Safety, Validation & Certification
- AI, Machine Learning & Deep Learning
- And much more...

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## Exhibition / Sponsoring

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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**  
Project Consultant Exhibitions & Sponsoring  
Phone: +49 211 6214-385  
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Email: slominski@vdi.de



## Become a speaker

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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 i.a. looking for Speakers on: ADAS & Autonomous Driving, AI & Deep Learning in Automotive, Functional & System Safety, Testing & Validation, Automotive Sensor Systems.

Please submit your topic to:  
**Dr. Johannes Lejeune**  
Product Manager International Business  
Phone: +49 211 6214-273  
Email: lejeune@vdi.de

# Registration

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## Terms and Conditions

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**Registrations:** Registrations for conference attendance must be made in writing. Confirmation of your registration and the associated invoice will be mailed to you. Please do not pay your conference attendance fee until you have received our invoice and its invoice number to be stated for transfer. German VAT directives apply. Please state your VAT-ID with your registration.

**Conference venue**  
Crowne Plaza Düsseldorf - Neuss  
Rheinallee 1  
41460 Neuss, Germany  
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You will find more hotels  
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[www.vdi-wissensforum.de/hrs](http://www.vdi-wissensforum.de/hrs)

**Hotel room reservation:** A limited number of rooms has been reserved for the benefit of the conference participants at the Crowne Plaza Düsseldorf - Neuss. Please refer to "VDI Conference". For more hotels: [www.vdi-wissensforum.de/hrs](http://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 May 27, 2020.

**Conference attendance conditions and terms:** By way of your registration you accept the conference attendance conditions and terms of VDI Wissensforum GmbH as binding. Any cancellation of your registration must be made in writing. We will charge you only an administrative fee of € 50.00 plus German VAT if you cancel your registration earlier than 14 days ahead of the conference date. Any cancellation that reaches us after this deadline will entail the conference attendance fee as stated in our invoice to be charged in full. The date of the post office stamp of your written cancellation will be the decisive criterion. In that case, we will gladly mail you the conference documents on request. Subject to agreement, you may name a substitute participant. Individual parts and sections of conferences and seminars cannot be booked. You will be informed without delay if an event has to be cancelled for unforeseeable reasons. In that instance, you will be entitled only to a refund of your conference attendance fee if already paid. We reserve the right to exchange speakers and/or change the program sequence in exceptional cases. In any case, the liability of VDI Wissensforum GmbH is restricted exclusively to the conference attendance fee.

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# Cyber Security for Vehicles



**Register online!**

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Yes, I will participate as follows:

**Participation Fee + VAT**

**VDI Conference 27.-28.05.2020**  
(01K0907020) € 1840      and       **Workshop 1 26.05.2020**  
(01ST954001) € 950      or       **Workshop 2 26.05.2020**  
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