



The World's Largest Congress for Automotive Electronics, Software and Applications!

22nd International Congress and Exhibition

October 16-17, 2024, Bonn, Germany

Top Speakers:

Dr. Fathi El-Dwaik, BMW

Jahmy Hindman, Ph.D., John Deere

Gilles Mabire, Continental Automotive Technologies

Dr. Mirko Nentwig, AUDI

Dr. Stefan Ortmanns, Cerence

Matthias Schneider, Mercedes-Benz

Jim Tung, MathWorks

Dr. Rolf Zöller, Porsche



Main Topics:

- AI Automotive
- Digital Homologation
- Software for the SDV
- Open Source Software
- Cockpit & Customer Experience
- E-Vehicle Mobility
- Automated Driving
- Mobility System Architecture
- Electronics Technologies
- Processes
- Cloud & Connect
- Security

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Congress Highlights:

- Automotive Trend Sessions including Panel Discussions on: AI Automotive & Digital Homologation
- Lightning Talks
- Parallel Conference E/E for Mobile Machines
- Start-up Area and Special Start-up Program
- Extensive Exhibition
- Interactive Communication Points
- Meet with the Speakers
- Night of Electronics

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ELIV – Program Overview

1st Congress Day Wednesday, October 16, 2024

07:45 Registration



Plenary Speeches – New York (Ground Floor)

Moderation: **Dr. Rolf Zöller**, Porsche AG and Porsche Digital, Weissach

08:40 Opening of the Congress, Current Market Situation & Highlights of the Congress

Dr. Rolf Zöller, Director Smart Connected Vehicle Porsche AG and Managing Director Porsche Digital, Chairman of the Program Committee
Dr.-Ing. Carsten Hoff, CEO, dSPACE GmbH, Chairman of the Program Committee "Mobile Machines"

09:00 Insights into BMW's Future E/E Architecture and its Semiconductor Requirements

Dr. Fathi El-Dwaik, Vice President BMW Group E/E Systems, BMW AG, Munich

09:30 Generative AI & Conversational AI – The Future of In-Car Assistants

Dr. Stefan Ortmanns, Chief Executive Officer, Cerence, Aachen

10:00 Coffee Break, Exhibition and Start-up Area visit

10:45 Parallel Sessions

Session 1: New York (Ground Floor)

AI Automotive ASIL & GenAI

Moderation: **Dr. Dirk Walliser**, ZF, Friedrichshafen

Session 2: Nairobi (Ground Floor)

Software SDV

Moderation: **Kai-Uwe Balszuweit**, BMW, Munich

Session 3: Wien (Ground Floor)

Cockpit & Customer Experience In-Cabin

Moderation: **Dr. Riclef Schmidt-Clausen**, AUDI, Ingolstadt

Session 4: Bangkok (Basement)

E-Vehicle Mobility Vehicle Range

Moderation: **Dipl.-Ing. Christof Kellerwessel**, adck-consult, Cologne

Session 5: Addis Abeba (Basement)

Automation and Autonomy

Moderation: **Prof. Dr.-Ing. Thomas Herltzius**, TU Dresden

Parallel Conference:
Electrics/Electronics for
Mobile Machines 2024

12:15 Lunch, Exhibition and Start-up Area visit

13:45 Parallel Sessions

Automotive Trend Session AI Automotive

Moderation: **Joachim Langenwalter**, TMT CoPilots, Munich

Automated Driving

Moderation: **Jürgen Bortolazzi**, Porsche, Weissach

Mobility System Architecture

Moderation: **Dr.-Ing. Michael Winkler**, HELLA, Bremen

Electronics Technologies

Moderation: **Dr. Jutta Schneider**, Mercedes-Benz, Sindelfingen

Software Defined Mobile Machines

Moderation: **Dipl.-Ing. Ralf Leinenbach**, Hydac Electronic, Saarbrücken

15:45 Coffee Break, Exhibition and Start-up Area visit

16:30 Lightning Talks: Innovative two-minute rapid-fire pitches on automotive topics, New York (Ground Floor)

17:15 Parallel Sessions

AI Automotive New Dimensions

Moderation: **Dipl.-Ing. Stefan Teuchert**, TRATON, Munich

Software Open Source

Moderation: **Dr.-Ing. Peter Redlich**, Ford-Werke, Cologne

Cockpit & Customer Experience Ecosystems

E-Vehicle Mobility Charging

Moderation: **Dr.-Ing. Dieter Rödder**, Robert Bosch, Stuttgart

Cloud Computing Enhancing Offroad Applications

Moderation: **Dr.-Ing. Georg Kormann**, John Deere, Kaiserslautern

18:45 End of the first Congress Day

19:00 Night of Electronics on the MS RheinMagie

All participants are cordially invited. Discuss the results of the day with fellow experts and use your chance to network.

2nd Congress Day Thursday, October 17, 2024

08:30 Parallel Session

Session 1: New York (Ground Floor)



Automotive Trend Session Digital Homologation

Moderation: Elmar Frickenstein,
Elstein Consulting, Munich

Session 2: Nairobi (Ground Floor)



Software Cloud, Connect & Rust

Moderation: Dipl.-Ing. Martin
Schleicher, Continental, Erlangen

Session 3: Wien (Ground Floor)



Processes SDV

Moderation: Dr. Olaf Lüdtkke, Hella,
Lippstadt

Session 4: Bangkok (Basement)



Security TARA & More

Moderation: Dr. Holger Niemann,
Robert Bosch, Stuttgart

Session 5: Addis Abeba (Basement)



Electrification

Moderation: Dr.-Ing. Stefan
Mutschler, Bosch Rexroth, Ulm

10:30 Coffee Break, Exhibition and Start-up Area visit

11:15 Bridging the World of R&D and IT – from Tool Provider to Solution Architect
Matthias Schneider, Vice President IT RD, Security & Data, Mercedes-Benz AG, Böblingen

11:45 Parallel Session



Software SDV

Moderation: Stefan Singer, Renesas
Electronics, Munich



Transformation of Working

Moderation: Dr. Rolf Zöller, Porsche
and Porsche Digital, Weissach



Processes Virtual, Simulation, Requirements

Moderation: Dr. Torsten Wey, Ford,
Cologne



Security AI

Moderation: Dipl.-Ing. Henning
Harbs, Volkswagen, Wolfsburg



(Smart) Sensors and Algorithms

Moderation: Dr.-Ing. Carsten Hoff,
dSPACE, Paderborn

13:15 Lunch, Exhibition and Start-up Area visit



Plenary Speeches and Award Ceremony – New York (Ground Floor)

Moderation: Dr. Rolf Zöller, Porsche AG and Porsche Digital, Weissach

14:30 Why Autonomy, Why Now?

Jahmy Hindman, Ph.D., Senior Vice President & Chief Technology Officer, Engineering & Technology, John Deere, Moline, USA

15:00 How to Increase Efficiency and Reduce Time2Market Leveraging SDV

Gilles Mabire, CTO – Continental Automotive, Software and Central Technologies, Continental Automotive Technologies GmbH, Frankfurt/Main

15:30 Conclusion of the Congress

By Members of the Program Committee

16:00 Award Ceremony “Auto Electronic Excellence Award 2024”, best Start-up and Closing of the Congress

16:15 End of the Congress

Parallel Conference:
Electrics/Electronics for
Mobile Machines 2024

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Wednesday, October 16, 2024

07:45 Registration



Plenary Speeches – New York (Ground Floor)

Moderation: **Dr. Rolf Zöller**, Porsche AG and Porsche Digital, Weissach

08:40 Opening of the Congress, Current Market Situation & Highlights of the Congress

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09:00 Insights into BMW's Future E/E Architecture and its Semiconductor Requirements

- Challenges in the automotive industry as a driver for continuous innovations
- E/E Architecture in the past, today and in the future, focusing on BMW's approach of 3 level architecture (HPC, Zones, etc.)
- Semiconductor requirements for the future E/E Architecture
- Semiconductor technology and standardization enabling higher system integration

Dr. Fathi El-Dwaik, Vice President BMW Group E/E Systems, BMW AG, Munich

09:30 Generative AI & Conversational AI – The Future of In-Car Assistants

- Market Dynamics
- Inflection point: GenAI – creating an immersive, conversational experience
- Generative, LLM-powered conversational experiences

Dr. Stefan Ortmanns, Chief Executive Officer, Cerence, Aachen

10:00 Coffee Break, Exhibition and Start-up Area visit

ELIV – The App

Simply download the Event-App and register!

