VDI

9th International VDI Conference

Connected Off-Highway Machines

From Smart Sensors to Smart Systems

September 17-18, 2024, Munich, Germany

- Digital Innovation & Connectivity in Off-Highway
- Autonomous Systems & Mobile Machines
- Software Integration & Extended Reality
- Data Management & Regulations

+ International Best Practices
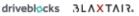+ Interactive World Café Session

Meet international Experts from:

AVL · AgriRobot · CF LAB · NTT Data · IBM · itk · INTELSAT · Fraunhofer IESE

THEIA XR · MHP A Porsche Company · PALFINGER · SATEL · OOE · driveblocks · BLAXTAIR · MobileTronics

An event organized by VDI Wissensforum GmbH
www.vdi-international.com/ 01KO902024

09:00   Registration & Welcome Coffee

10:00   Chair's Welcome and Opening Address
Dr. Christoph Mueller, MobileTronics GmbH

I. Digital Innovation & Connectivity in Off-Highway

10:15 Digital Innovation for Lifting Solutions
- Innovation Process along the Customer Journey
- Application of Advanced Analytics & AI
- Extended Reality & Data Augmentation

Dr. Christoph Gugg , Lead Digital Innovation, PALFINGER AG, Austria

10:45 Field Connectivity for Off-Highway Vehicles
- Enabling reliable and seamless connectivity
- Performance of cellular and Wi-Fi
- Enabling precision positioning from radio and NTRIP

Dr.-Ing. Heikki Keränen, Head of Technology, Satel, Finland

11:15 Harnessing Satellite Power for Off-Highway Machine Connectivity
- The Power of Satellite in Off-Highway Machine Connectivity: Revolutionizing real-time data transmission and remote monitoring
- Real-world examples of how satellite technology enhances fleet management, operational efficiency, and safety
- Insights into multi orbit satellite networks, including GEO and NGSO systems, and share on terminal developments optimized for off-highway machine connectivity

Charlie Coates, Senior Principal Market Development Manager, Land Mobility Business Development, Intelsat, USA

11:45   ☕ Networking & Coffee Break

II. Autonomous Systems (1)

12:15   Next Generation 4D Imaging Radar Technology Applied to Agricultural Automation and Autonomy Applications
- 4D imaging radar technology in agriculture
- Localization in Vineyards using radar to guide semi and autonomous vehicles
- Detection of objects based on radar in an agricultural environment

Tommy Ertbølle Madsen, CEO and Co-Founder, Co-authors: Christian Metz, Antoni Benavent, all of AgriRobot, Denmark

12:45   e-Tractor as Edge Device – Autonomy and Teleoperation
- Embedded systems - IoT gateway
- Tractor API
- Human in the loop

Wolfgang Hollerweger, Principal Software & Functions Engineer, AVL List GmbH, Austria

13:15   🍴 Lunch

III. Software Integration and Extended Reality

14:45 TheiaXR - Making the Invisible Visible though Extended Reality
- Exploring the role of XR technologies for cabin-based and teleoperation applications
- Demonstrating XR technlogy application in real work environment
- Discussing the potential of XR of operation performance based on usability, situation awareness, attention and workload
- Outlining further evaualtion activities

Dipl.-Ing. Sebastian Lorenz, Chair of Industrial Design Engineering, Research Associate, Co-author: Dr.-Ing Volker Waurich, both of Technische Universität Dresden

15:15 Rust Integration Based on Interoperability in Existing Software
- Weaknesses of common programming languages such as C/C++ require numerous tools to meet normative, regulatory and quality requirements
- Fast development cycles can no longer be achieved without compromising quality
- Rust has the potential and the innovative strength to become the leading language in modern software development
- A complete migration of existing software to Rust is costly, there is an interest in partial integration

Dr. rer. nat. Peter Faymonville, Senior Manager Functional Safety, Engineering Methods & Processes, ITK Engineering GmbH, Germany

15:45 Holistic Development for Future Construction Machinery
- Virtual prototyping approaches for automated solutions
- Motion control and sensor technologies
- Interoperability for connected and automated fleets of construction machinery

Dr.-Ing. Volker Waurich, Construction Future Lab gGmbH (CFLab), Germany

16:15   ☕ Networking & Coffee Break

16:45   Interactive World Café Session
During the interactive World Café Session, we invite you to directly engage with other experts. It is an interactively moderated discussion on different topics. Discuss and identify challenges within your sector as well as problems, needs and solutions.

17:45   End of conference

18:00   👥   Get-together

At the end of the first conference day, we kindly invite you to use the relaxed and informal atmosphere at our conference dinner for indepth conversations with other participants and speakers.

