



VDI

5th International VDI Conference Cyber Security for Vehicles

July 9-10, 2019, Dusseldorf, Germany

- Regulations, Certifications & Standardization
- Lessons Learned – Examples of Practice
- Security Testing Methods
- Vehicle Security – Technology Developments
- Future Trends

+ Panel: How to be compliant? Impact of Regulations & Certifications?

+ World Cafés & Live Hack

+ Parallel Conference: Automated Driving

+ Workshops

Meet international Experts from:



An event organized by VDI Wissensforum GmbH
www.vdi-international.com/01K0907019





About us

VDI

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.

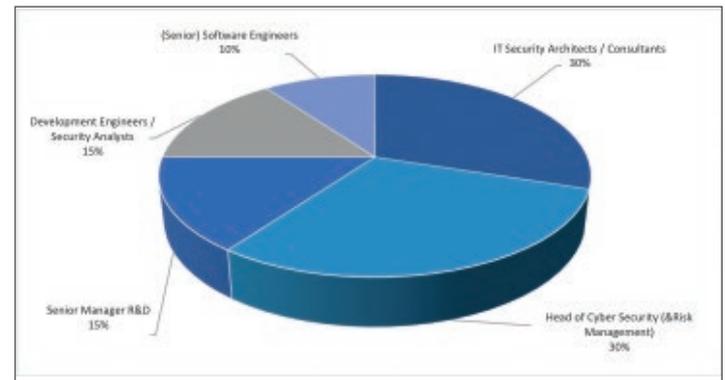
Supporting Experts

Dr. Ing. H. Gregor Molter Specialist Cyber Security, Porsche AG, Germany
Prof. Dr. Christoph Krauß Head of Cyberphysical Systems Security, Fraunhofer-Institut Sichere Informationstechnologie SIT, Germany
Dr. Christian Köbel Project Engineer, Honda R & D Europe GmbH, Germany
Dipl.-Ing. oec. Sebastian Rohr Managing Director, accessec GmbH, Germany
Henry Bzeih Managing Director Connected & Mobility Division, Flextronics America LLC, USA
John Gomez CEO, Sensato Cybersecurity Solutions, USA
Beau Woods B.Sc. (Hons) Cyber Safety Advocate, I am the Cavalry, USA
Ofer Ben-Noon Co-Founder & CEO, Argus Cyber Security Ltd., Israel
Roger Ordman, EVP Marketing, Aurora Labs, Israel

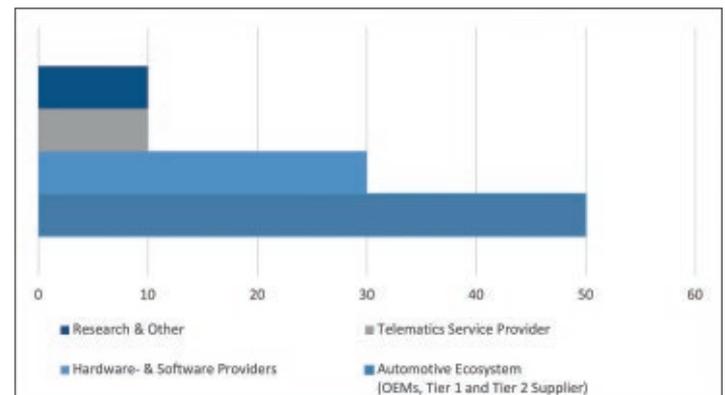
Media Partner

VISION
mobility

Expected Participants according to Functions



Expected Participants according to Industries



08:00 Registration & Welcome Coffee

10:00 Chair's Welcome and Opening Address

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

I. Regulations, Certifications & Standardization

10:15 Future UNECE Regulations on Cyber Security and SW Updates

- Draft requirements on cyber security and SW updates (incl. over the air)
- Progress of test phase with some voluntary manufacturers and authorities
- Adoption of the final regulation and implementation all over the world

Dr.-Ing. Kai Frederik Zastrow, Master Expert Regulation Certification Standards, PSA Groupe, France

10:45 Sticking the Bricks of Road Vehicles' Life-Cycle together – Mapping of relevant Standards and Regulations