The App will be available for download in the Apple App Store and the Google Play Store for all participants as of October.

App areas:

- Digital congress program: create your own agenda at once
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- Evaluation and question function
- Exhibition information
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- Use the "Offer" and "Search" function to find and contact other participants
- Meeting Arrangement: request appointments with other participants

Sponsor



New York (Ground Floor)



AI Automotive ASIL & GenAI

Moderation: Dr. Dirk Walliser, ZF, Friedrichshafen

10:45 How to Integrate GenAI in Automotive: Enhance GenAI or Change Development Philosophy?

- GenAI can generate code
- In Automotive, code is developed based on software requirements and architecture
- Enhance GenAI for code generation to include software requirements and architecture?
- Change the automotive development philosophy to integrate GenAI code generation?

Dr. Ulrich Bodenhausen, Manager Consulting, Product Group Consulting, Vector Consulting Services GmbH, Stuttgart

Nairobi (Ground Floor)



Software SDV

Moderation: Kai-Uwe Balszuweit, BMW, Munich

State of the Art of Foundation Software for Software Defined Vehicle

- Automotive E/E architecture transformation enabling Software Defined Vehicle (SDV)
- SDV challenges
- Foundation Software as SDV enabler
- Consideration of selecting Foundation Software for SDV

Leo Hendrawan, Field Application Engineer, Co-Authors: Randy Martin, Louay Abdelkader, all of Blackberry QNX, Munich

Wien (Ground Floor)



Cockpit & Customer Experience In-Cabin

Moderation: Dr. Riclef Schmidt-Clausen, AUDI, Ingolstadt

Immersive In-Car AR Live Gaming Enabled by SDV Architecture, ADAS Cameras and AI Software

- Leverage SDV & ADAS to create an immersive in-car AR real time gaming experience
 - Involve your passengers into your driving experience thanks to real time AR gaming
 - Need to create standardized "cross-OEMs" APIs to attract the AR gaming developers' community
- Ing. Patrice Reilhac, M. Sc.**, Director, Research & Innovation, Valeo Brain Division, Bietigheim-Bissingen, Co-Authors: Christopher Nowakowski, M. S., Anusha Manila, M. S., both of Valeo Brain Division, San Mateo, USA

Bangkok (Basement)



E-Vehicle Mobility Vehicle Range

Moderation: Dipl.-Ing. Christof Kellwessel, adck-consult, Cologne

Battery-Integrated Multilevel Inverter Technology – A Highly Integrated Electric Drivetrain Approach and its Technical Implementation in a Distributed Real-Time System

- Basic principle of the battery integrated MMSPC topology
- Potentials of the technology
- Realization of the distributed real-time system
- Flexible control unit concept with HW/SW co-design for high integration of control unit functions

Daniel Simon, M. Eng., Lead Engineer, Energy System, Porsche Engineering Services GmbH, Bietigheim-Bissingen

Addis Abeba (Basement)



Automation and Autonomy

Moderation: Prof. Dr.-Ing. Thomas Herlitzius, TU Dresden

Future Perspectives and Technical Challenges in Mobile Machines

- Mega-Trends
- What do they mean for NRMM and supplies?
- Automation, digitalization and electrification
- How to navigate through transformation

Dipl.-Ing. Matthias Dieter, Managing Director/CEO, Hydac International GmbH, Sulzbach

11:15 Speeding Up GenerativeAI in Software-Defined Vehicles

- Challenge: how to make GenAI a mass mobility technology in future SW Defined Vehicles (SDV)
- Approach: integrate Engineering framework, corporate setup and IT handshake
- Industry practice projects
- Lessons Learned and Outlook

Dr.-Ing., Dipl.-Wirt.-Ing. Johannes Richenhagen, Managing Director, FEV.io GmbH, Aachen, and **Birgit Hammer**, Global Vice President IT, FEV Group GmbH, Aachen, Co-Author: Mirko Engelhard, FEV Consulting, Cologne

Faster More Robust Software Integration – Raising the Abstraction Level

- The need for the SDV concept and its challenges
- Limitations of Autosar
- Moving to a higher abstraction level for integration of best-in-class functions
- The 4SDV approach

Dr. Stefan Poledna, CTO and Co-Founder, Executive Board, TTTEch Auto, Vienna, Austria

Biometrics and Sensor Fusion for Enhanced In-Cabin Safety and Comfort

- Future change in In-cabin sensor structure towards a limited number of sensors providing multiple function
- Sensor setup of camera and radar with AI based algorithms
- Inside and outside application of facial recognition to identify driver and passenger, for access control, personalization and payment authorization

Dr. Wilhelm Steinmann, Program Manager, and **Dr. Björn Sondermann**, Chief Engineer, Co-Author: Dr. Karsten Sonnenschein, all of Rheinmetall Dermalog SensorTec GmbH, Hamburg

Boosting Vehicle Range by Mating Semiconductor Technologies

- Si²C fusion switch concepts for 400V BEVs focusing on ease of use
- Multi-level topologies for 800V BEVs and the advantage of SiC & GaN combination
- Influence of semiconductor technology mating on vehicle range and system cost benefits

Dipl.-Ing. Mark Muenzer, Fellow Motor Control Solutions, System Application Engineering, Automotive, Co-Authors: Christoph Bauer, Sijia Zhang, all of Infineon Technologies AG, Neubiberg

Automation Levels for Mobile Working Machines

- Introducing a New Framework for Automation Levels
- Distinguishing Automation and Autonomy
- Focus on Driving vs. Work Process Automation
- Importance of Connectivity and Sensors for High Automation

Dr.-Ing. Simon Schätzle, Group Leader, Innovation Center, Co-Authors: Dr. Pablo Aguirre, Stefan Lang, all of Innovation Center, Sensor-Technik Wiedemann GmbH, Kaufbeuren

11:45 Getting ASIL for AI!

- AI based Perception
- Sensor-Fusion
- Embedded Deployment

Dr. rer. nat. Stefan Milz, CEO, and **Dr. Georg Puhlürst**, VP Products & Safety, both of Splenlab GmbH, Saalburg-Ebersdorf

Managing the Complexity of Joint Steering, Braking and Powertrain Coordination in Emerging Vehicle E/E Architectures

- Master complexity & increase efficiency with Vehicle Motion Management
- Increase vehicle dynamics performance with modular stand-alone SW products, realize multi-actuator control & x-by-wire potential
- SW function allocation & integration in centralized architectures
- Standardization approach for interfaces to ensure exchangeability and support scalability

Dipl.-Ing. Niccolo Hägele, Senior Vice President – Product Area Owner Vehicle Motion Software & Services, Co-Author: Stefan Hoefle, both of Robert Bosch GmbH, Abstatt

Leveraging AI/ML Techniques in Software Defined Architecture: Towards Emotional Quotient Prediction in Smart Automotive Cabins by Integrating Physiological and Vehicle Data

- AI/ML based Driver emotion prediction using vehicle and physiological data
- High computational chips enable real-time AI/ML algorithm processing in SDVs
- Physiological and vehicle sensors on distributed Zonal ECU

Gowrishankar Shivashankara Chari, M. Tech., Technical Architect, Body Practice, R&D, Co-Authors: Muralidhara Krishnapur Vittal Rao, B. E., Mahesh Ghivari, M. Tech., MBA, all of KPIT Technologies Ltd. Bangalore, India

Designing Predictive Battery Heating Systems for an Electric Vehicle by Utilizing Cloud Data

- Predictive battery heating
- Utilizing "Cloud Data" to predict the driving profile
- Decrease charging time by preheating the traction battery
- Electric vehicle systems at low temperatures