09:25 Chair's Welcome
Dr. Patrick Wolf, Fraunhofer IESE

IV. Autonomous Systems (2)

09:30 A Foundation Model for Perception Tasks in Diverse Environments
- Building a database for perception tasks in low-volume applications, e.g. construction and agriculture
- Leverage data from various sources for cost-savings and faster go-to-market
- Development of multitask detection models for robustness

Dr. Felix Nobis, Perception Lead, driveblocks GmbH, Germany

10:00 Functional Safety Certified SAE Layer 4 Mixed Traffic Autonomy for Off-Highway Applications
- Functional Safety and environment perception
- Collision Avoidance
- Autonomy and Assistance Systems
- Off highway SAE layer 4 functional safe autonomy

Dipl. Ing. Christoph Mueller, PhD, CEO, MobileTronics GmbH, Germany

10:30 Pioneering Situation-aware Autonomy and Safety for Off-Highway Machinery in Unpredictable Terrain
- Safety of machinery depends on the situational context
- Perception performance increases through simultaneous bottom-up and top-down processing
- Perceptive interaction allows for reacting to unforeseen events and disturbances

Dr. Patrick Wolf, Senior Safety Engineer, Fraunhofer IESE, Germany

11:00 ☕ Networking & Coffee Break

11:45 From the Future to the Field: Lessons from Deploying a Commercial Spot Spraying Technology in Europe
- Overview of the Technology: spot spraying and its significance in promoting sustainable and efficient agricultural practices with the example of ONE SMART SPRAY
- Addressing Challenges: technical and operational hurdles faced during the project's life span, alongside the adaptive strategies and solutions
- European LIFE Project Insights
- Next Steps on commercialization of Smart Herbicide Application Technologies in Europe

Janis Faltmann, Head of Region Europe, ONE SMART SPRAY a Joint Venture between Bosch and BASF, Germany

V. Data Management & Regulations

12:15 AI Needs a Solid Data Platform
- Data for AI model training must be high performance, flexible, and scalable.
- Data helps AI models identify and extract meaningful features from input data.
- Quality and depth of training data significantly impact the success of AI models.

Frank Kraemer, Systems Architect, IBM, Germany

12:45 🍽 Lunch

14:15 AI, Connect and Cyber Security – The balance between Feature, Function and Risk
- Introduction into the risk, which comes with various new technologies
- Besides to interfaces and connectivity the main focus is of attackers view to AI
- Overview about various regulations that may or may not have an influence to this market segment in the future

Marcus Klische, MHP Management- und IT-Beratung GmbH, Germany

14:45 From Vision Technology to Smart Perception: The Role of Generative AI
- The impact of recent advancements in Generative AI on the off-road industry
- Improving workplace safety using perception technology
- How to leveraging vision technology to boost workplace efficiency?

Pedro Ribeiro, Innovation Expert, Blaxtair, France

15:15 Facing regulatory challenges for Off-Highway Machines: Lessons Learned from the automotive world
- Upcoming Safety and Cybersecurity regulation from EU will hit the machinery industry
- Challenges will be on the process, method and tool, but also on operational level
- Since the automotive industry had these challenges recently - there are best practices and lessons learned which can be reused

Georg Graupner, Managing Consultant Cybersecurity for Automotive and connected fleet industries, NTT DATA Deutschland SE, Germany

15:45 Closing Remarks

16:00 End of conference

Supporting Experts

Dan Danford, CNH Industrial America LLC, USA
Martin Frank, Volvo Construction Equipment Germany GmbH, Germany
Ove Lührs, Topcon Agriculture, Germany
Eugen Schobesberger, Liebherr-EMtec GmbH, Austria
Patrick Wolf, Fraunhofer IESE, Germany

Exhibitors (September 2024)

driveblocks GmbH
dSPACE GmbH
HMS Technology Center GmbH
Inter Control Hermann Köhler
IPG Automotive GmbH
MobileTronics GmbH
Sontheim Industrie Elektronik GmbH
Völkel Mikroelektronik GmbH

Reasons to attend

Meet international experts from the off-highway industry.

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

Discuss technical challenges, current developments, and the newest solutions.

Prepare for two days full of insights, contacts, and new ideas.
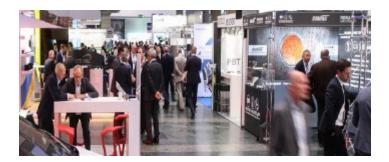
About us

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.

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Vanessa Ulbrich
Project Consultant Exhibitions & Sponsoring
Phone: +49 211 6214-918
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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: Cyber Security for Vehicles, Software Defined Vehicle, Autonomous Driving and Autonomous Trucks.

Please submit your topic to:
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Product Manager International Business
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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. Dutch VAT directives apply. Please state your VAT-ID with your registration.

Conference venue
Holiday Inn Munich - Westpark
Albert-Rosshaupter-Strasse 45
81369 Munich, Germany
Phone: +49 89 411 113-0
Email: info.wp@himuc.com

Hotel room reservation:
A limited number of rooms has been reserved for the benefit of the conference participants at the Holiday Inn Munich - Westpark. 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 September 17, 2024.

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

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HRS
Das Hotelportal

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Registration

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VDI Wissensforum GmbH | VDI-Platz 1 | 40468 Düsseldorf | Germany
www

Yes, I will participate as follows:

Participation Fee + VAT
☐ **VDI Conference 17.-18.09.2024**
(01KO902024) **€ 1990**

☐ I am interested in sponsoring and/or exhibition

☐ Participation Fee VDI-Members* Save 50 € for each Conference Day.
* For the price category 2, please state your VDI membership number

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