- Overview of road vehicles' life-cycle
- Landscape of security standards for road vehicles
- Mapping ISO/SAE 21434 to UN regulation on cyber security
- Standardizing software updates engineering

Dr. Markus Tschersich, Manager Security & Privacy Standardization & Regulatory Affairs, Continental AG, Germany

11:15 Automotive Cyber Security Risk Treatment

- Identifying and assessing cyber security risks
- Examples for cyber security risk treatment
- Collaboration on risk mitigation within the automotive supply chain

Matthias Hense, Automotive Cybersecurity (Regulations & Standardization), BMW Group, Germany

11:45  Lunch

13:15 Considerations for regulating Vehicle Cyber Security – An US Perspective

- How setting standards and regulating cyber security is different than traditional FMVSS
- Evolving the traditional regulatory framework to incorporate best practice, guidance and process improvement
- Mechanisms to better align incentives to improve the fleet's overall cyber security posture

Chan. D. Lieu, Senior Legislative Advisor, Venable LLP, USA

II. Lessons Learned – Examples of Practice

13:45 Cyber Security Threats against the Automotive Industry

- What are some of the top cyber security breaches and trends
- How can the industry work together to mitigate the threats
- Lessons learned from the past

Matt Summers, Vice President Engagement Management, AON, UK

14:15 Panel: How to be compliant? Impact of regulations and certifications?

Dr.-Ing. Kai Frederik Zastrow, PSA Groupe, France

Dr. Markus Tschersich, Continental AG, Germany

Jian Wang, CICV, China

Chan. D. Lieu, Venable LLP, USA

Dr. Evangelos Ouzounis, ENISA, Greece

Moderated by: Beau Woods, I Am The Cavalry, USA

15:00 Challenges & Opportunities in Forensic Analysis for Vehicles & Future Automotive Systems

- State-of-the-art vehicles and their forensic readiness
- Research challenges for forensic analysis in automotive systems
- What are we heading to with future automotive systems
- Opportunities for forensic analysis in future vehicles

Kevin Klaus Gomez Buquerin, Incident Responder/MSc Student, Audi AG/TU Ingolstadt, Germany

15:30  Networking & Coffee Break

16:00 Autonomous Vehicle Cyber Security Forensics & Threat Hunting

- Challenges and practices
- Advantages and drawbacks of tools, tactics and practices employed in the vehicle design stages and post production
- Securing a better respond to cyber security events and incidents

John Gomez, CEO, Sensato Cybersecurity Solutions, USA

16:30 World Cafés: What has to be considered when applying AI in Cyber Security? For what kind of use Cases can AI be considered? Daniel Fulger, Altran

How to achieve a systematic Approach to Automotive Cyber Security Testing? Orhun Süzer, Vector Consulting Services, Germany

IT Security and Data Protection for Electro Mobility: What Steps have to be taken? Prof. Dr. Christoph Krauß, Fraunhofer SIT, Germany

What is needed to secure Vehicles from malicious Malware? Nathaniel Meron, c2a-security, Israel

Security in 5G/V2X Communication – What kind of Security is necessary? Ian Smith, GSMA, UK

18:00 End of Conference Day one



Get-Together

At the end of the first conference day we kindly invite you to use the relaxed and informal atmosphere for in-depth conversations with other participants and speakers.

III. Security Testing

09:00 Creating a security-aware Organization

- Establishing a comprehensive cyber security program in global organization
- Making security an integral part of (existing) engineering processes
- Fostering a company-wide culture of training & awareness
- Establishing a product security incident management and response process
- Threat intelligence collection and collaboration with researchers

Timo van Roermund, Director Automotive Security, NXP Semiconductors, Germany

09:30 Verification and Validation of Security during the Vehicle Lifecycle

- Uncovering weaknesses in the design phase by threat and risk analysis
- Security testing during the development process
- Catching vulnerabilities before production - Penetration testing and what makes automotive different
- Existing penetration testing frameworks and methodologies and how they apply to the automotive world