René Schilling Johnson, M. Sc., Industrial PhD Candidate and Simulation Engineer, R&D High Voltage Drives and Energy Systems, Volkswagen AG/TU Braunschweig, Wolfsburg, Co-Author: Prof. Dr.-Ing. Markus Henke, TU Braunschweig

Lecture details: tba

Dr. Arne Bohl, VP Group Product Strategy, CLAAS KGaA mbH, Harsewinkel

12:15 Lunch, Exhibition and Start-up Area visit



Automotive Trend Session AI Automotive

Moderation: Joachim Langenwalter, TMT CoPilots, Munich



Automated Driving

Moderation: Jürgen Bortolazzi, Porsche, Weissach



Mobility System Architecture

Moderation: Dr.-Ing. Michael Winkler, HELLA, Bremen



Electronics Technologies

Moderation: Dr. Jutta Schneider, Mercedes-Benz, Sindelfingen



Software Defined Mobile Machines

Moderation: Dipl.-Ing. Ralf Leinenbach, Hydac Electronic, Saarbrücken

13:45 Building and Scaling a Machine Learning Platform to Unlock AI in Connected Car Services

- Machine learning platform based on Open Source and cloud technologies
- Enabling MLOps best practices covering the e2e data science workflow
- Architectural blueprint for enterprise-wide machine learning platforms in the automotive industry
- Supports classical machine learning, deep learning and GenAI use cases

Dr.-Ing. Sebastian Zimmermann and **Dipl.-Inf. Wolfgang Lenders**, both Head of Connected Vehicle Software, Connected Company, BMW Group, Munich, Co-Authors: Magdalena Kuhn, Dr. Tin Lian Abt, both of BMW AG, Munich

Using Large Lange Models to Generate Critical Driving Situations for Virtual and Hybrid ADAS/AD Testing

- Validation and verification (V&V) of ADAS/AD systems
- Generation of critical driving situations – scene + scenario as ASAM OpenDRIVE/SCENARIO
- Large Language Models
- Highly automated toolchain for virtual and hybrid ADAS/AD testing

Tille Karoline Rupp, Head of Simulation, and **Dr. Joachim Schaper**, Head of AI&Big Data, Co-Author: Leon Eisemann, all of Porsche Engineering Services GmbH, Bietigheim-Bissingen

Trends in Zonal Architecture for Future Software Defined Vehicles

- Reinventing the base layer for energy and data distribution for SDV
- Defining zonal architectures, including zonal controllers and centralized car computer
- Allocation of software functionality, bandwidth – requirements, latency and redundancy in the data network, power supply requirements with voltage level and integrity

Dr. Karlheinz Morgenroth, Chief Architect Electronics, Electronics Development, LEONI Bordnetz-Systeme GmbH, Kitzingen, and **Ahmad Hammam**, R&D Director, Comfort and Driving assistant, VALEO Schalter und Sensoren GmbH, Bietigheim-Bissingen

Innovating High-End Microcontroller Multicore Software Architecture

- Optimizing the use of hardware resources and maximizing parallelism
- Enhance Multicore/Partitioning capacity of the Basic Software
- Expand automated multicore configuration capabilities

Till Schnell, M. Sc., Lead Software-architect, Research & Development, Mercedes-Benz AG, Stuttgart, and **Eduard Krolacsek, M. Sc.**, Senior Solution Manager, Product Line Embedded Software and Systems, Vector Informatik GmbH, Stuttgart

New Electronic Architectures Enabling Software Defined Mobile Machinery Electronic Architecture

- High Performance Computing
- Cloud and Connectivity
- Algorithms and AI

Dipl.-Ing. Andreas Locatelli, Senior Product Manager ADAS, Product Development, Co-Author: Janosh Fauster, both of TTControl GmbH, Vienna, Austria



14:15 **Quo Vadis Vision Zero? – Can AI Help Us Make Our Vision a Reality?**

- Vision Zero – the vision of achieving zero fatalities caused by road traffic is not progressing
- Status quo and deeper insight: Root causes and how AI can help to achieve this goal
- AI as the facilitator to address the individual reasons for dangerous accidents

Dr.-Ing. Pia Dreiseitel, Growth Field Manager AI Technologies, Research and Advanced Engineering, Continental Automotive Technologies, Frankfurt/Main, Co-Author: Dr. Ralph Grewe, Continental Autonomous Mobility GmbH, Frankfurt/Main

Ensuring ADAS Functionality During Periodic Technical Inspection

- How to ensure SAE L3 "hands-off-eye-off" functionality over vehicle lifetime
- ADAS sensor validation during PTI (periodical technical inspection)
- Ensure AEB, ACC, BSD functionality with static and effectiveness sensor and system tests

Dipl.-Ing. Matthias Beer, MBA, Director Imaging Sensor Products, Test & Measurement division, R&D, Rohde&Schwarz GmbH & Co KG, Munich, Co-Authors: Thomas Ost, DEKRA SE, Stuttgart, David Petanjek, AVL DiTest GmbH, Graz, Austria

When Innovation Demand Meets E/E Architecture: Further Endeavors into Next-Gen Architectural Designs

- Emerging E/E architectures facing heavy headwinds
- Technology trends, e.g., 48V and highest-safety powernets
- Cost innovations for Software Defined Vehicle architectures

Dr. Thorsten Huck, Vice President E/E Architectures, Research and Development, Competence Center E/E Architectures, Co-Author: Dr. Andreas Achtzehn, both of Robert Bosch GmbH, Abstatt

Virtual Design of Electronic Power Distributors

- Design of Power Distributors and Dependencies
- Modeling of Electronic Power Distributors
- Electronic Fuses and the Sensitivity of Protection Mechanisms
- Virtual Test and Validation of Protection Mechanisms

Martin Baumann, Development Engineer, Development Low-Voltage Power System, BMW AG, Munich

GenAI – Refining Off-Highway Industry

- Embracing the Potential of GenAI
 - How to employ GenAI tool, methodology, and philosophy to optimize Off-Highway Product development and Validation
 - GenAI Use Cases and Applications in the Off-Highway Industry
 - Virtualization Next frontier for product testing & validation
- Swapnil Tandel**, Delivery Head, Trucks and Off-Highway, Co-Author: Prabhakar Pandit, both of L&T Technology services, Edison, USA

14:45 **Auditing Guidelines for AI-based AD/ADAS Components Focusing on AI Security**

- Lack of AI-specific standards can harm trust level of user
- Adversarial attacks form new security threat
- Mitigation strategies need to be incorporated into development
- Exemplary audit of a traffic sign recognition and pedestrian detection system

Dr. Georg Schneider, Head of AI Lab Saarbrücken, R&D, Co-Author: Fabian Woitschek, both of ZF Friedrichshafen AG, Saarbrücken

Ensuring High Reliability Inside Fail-Operational Systems – Key Prerequisite for SAE L3->L5 Compliant Automated Driving

- The fail-operational systems are required for the automated driving vehicles compliant to SAE Level 3->5 and x-by-wire systems
- Way to fulfil the fail-operational system requirements
- AUTOSAR Classic is the right development framework and will be a pivotal role in building fail-operational systems

Lucian Badescu, Product Manager Automotive Networks, Elektrobit Austria GmbH, Vienna, Austria

Managing Reuse and Dependencies of Hardware and Software Components in SDV Architectures

- Holistically structure the SDV stack to improve development speed and efficiency
- Architecture layers and APIs to consider overlooked dependencies between software and hardware
- Decouple teams for software, hardware and integration while improving cooperation
- Enable separate value streams for managing reusable software and hardware assets

Dr.-Ing. Frank Schreiner, Chief Engineer, Business Center Systems Engineering, Continental Engineering Services, Frankfurt/Main

Automotive eFuses: Challenges of Today and Solutions for the Future

- Ensuring Fail-Operational Behavior
- Establishing and retaining Safe Power Supply
- Design Space for eFuses
- Towards AI-supported Predictive Maintenance

Dr.-Ing. Christopher Lankeit, Lead Systems Engineer eFuse/iPDM, and **Dr.-Ing. Rafal Dorociak**, Head of Product Development Global, both R&D, Design & Development Body Control, Co-Authors: Dr. Olaf Luedtke, Joachim Ziethen, Dr. Moritz Teuber, all of HELLA GmbH & Co. KGaA, Lippstadt

DevSecOps and AI-Based Cyber Security Solutions for Mobility

Eng. Moshe Kassirer, Product Manager, Argus Cyber Security, Ramat Gan, Israel

15:15 Panel Discussion on "AI Automotive" Trends, Challenges and Solution for AI in Automotive

Moderation: Joachim Langenwalter, TMT CoPilots

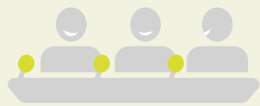
Panelist:

Dr. Patrick Bartsch, AWS

Thomas Dannemann, Qualcomm

Dipl.-Inf. Wolfgang Lenders, BMW

Prof. Dr.-Ing. Katja A. Rösler, University of Applied Science Ruhrwest



Importance of CATR Technology in Testing 4D Imaging Radars

- Understand the challenges of testing 4D imaging radars
- How can Compact Antenna Test Range technology solve these challenges and improve next generation radar design
- Gain insights about CATR technology with real measurement results and its comparison with traditional approach
- Innovation in CATR chamber design and millimeter wave OTA calibration approach

Asish Jain, Customer Strategist – Automotive Manufacturing Test Solutions, R&D, Keysight Technologies Deutschland GmbH, Böblingen, Co-Author: Chin Chuan Yap, Keysight Technologies, Penang, Malaysia

Transition from Domain to Zonal Network Architecture for SDV

- Reasons and advantages of Zonal Architecture
- Shift of computing architecture to central high-performance ECU and zonal ECUs
- Enabling Technology Automotive Ethernet, IEEE protocols, Open Alliance, Autosar
- Integration of legacy networks, TC10 for wake/sleep power management

Felix Ottofuelling, Business Development Manager EU, Intrepid Control Systems GmbH, Karlsruhe

Enabling an Open Eco-System for Chiplet based Automotive SoCs

- Why are Chiplets the future for automotive SoCs?
 - The current automotive Chiplets market place and it's future development
 - SW environment as prerequisite for OEMs/Tier1s acceptance
 - Road towards first Generations
- Dipl.-Ing. Michael Schaffert**, Senior Vice President Engineering E/E Architecture, Mobility Electronics, Co-Author: Dipl.-Ing. Ole Godbersen, both of Robert Bosch GmbH, Stuttgart

From the Freeway to the Field – How Hardware-in-the-Loop (HiL) Testing Can Accelerate the Development of Autonomous Machinery

- Comprehensive validation and verification of complex systems in realistic environments
 - Time and cost efficiency of HiL testing
 - Continuous development for automated work processes
 - Data strategy to manage increasing number of sensor technology
- Marco Buller, M. Sc.**, Business Development Manager, Strategic Product Management, Co-Author: Dr. Karsten Krügel, both of dSPACE GmbH, Paderborn

15:45 Coffee Break, Exhibition and Start-up Area visit

16:30 Lightning Talks – 22 Rapid-Fire Two-Minute Pitches, **New York (Ground Floor)**



AI Automotive New Dimensions

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Software Open Source

Moderation: Dr.-Ing. Peter Redlich, Ford-Werke, Cologne



Cockpit & Customer Experience Ecosystems



E-Vehicle Mobility Charging

Moderation: Dr.-Ing. Dieter Rödler, Robert Bosch, Stuttgart



Cloud Computing Enhancing Offroad Applications

Moderation: Dr.-Ing. Georg Kormann, John Deere, Kaiserslautern

17:15 From Niche to Mainstream: Harnessing Generative AI for Automotive Excellence

- GenAI is much more than large language models – persistent value lies beyond the hype
- Where to apply GenAI – exploiting the past, optimizing the present, defining the future
- Navigating both short-term urgency and long-term strategy
- Adoption and scale – cross-industry lessons

Dr. Andrew Vickers, M. Eng., CTO Generative AI, Technology and Innovation, Capgemini, Bath, UK, Co-Author: Dr. David Hughes, M. Sc., MBA, Capgemini, Abingdon, UK

AUTOSAR and SOAFEE as Part of the SDV Alliance: Unifying the Software Defined Vehicle Ecosystem

- SDV Alliance as collaborative force to define SDV
- Cloud-native approach to SDVs by SOAFEE
- AUTOSAR's in-vehicle SW experience, facilitating a smooth transition to the SDV future

Dipl.-Ing. Johannes Bauer, Director Automotive Solutions and Ecosystem, Automotive Line of Business, Arm Germany GmbH, Grasbrunn, and **Michael Niklas-Höret, M. Sc.**, AUTOSAR Chairperson, AUTOSAR GbR, Hörgertshausen

Unlocking the Future: Exploring the Ecosystem of Digital Vehicle Keys and the Challenges Ahead

- Introduction to Digital Vehicle Keys
- The key role of Standardization in the Ecosystem
- Challenges and Future Developments
- Responsibilities and Synergies across different stakeholders

Thorsten Knott, Head of Development Digital Vehicle Access, Development, BMW AG, Munich

How to Improve the Charging Experience of Your Customers by Better Integration with the Electricity Grid

- Smart and bidirectional charging tests
- Power quality immunity
- Cyber security

Thijs van Wijk, M. Sc., Testlab manager, Elaad Testlab, ElaadNL, Arnhem, Netherlands

Novel Connectivity Solutions for Edge-Cloud Continuum Applications in Rural Agricultural Machinery Operations

- Integration of Edge and Cloud Computing in Agricultural Machinery
- Utilization of Virtualization for Dynamic Resource Allocation
- Challenges of Networking in Rural Environments
- Impact of Network Connection Technologies and Topologies on System Operation

Alexander Wagner, M. Sc., Product Engineer PhD Cand., External Relations, Co-Authors: Prof. Dr. Peter Pickel, both of John Deere GmbH & Co. KG, Kaiserslautern, Dipl.-Ing. Andreas Locatelli, TTControl GmbH, Vienna, Austria



17:45 **AI in Traffic: New Dimensions of Vehicle Intelligence**

- Limitations of Traditional Methods
 - AI Revolution
 - Research at Ruhrwest University
 - Improved Safety and Efficiency
- Prof. Dr.-Ing. Katja A. Rösler**, Professor for Automotive Engineering, and **Kevin Szelechowicz, M. Sc.**, Scientific Assistant, both of University of Applied Science Ruhrwest, Mülheim/Ruhr

How Functional Safety and Open Source Come Together in the Navigation Data Standard

- Open Source Software accelerates automotive innovation by reducing costs and speeding up development
- Understanding the complexity of adopting OSS in safety critical systems
- NDS leverages zserio for high-performance serialization tailored to safety-critical environments
- Best practices and strategies for adopting OSS in safety-critical automotive applications

Dipl.-Inf. Fabian Klebert, Technical Lead, Development, Navigation Data Standard e.V., Gröbenzell

Generative AI Based GUI Reconfiguration Using Natural Language Processing

- Parsing natural language expressions into a formal description using formal grammars
- Tracking formalized past interactions for reference in future expressions
- Improving results by combining generative models
- Cost savings by utilizing smaller and local models

Dipl.-Ing. Tobias Schäfer, Development Engineer, Co-Authors: Dr. Dirk Macke, Jörg Kottig, all of FEV.io GmbH, Aachen

Mapping the Future Role of Electric Vehicles as Energy Storage Systems: A Comprehensive Study on Current Market Trends and Future Projections for AC and DC Bidirectional Charging

- AC/DC bidirectional charging technologies
 - Market analysis of the adoption of bidirectional charging by main global OEMs
 - Future market rollout
- Dr. Francesco Cigarini**, Senior Consultant, Electric Mobility, Co-Author: Bonjad Satvat, M. Sc., both of P3 automotive GmbH, Stuttgart

AI Based Battery Health Monitoring from Concept to In-Use for Better BEV Performance