Dr.-Ing. Daehyun Strobel, Penetration Tester, ESCRYPT GmbH, Germany

10:00 Better Fuzz-testing of cyber-physical Systems

- An overview of state-of-the-art fuzzing techniques
- The challenges specific to fuzzing cyber-physical systems
- New approaches for more efficient fuzzing of cyber-physical systems

Dipl.-Inform. Jan Steffan, Group Manager Security Analyses and Tests, Fraunhofer SIT, Germany

10:30 ☕ Networking & Coffee Break

IV. Live Hack

11:00 Vehicle Security has a long Way to go

- Discussion and demonstrations of the security flaws often find in IVIs, TCUs and telematics platforms
- From rogue firmware updates to leaking of real-time GPS positions of entire vehicle fleets
- From local exploits and unlocking premium features to remote code execution
- Key security issues and advice how design them out of new models

Mark Harrison, Consultant, Pen Test Partners, UK

V. Vehicle Security – Technology Developments

11:30 Threats and Solutions in Automotive Sensors Cyber Security

- Vulnerabilities in automotive most common sensors and incidents analysis
- In-depth analysis and research of automotive LiDAR and Radar vulnerabilities
- Vulnerabilities of automotive GNSS and Satellite Navigation
- ADAS and autonomous cyber security best practices

Roi Mit, CMO, Regulus Cyber, Israel

12:00 🍴 Lunch

13:00 Automotive Ethernet: The Devil is in the Fragments

- New cyber security risks and challenges posed by Automotive Ethernet
- Deep dive into a design flaw discovered by Argus research team in ethernet packet fragmentation mechanisms
- Protecting ECUs from exploitation in an Ethernet environment

Shiran Ezra, Product Director, Argus Cyber Security, Israel

13:30 Secure Service oriented Architecture (SSOA) for connected Vehicles

- Overview of modern service oriented ECU architectures
- Security challenges with SOA and secure concepts
- High Performance vs. strict security
- Future architectures

Dionis Teshler, CTO, co-author: Idan Nadav, VP R&D, both: GuardKnox, Israel

VI. Future Trends

14:00 Post-Quantum Cryptography: Future Trends in Automotive

- Introduction into the topic of post-quantum cryptography (PQC)
- Discussion of new upcoming threats with the existence of quantum computer
- Overview on research and standardization activities on PQC
- Case study on PQC signature scheme in classic AUTOSAR

Prof. Dr. rer. nat. Steffen Reith, Design Computer Science and Media, RheinMain University, **Dr.-Ing. Marc Stöttinger**, Senior Specialist Security & Privacy, Elektrobit Automotive GmbH, both: Germany

14:30 And not one IOTA more! Using DLT to enable secure Car Communication, Authentication, Billing and Payment

- Identify and authenticate vehicles, PoS and ECUs
- Conduct secure payments
- Validate communication content
- Secure communication without certificates

Markus Soppa, CEO, accessec GmbH, Germany

15:00 The Mobility Open Blockchain Initiative - How the Automotive Industry is jointly approaching Blockchain

- What is MOBI?
- Focus of MOBI Working Groups
- Exploring the value of blockchain and distributed ledger technologies

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

15:15 Conference Chair's closing Remarks

15:30 End of Conference

International VDI Workshop 1

Secure Software Development for Mobility Solutions

Workshop Chair:

Prof. Dr. Sachar Paulus, Mannheim University of Applied Sciences, Germany, Sebastian Rohr, CTO and Co-Founder, accessec GmbH, Germany

Date and Venue:

July 11, 2019, Dusseldorf

Time:

10:00-17:00

Content:

This workshop provides an overview on industry best practices that enhance a software development lifecycle with the aim to produce software that is secure against hackers. The form of the workshop allows participants to learn new concepts and techniques, but also to interactively exchange their experience in this field with peers and experts. The workshop contents follow a risk-based approach that helps developers and engineers to concentrate their activity on most relevant elements to protect the software in question. This approach allows to balance security, time and cost of a software solution. All major practices will be addressed by a introductory presentation of the chairs, followed by a breakout exercise, where participants will be able to bring in their views and examples. The results of the breakout exercises will be jointly discussed in the plenary; the chairs will enrich the discussion with their expertise and experience from academia and the field.