- Battery Health prediction in from Concept to SOP
 - Predictive Maintenance for reduced warranty costs
 - Anomaly detection for shorter test times
 - BMS Model parametrization
- Dr. Nikolaus Keuth**, Head of Product and Solution Management, Data Analytics and Intelligence, Co-Author: Dipl.-Ing. Gerhard Schagerl, both of AVL List GmbH, Graz, Austria

18:15 **Enabling Automotive MLOps with Open Source Based Software**

- Proof-of-concept and demonstration of MLOps using Open Source based software
- Utilization of hybrid cloud platform to enable MLOps
- Using GenAI for simulation and detection of weak spots for AI-based driving functions

Dr.-Ing. Xinxing Wang, Senior Project Manager, Electronics & Virtual Testing Solutions, Bertrandt Group, Gaiersheim, Co-Author: Paul Wallrabe, Red Hat GmbH, Grasbrunn

Accelerating Software Defined Vehicles through Open Source

- The industry and technology trends driving SDV and their enabling technologies needed for development
- Open Source software enables industry collaboration, rapid innovation, and more efficient software development
- Update on the work being done by the AGL SDV Expert Group, including key milestones, future roadmap and how to get involved

Dan Cauchy, Executive Director of Automotive Grade Linux, The Linux Foundation, San Francisco, CA, USA

Electric Vehicles in 2024 – Current UX Challenges and Concepts for the Coming Years

- “EV experience” in 2024: how good is it really?
- Overview of EV technology and advancements: current and future UX challenges and possible solutions
- UX developments in routing, ecosystem integration and personalization
- Comparison and differentiation: EU market and CN market

Audrey Matarage, Independent UX consultant, Audrey Matarage Consulting, Stuttgart, and **Arne Bachmann**, Principal, User Experience, P3 automotive GmbH, Wolfsburg

Advances in Electric Vehicle Charging: Mapping between User Needs and Technology

- User needs for different charging scenarios
- Overview of electric vehicle charging landscape
- Technological solutions for improving cost and comfort for private charging
- Innovative approaches for reducing range and charging anxiety

Dr.-Ing. Michael Stapelbroek, Vice President Electric Powertrain, Co-Authors: Dr.-Ing. Rene Savelsberg, both of FEV Europe GmbH, Aachen, Max Faßbender, M. Sc., RWTH Aachen University

Data-Driven Predictive Maintenance from Sensor Networks in Customer Fleets Under Compliance with New Legislation Aspects and Open System Architectures

- Data-driven Product Engineering as key to effective Predictive Maintenance
 - Open System Architectures reduce complexity in Automated Operations
 - Examples to meet latest legislation aspects for customer operations
- Dr.-Ing. Andreas Griesing**, Head of Product Engineering, Estino.Labs, Co-Author: Jakob Riebe, both of Estino GmbH, Dresden

18:45 End of the 1st Congress Day

19:00 **Night of Electronics on the MS RheinMagie**

The VDI invites all participants, speakers, sponsors and exhibitors to join the “Night of Electronics” aboard Europe’s largest event liner, the MS RheinMagie (former MS RheinEnergy). This evening reception is the perfect opportunity to network and continue the discussions of the first congress day in a relaxed atmosphere. Meet your peers and business partners and enjoy a varied entertainment program.

Program:

- 19.00 – Boarding of the “MS RheinMagie”
- 20.00 – Opening & Dinner
- 20.00 – 22.00 Cruise across the Rhine

- 22.00 – Arrival at the jetty and possibility to disembark
- 22.00 – Opening of the dance floor (DJ Nico Jansen)
- 00.00 – End of the Night of Electronics and disembarkation from the ship



Source: Köln Düsseldorf Deutsche Rheinschiffahrt GmbH



Thursday, October 17, 2024

New York (Ground Floor)



Automotive Trend Session Digital Homologation

Moderation: Elmar Frickenstein, Elstein Consulting, Munich

08:30 Statistical Methods and Monte Carlo Simulation Ensure the Safety Case of the Environmental Sensor Performance of Level 3 Systems

- Verification of Positive Risk Balance using Monte Carlo simulation
- Factor screening to derive dominant influence factors towards sensor perception performance
- Creating Sensor Performance Models using statistical methods

Dipl.-Ing. (FH) Andreas Schleich, Development Engineer, Sensor Network, Co-Authors: Felix Modes, Moritz Werling, all of BMW Group, Unterschleißheim

09:00 The Path to Virtual Homologation

- Simulation credibility as foundation for reliable residual risk assessments
- Streamlined verification & validation strategy
- Holistic view on development processes & regulatory reporting obligations

Dr.-Ing. Christopher Wiegand, Solution Manager Homologation, Corporate Development & Strategy, dSPACE GmbH, Paderborn, Co-Authors: Dr. Andreas Amoroso, Continental Corporation, Frankfurt/Main, Dr. Simon Rößner, Siemens AG, Munich

Nairobi (Ground Floor)



Software Cloud, Connect & Rust

Moderation: Dipl.-Ing. Martin Schleicher, Continental, Erlangen

Automotive Vehicle Connectivity 2030

- Mobile communication technology
- Vehicle-to-everything technology
- Non-terrestrial-networks
- Vehicle integration

Dr.-Ing. Frerk Fitzek, Head of Connected Vehicle Onboard, Connected Company – Connected Vehicle Onboard, Co-Authors: Dr. Georg Schmitt, Dr. Michael Gruffke, all of BMW Group, Munich

LightOpen – A Cloud-Based Lighting Personalization Service

- Current & future automotive lighting trends
- UWB as an enhancer for lighting features
- Backend Cloud Services
- Personalization applications

Marc Peter, B. Sc., Project Manager, Lighting Electronics, Co-Author: Dr. Martin Pachen, both of HELLA GmbH & Co. KGaA, Lippstadt

Wien (Ground Floor)



Processes SDV

Moderation: Dr. Olaf Lüdtkke, HELLA, Lippstadt

SpecBook Copilot – Efficient Formalization of Requirements Using Artificial Intelligence in the Development of MB.OS

- Requirements for a versatile electric/electronics platform for MB.OS
- Formalization of requirements using Artificial Intelligence
- Automated generation of artifacts in the development process (test cases) & AI-Copilot for requirements engineering

Dr. Martin Obstbaum, Business Leader, Autonomous Driving, Automotive. OS, MBSE, TWT GmbH Science & Innovation, Stuttgart, **and Dipl.-Ing. Matthias Staib**, Team Lead, Powertrain Systems and Functions, Mercedes-Benz AG, Sindelfingen, Co-Authors: Dr. Michael Keckeisen, TWT GmbH, Stuttgart, Dr. Jutta Schneider, Mercedes-Benz AG, Sindelfingen

Using Simulation in the Development of V2X Applications

- Closed-loop vehicle simulation tests
- Standardized V2X communication protocols
- Relevant applications for local hazard warnings

Viktor Lizenberg, Engineer Test Systems & Engineering, IPG Automotive GmbH, Karlsruhe, Co-Authors: Jürgen Hauenstein, Matthias Mayer, both of CARIAD SE, Wolfsburg

Bangkok (Basement)



Security TARA & More

Moderation: Dr. Holger Niemann, Robert Bosch, Stuttgart

TARAs Performed on Different Levels of the Supply Chain – Experiences Based on Real Example ESLF

- Real based example to show interaction of risk assessments (TARAs)
- Cybersecurity principles to be used for system architecture level analysis
- Cybersecurity design and requirements at the software level
- Deriving cybersecurity requirements across several levels and their consistency

Dr. Thomas Liedtke, Senior Cyber Security Expert, Magility Cyber Security, Wendlingen, Co-Author: Dr. Richard Messnarz, I.S.C.N., Graz, Austria

Intrusion Tolerance and Mitigation Strategies for Future Secure Mobility

- Current AUTOSAR proposal on IDS
- Best practice on implementing IDS on a gateway ECU
- Usage of SOVD for security event evaluation
- Impact of AI-based approaches and concepts on the development of Cyber Security Controls

Dipl.-Inform. Michael Eisenbarth, Director Engineering Consulting and Services, Head of Cyber Security Center of Competence, ZF Friedrichshafen AG, Saarbrücken

Addis Abeba (Basement)



Electrification

Moderation: Dr.-Ing. Stefan Mutschler, Bosch Rexroth, Ulm

Electrification of Mobile Construction Machines – an OEM Perspective

- Battery driven mobile machines
- System architecture of mobile machines
- Possible applications for battery driven machines
- Alternative drivetrains

Dipl.-Ing. Timo Löw, Head of Engineering Systems, Engineering Systems, BOMAG GmbH, Boppard

Charging Technology for Off-Highway Applications

- Specific challenges and requirements for charging of high voltage batteries in off highway applications
- Integration of OBCs into the vehicle architecture, considering communication protocols (UDS, CAN J1939)
- Functional safety in accordance with ISO 13849
- Future trends and market drivers (Standards, V2X)

Andreas Scherzinger, B. Eng., Sales Engineer, Sales & Product Management Electrification Mobile Machines, Co-Author: Markus Helfrich, both of Bosch Rexroth AG, Ulm

09:30 **Advancing ADS Safety Argumentation: The AAI Framework Integrating ISO Standards and OMG Principles – SafeGuardian Analytic Framework (SGAF)**

- ADS safety validation, integrating ISO requirements with OMG standards
- Systematic Safety Compliance: SGAF ensures ADS compliance with ISO 26262 and ISO/PAS 21448 (SOTIF) through hazard identification, risk quantification and scenario validation
- Workflow Enhancement: Incorporating OMG standards, SGAF improves ADS design and operations

Intakhab Khan, M. Sc., Founder/CEO, Automotive Artificial Intelligence (AAI) GmbH, Berlin

Bring TSN Cloud Native Support to SDV Software Architectures

- Hardware independent TSN
- Multi-tenancy in SDV
- TSN and hypervisors
- TSN and containers

François-Frédéric Ozog, Master, Software expert, R&D, Shokubai.tech, Adainville, France

Testing Variant-Rich Software-Defined Mobility Systems – Methods, Future Challenges and Innovative Concepts

- State-of-the-Art in testing variant-rich software-defined systems and future challenges
- Innovative testing concept motivated by the shift towards DevOps
- Application of AI-assisted methods for feedback-based variant selection
- Test automation through X-in-the-loop simulation

Lennard Hettich, M. Sc., Research Assistant, Institute of Industrial Automation and Software Engineering, Co-Authors: Johannes Stümpfle, M. Sc., Prof. Dr.-Ing. Dr. h.c. Michael Weyrich, all of University of Stuttgart

Efficiency in UNECE R155 type approvals for small OEMS – Lessons Learned

- Dealing with vehicle variants efficiently
- Optimizing methodology and tooling
- Implications for OEM partners and their support and documentation
- Risk minimizing of missing the type-approval

Dr. Tobias Nilges, Senior Manager, Cyber Security, ITK Engineering GmbH, Rülzheim, and **Dipl.-Ing. Frank Langner**, Manager Functional Safety and Cyber Security, EE Architecture and Software Integration, Aston Martin Lagonda of Europe GmbH, Bietigheim-Bissingen

How to Survive in a Pure-Electric World?

- Electrification of mobile machinery
- Analysis of use-cases for electrification
- Definition of robust portfolio strategies
- Achieving profitability

Kai Krüger, Principal, Co-Authors: Dr. Michael Wittler, Daniel Becker, all of FEV Consulting GmbH, Aachen

10:00 **Panel Discussion on “Digital Homologation”**

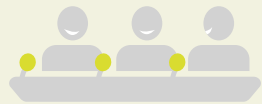
Moderation: Elmar Frickenstein, Elstein Consulting

Panelists:

Intakhab Khan, M. Sc., Automotive Artificial Intelligence

Dipl.-Ing. (FH) Andreas Schleich, BMW

Dr.-Ing. Christopher Wiegand, dSPACE



Rust Integration Based on Interoperability in Existing Software

- Embedded software complexity rises and safety and security requirements increase the cost of continuing current C/C++ embedded software development
- Rust as a programming language for more efficient software development under these requirements
- A migration path to Rust needs interoperability with existing software
- Integrating Rust with existing embedded SW via interoperability

Dr. Peter Faymonville, Senior Manager, Functional Safety, ITK Engineering GmbH, Cologne, Co-Author: Christopher Schwager, ITK Engineering GmbH, Rülzheim

Optimizing Electronics Architecture for the Deployment of Convolution Neural Networks Using System-Level Modeling

- Trade-off latency, power and cost using early simulation
- Merge Shift-Left and Shift-Right into one System-Level model
- Map applications to HPC, CPU, GPU, TPU or AI engines
- Collaboration platform between OEM, Tier 1 and Semiconductor

Deepak Shankar, BS, MS, MBA, Founder and Vice President Technology, Product Engineering, Mirabilis Design Inc., Santa Clara, USA
Co-Author: Tom Jose, BE, Mirabilis Design Inc., Chennai, India

Assess, Test, Repeat - An Iterative Approach to Automotive Cybersecurity Engineering

- Automotive Cybersecurity
 - Threat Analysis and Risk Assessment
 - Test Case Generation
 - Model-based Testing
 - Simulation Technologies
- Dipl.-Ing. Jürgen Wurzinger, MA**, Product Manager Automotive Cyber Security, Advanced Software Solutions, Co-Authors: Dipl.-Ing. Stefan Marksteiner, Harald Petschnik, all of AVL List GmbH, Graz, Austria

Flexible and Feature Driven eDrive Development

- eDrive scaling possibilities and challenges
- Feature driven Inverter development
- Solution for a flexible inverter architecture

Dipl.-Ing. Sascha Kümmel, Head of Technology, Electric drive systems, eMoveUs GmbH, Kitzingen

10:30 **Coffee Break, Exhibition and Start-up Area visit**

- 11:15 **Bridging the World of R&D and IT – from Tool Provider to Solution Architect**
- How R&D and IT change Hardware and SW development in automotive together
 - Software lifecycle management in automotive End-2-end
 - Learnings from modern software development concepts for hardware development
- Matthias Schneider**, Vice President IT RD, Security & Data, Mercedes-Benz AG, Böblingen



Software/SDV

Moderation: Stefan Singer, Renesas Electronics, Munich



Transformation of Working

Moderation: Dr. Rolf Zöllner, Porsche and Porsche Digital, Weissach



Processes/Virtual, Simulation, Requirements

Moderation: Dr. Torsten Wey, Ford-Werke, Cologne



Security/AI

Moderation: Dipl.-Ing. Henning Harbs, Volkswagen, Wolfsburg



(Smart) Sensors and Algorithms

Moderation: Dr.-Ing. Carsten Hoff, dSPACE, Paderborn

- 11:45 **Future Challenges in Virtual Integration & Testing**
- External influences and challenges on virtual integration and testing
 - Central worldwide virtual integration and testing network
 - Continuous integration, testing and delivery at whole vehicle level
 - Transformation as a chance – our future in virtual integration and testing



Dr.-Ing. Mirko Nentwig, Head of Virtualization, Maturity Level Architecture Electrics/Electronics, Co-Author: Matthias Obermeier, B. Eng., AUDI AG, Ingolstadt

Keynote

- Industry Transformation Adapting to Win**
- Transformation to achieve SDV
 - Culture Transformation
 - Business Model Transformation
- Joachim Langenwalter**, Senior Advisor, TMT CoPilots, Munich

- Dead at 100ms: Responsive Functions Require Well-Designed Event Chains and Excellent Timing Requirements**
- Event Chains & E2E data flows to focus on the end customers
 - Timing requirements on multiple architecture levels for clear responsibilities
 - Method, process integration, tools to boost development efficiency
 - Improvements to team collaboration introduces the fun factor
- Dipl.-Inf. Olaf Schmidt**, Solution Manager, Co-Authors: Dr. Ralf Münzenberger, both of INCHRON AG, Erlangen, Matthias Glück, Volkswagen AG, Wolfsburg