Introduction:

- Motivation of hackers
- Different approaches for producing secure software

Main Content:

- Making security requirements explicit with acceptance criteria
- Performing threat modeling
- Secure design principles and coding
- Security testing
- Secure deployment
- Security response

Discussion and Conclusion:

- Main findings of the workshop day
- Necessary training concepts for software teams
- Next steps for participants

International VDI Workshop 2

Cyber Defense for Automotive Navigation

Workshop Chair:

Dror Katalan, Chief Engineer, Regulus Cyber Ltd, Israel

Date and Venue:

July 11, 2019, Dusseldorf

Time:

10:00-16:00

Content:

This workshop provides an overview of the technologies behind automotive navigation systems and discusses where the industry is heading with GNSS technology embedded in AV's. The next levels of autonomy (3-5) will require a smart fusion between different sensors in the car with the onboard GNSS system with high accuracy and up to date information. The workshop explores new developments in sensor fusion, SLAM techniques and GNSS cyber defense for jamming and spoofing as the next step for Navigation 2.0 for driverless cars. Core components of smart navigation systems will be introduced and challenges and opportunities of vehicle location, safety-reliability standards and requirements for OEMs, Tier 1, sensor manufacturers and regulators are discussed. Participants are invited to actively engage with their questions.

Introduction:

- History of navigation systems & overview of GNSS navigation technology
- Major constellations used in GNSS: GPS, BeiDou, Galileo, Glonass
- Key players and stakeholders in automotive GNSS
- GNSS systems strength and vulnerabilities analysis
- Introduction to most common automotive sensors & sensor and map fusion
- Maps self-healing method

Discussion Groups – Topics include:

- Hacking the future vehicle's location - Presenting and discussing various threat scenarios on the low signal strength of GNSS reception and the resulting vulnerabilities
- Security requirements and best practices for safe satellite based navigation for driverless technology
- Reliability standards for trusted and effective GNSS signal and fusion with other sensors

Future Outlook, Discussion and Conclusion

6th International VDI Conference

Automated Driving

Parallel running
Conference –
Free of extra
Charge

Date and Venue:

July 9-10, 2019

Dusseldorf, Germany

Automated Driving represent a major innovation for the automotive industry and will become reality in the years to come. The mobility sector is working intensively to make this vision of the future an everyday occurrence and highly and fully automated vehicles will soon be visible on the roads. Learn about the latest progress and next steps.

Renowned speakers will discuss the following topics:

- Perspectives on Autonomous Driving
 - AI and self-driving Cars: Hype vs. Reality
 - Simulation, Validation & Verification of AV's
 - New Mobility, Business Models & Smart last Mile Concepts
 - Sensor and Perception Technology
 - Legal Aspects, Policy and shifting Skill Needs
- + **Interactive World Café Session**

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Exhibition / Sponsoring

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

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Email: slominski@vdi.de



Become a speaker

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: Automated and Autonomous Driving, Autonomous & Electrified Buses, Alternative Drives for Cars & Trucks, Charging Infrastructure, Automotive Sensors, Automotive AI, Cyber Security for Vehicles, Future Mobility and Functional Safety.

Please submit your topic to:

Leonie Bohnstedt

Product Manager

International Business Development

Phone: +49 211 6214-461

Email: bohnstedt@vdi.de

Registration

Terms and Conditions

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

Hilton Dusseldorf

Georg-Glock-Str. 20

40474 Dusseldorf, Germany

Phone: +49 211/4377-0

Email: info@hiltondusseldorf.com



Das Hotelportal

You will find more hotels
close to the venue at

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 Hilton Dusseldorf.

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 July 9, 2019.

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

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Register online!

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Participants
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Yes, I will participate as follows:

Participation Fee + VAT

VDI Conference 09.-10.07.2019
(01K0907019) € 1790

Workshop 1 11.07.2019
(01ST927001) € 950

or

Workshop 2 11.07.2019
(01ST925001) € 950

Package Price (Please tick the boxes)

(Conference + 1 Workshop) € 2460

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