- Navigating the Future: AI's Drive for Smarter & Safer Fleets**
- How AI can be used to identify irregularities in fleet security
 - Large Language Models (LLMs) and how they can enhance the interaction between fleet management systems and users
 - How to choose the best method for anomaly detection (e.g., recall, precision, F1)
- Eng. Moshe Kassirer**, Product Manager, Argus Cyber Security, Ramat Gan, Israel

- Breakthrough in the Development of Automation Functions**
- 4D point cloud – how radar technology is advancing machine automation
 - Comparison to LiDAR sensor technologies
 - Use case specific interpretation of the radar based point cloud
 - Radar SLAM example application
- Manuel Weste-Zehetmair, B. Eng.**, Product Manager Surround Sensing Off-Highway, Off-Highway, Bosch Engineering GmbH, Holzkirchen

- 12:15 **Has the Holy Grail Been Found? Using Linux for Safety-Related Applications**
- Open Source software promises faster development and easier collaboration for Software Defined Vehicles
 - Open Source software: Hard to use in safety-related functions
- Dr. Moritz Neukirchner**, Senior Director, Strategic Product Management SDV, Elektrobit Automotive GmbH, Erlangen

- Collaborate with Chinese Partners to Navigate the SDV Transformation**
- The increasing complexity of SDV is reshaping innovation culture and operational paradigms
 - China's experience and innovation dynamics as an early entrant
 - The evolving win-win collaboration models with Chinese partners
- Dr. Angela Wang**, Senior Vice President & Chief Investment Officer of Neusoft Corporation President of Neusoft Europe, Shenyang, China

- From Reality to Simulation: Automated Transfer and Simulation of Critical Driving Scenarios with Digital Twins**
- Automatic pipeline transferring real-world scenarios into simulations
 - Application for the virtual validation of automated driving functions
 - Enables one-to-one resimulation and variations
 - Use of standardized formats and interfaces
- Nicole Neis, M. Sc.**, PhD Candidate, Simulation Department, and **Leon Eisemann, M. Eng.**, PhD Candidate, Artificial Intelligence & Big Data Department, Co-Authors: David Hermann, Jingxing Zhou, all of Porsche Engineering Services GmbH, Bietigheim-Bissingen

- Recommendations for the Practical Use of Ethernet Security-Protocols and Beyond**
- Automotive Use Cases for Different Ethernet Security-Protocols
 - Practical challenges during commissioning and using the protocols
 - Recommendations of when an adequate risk mitigation is achieved
 - Performance comparison for the different implementation options
- Dipl.-Ing. Sven Schran**, Product Manager Automotive Product Security, and **Ramona Jung, M.Sc.**, Senior Consultant Automotive Security, both of Solution Field Vehicle Operating Systems, Co-Authors: Arup Mukherji, all of ETAS GmbH, Stuttgart, Jothivel Rajendran, Bosch Global Software Technologies Ltd., Bengaluru, India

- Butterfly Mower Maps Weed with AI/Tensorflow**
- AI based detection of weed plant
 - Generate application map with weed location
 - Support for further field applications
- Dipl.-Ing. Florian Ott**, System Engineer, GEE Electronic Development, CLAAS Salgau GmbH, Bad Saulgau



12:45 **The Roadmap for Software Defined Vehicles and Disruptive Technologies**

- "SDV" – Its nature, impact and collaborative potential for tool vendors
- Technical Strategies to address current inefficiencies
- Enhance software value with model-based approaches for cohesive systems and software engineering evolution
- Role of disruptive technologies



Jim Tung, MathWorks Fellow, MathWorks, Natick, USA



Flexible Performance Organization in an Uncertain Environment

- Centralized architecture, BEV & H2 vehicles, autonomous trucks, Software Defined Vehicle
- What is the right form of a large organization?
- SAFe as base – moving into a lean agile large organization
- Experience report of this new way of working after 2 years

Dipl.-Ing. Stefan Teuchert, Global Head EE/autonomous/software, TRATON Group R&D TREAS – Traton electric electronics autonomous and software, TRATON SE, Munich

A New Era for Software Verification: Heterogeneous Multicore Compute with Model Based Design & Virtual ECUs

- Shifting left software development for Software Defined Vehicles
- Managing the complexity of leading edge heterogeneous compute based ECUs

Efficiencies in Model Based Design and Code Generation
Freeing the development flow from hardware dependencies

Kevin Brand, Senior Architect, Systems Design Group, Synopsys, Sydney, Australia, **and Dr. Tito Tang**, Senior Application Engineer, Application Engineering, MATHWORKS, Munich, Co-Author: Dineshkumar Selvaraj, Infineon, Bangalore, India

Contribution of AI in Automotive Cyber Security Management System

- AI-powered cyber security management system for monitoring and defending against cyber attacks
- "Malicious" Generative AI to detect unknown insecure attack vectors
- Continuous protection against ever-evolving attack vectors

Dr.-Ing. Ugur Akcakoca, Head of Department, ES² – Embedded Safety & Security, EDAG Engineering GmbH, Ingolstadt

Innovative Environment Perception Solutions – Key Steps on the Path to Safe Mobile Machines Automation

- Multi sensing technology based environment perception functions
- Sensor fusion, comprehensive environment model
- Advanced Driver Assistance system & Autonomous driving
- Non automotive mobile machines applications (Agriculture, Mining, Construction, etc.)

Yannick Frisoni, M. Eng., Senior Business Development Manager, Driver Assistance & Autonomous Driving Segment, Continental Automotive France SAS, Toulouse, France, Co-Authors: Alexander Stoff, Continental Engineering Services GmbH, Frankfurt/Main, Bertrand Godreau, Continental Automotive France SAS, Toulouse, France

13:15 Lunch, Exhibition and Start-up Area visit

Plenary Speeches and Award Ceremony – New York (Ground Floor)

Moderation: **Dr. Rolf Zöller**, Porsche AG and Porsche Digital, Weissach

14:30 **Why Autonomy, Why Now?**

- Necessary Technologies
- Application Feasibility
- Customer Reactions & Benefit
- The future, now, or both?



Jahmy Hindman, Ph.D., Senior Vice President & Chief Technology Officer, Engineering & Technology, John Deere, Moline, USA

15:00 **How to Increase Efficiency and Reduce Time2Market Leveraging SDV**



Gilles Mabire, CTO – Continental Automotive, Software and Central Technologies, Continental Automotive Technologies GmbH, Frankfurt/Main

15:30 **Conclusion of the Congress**

Management Summary of the Sessions: The most important take-aways presented by members of the Program Committee

16:00 **Award Ceremony "Auto Electronic Excellence Award 2024" and "Best Start-up"**

16:15 **End of the Congress**



Lightning Talks – Two-Minute Pitches on the Main Stage

ELIV 2024 is shaking things up with Lightning Talks! Secure your spot for a rapid-fire two-minute pitch in front of the entire audience. Got an innovative idea, product, or insight in automotive electronics, software, or applications? Here's your moment to shine at ELIV. We're especially eager to hear from young professionals, students and top innovators.

- Deadline Call for Lightning Talks: August 30, 2024 (the first deadline has already expired in June 2024)
- Notification shortly after deadline
- Submit your pitch idea by August 30, but be warned, spots are limited for the latter
- Presenters will be charged 50 % of the congress ticket price
- Send your idea to annick.braun@vdi.de
- Your proposal should include the title, a brief description of your pitch and speaker details including age. Please limit yourself to a maximum of 500 characters



NextGen



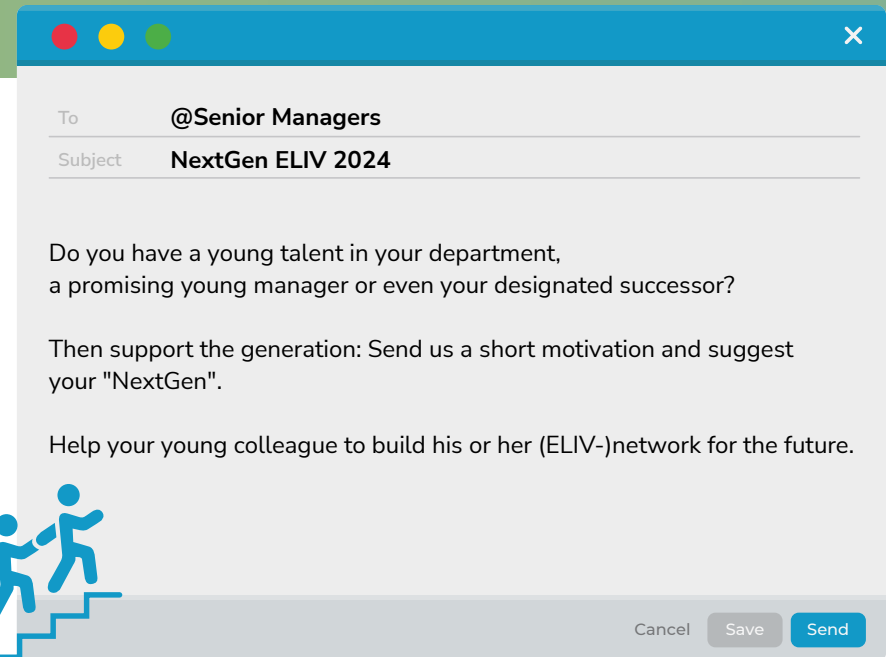
NextGen Program

The NextGen program is designed to support future decision-makers and give them the opportunity to build the network for tomorrow today.

The program not only offers participation in the regular congress, but also includes a tailor-made supporting program which is specially created to meet the needs and interests of young professionals. In addition to attending the presentations, there will be numerous opportunities to exchange ideas and network with top experts and other motivated young professionals.

Young talents who are no older than 35 and already working in the field of automotive electronics and software can take part. Registration for the NextGen program is only possible via the senior manager with a corresponding recommendation.

Further information on the NextGen program can be found on our website at www.eliv-congress.com.



Book separately!

Tuesday, October 15, 2024

Artificial Intelligence in Test Data Analysis

Top topics

- Understand the basics of machine learning (ML) on unstructured data.
- Get to know applications of ML in the field of test data analysis.
- Experience and understand basic algorithms and training strategies in the field of deep learning.
- Get to know best practices for the successful application of ML in own workflows for test data analysis.
- Successfully design their own use cases with the Value Proposition Canvas and the Industrial AI Canvas.

Objective

The aim of this workshop is to teach the basics of using machine learning methods to analyze test data. In terms of methodology, the focus is on deep learning methods for processing acoustic data, time series, images and documents. Example applications considered include automated evaluation, assisted root cause analysis and intelligent test planning.

Methods for efficiently designing your own use cases will be practiced in interactive sessions. Specific best practices for the use of current software tools for data management, ML algorithms and data visualization will also be demonstrated. In this way, the content covered can be applied directly in everyday practice.

Content of this workshop

1. Introduction:
 - a. Basics of machine learning and differentiation from other methods in the field of artificial intelligence
 - b. Keynote speech on example applications in test data analysis
2. Definition of use cases with the value proposition canvas
 - a. Collection of use cases from the participants' working environment
 - b. Presentation of the Value Proposition Canvas
 - c. Interactive session: Elaboration of selected use cases with the Value Proposition Canvas
3. Technical basics of ML-based test data analysis
 - a. Convolutional Neural Networks (CNN) and Transformer
 - b. Supervised learning, self-supervised learning and anomaly detection
 - c. Retrieval augmented generation and agent-based systems
 - d. Hands-on tutorial: Testing data assistant
4. Applications and best practices
 - a. Keynote speech: Case study "Automated evaluation of acoustic data with ML"
 - b. Presentation of Industrial AI Canvas
 - c. Interactive session: Elaboration of selected use cases with the Industrial AI Canvas
 - d. Lessons learned: The path to the successful introduction of ML systems in test data analysis

Who is the target group of this workshop?

This workshop is aimed at test engineers and project managers with an interest in machine learning methods.

Date and venue:

Tuesday, October 15, 2024
09.00 - 17.00
Dorint Hotel Bonn, Germany

Workshop Chair:

Dr. Stefan Suwelack,
CEO, Renumics GmbH, Karlsruhe

Stefan Suwelack studied at TU Darmstadt and Heriot-Watt University in Edinburgh and completed his doctorate at the Karlsruhe Institute of Technology (KIT) on the topic of "Real-time biomechanical modeling for intraoperative soft tissue registration". From 2008 to 2016, he worked as a research assistant at the Institute of Anthropomatics and Robotics in the field of numerical simulation and machine learning at KIT. He is co-founder and CEO of Renumics, a company founded in 2016.

The workshop will be held in
English language!



Register at:

www.vdi-wissensforum.de/01ST104

List of Exhibitors (June 11, 2024)

Akkodis Germany Consulting GmbH	GLIWA GmbH & Co. KG
Apex.AI GmbH	Golden Devices GmbH
ASAP Group	Göpel electronic GmbH
Aurora Labs	Green Hills Software GmbH
Autocrypt Co., Ltd.	Hamamatsu Photonics Deutschland GmbH
Avelabs	Hashlist
Bertrandt AG	ISCUE GmbH & Co. KG
Bourns Electronics GmbH	ITK Engineering GmbH
Code Intelligence GmbH	Jama Software
Cognizant Mobility GmbH	KPIT Technologies GmbH
Continental Engineering Services GmbH	MathWorks
CTAG Centro Tecnológico de Automoción de Galicia	MicroNova AG
Digitalwerk GmbH	Minerva Systems SRL
dissecto GmbH	Mirabilis Design Inc.
DRIMCO GmbH	Mitsubishi Electric Europe B.V.
dSPACE GmbH	MOXZ GmbH
EDAG Engineering GmbH	Neuman Aluminium Fließpresswerk GmbH
ETAS GmbH	Neusoft Technology Solutions GmbH
EVorkshop Sp. z o.o.	ONEKEY GmbH
FERCHAU Automotive GmbH	Qorix GmbH
FEV.io	Sleeve GmbH
Filancore GmbH	Sonatus
	Spleenlab AI

STMicroelectronics International NV
SynSpace Group GmbH
Tata Technologies GmbH
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If you are interested, get in touch with:

Jasmin Habel – Project Consultant

Phone: +49 211 6214-213

E-Mail: jasmin.habel@vdi.de



Start-up Area

ELIV offers young companies the opportunity of presenting their latest developments and products in automotive electronics in the Start-up Area. Get the chance to meet the exclusive, international group of participants consisting of decision-makers and specialists from vehicle manufacturers, suppliers, and service providers as well as representatives from universities! In addition to a full-service package with a 4 sqm booth space in the Start-up Area, a presentation slot on the Start-up Stage is also included.

Interested in taking part?

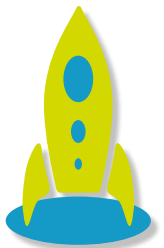
To apply, request the registration documents for the Start-up Area. We are happy to provide assistance and further information:

Elena Langenfels
Project Consultant
Exhibition & Sponsorship
Phone: +49 211 6214-8662
Mail: langenfels@vdi.de

The program of the Start-up Stage is expected to be published in mid-August. You can look forward to exciting presentations. More info at: www.eliv-congress.com/exhibition-and-sponsoring/start-ups/

See who is already participating in the Start-up Area:

DRIMCO GmbH | EVorkshop Sp. z o.o. | Filancore GmbH | Golden Devices GmbH | Hashlist | Minerva Systems SRL | MOXZ GmbH | ONEKEY GmbH | Sleeve GmbH | VxLabs GmbH



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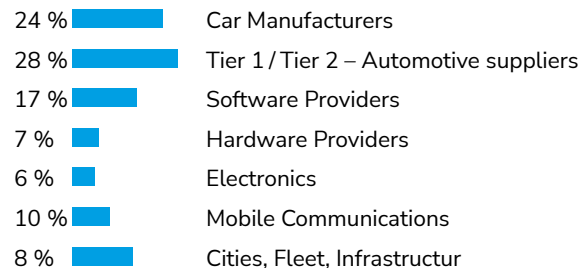


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