EUROPE ELIV

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

21st International Congress and Exhibition

October 18-19, 2023, Bonn, Germany

Top Speakers:

Kai Lars Barbehön, BMW
Dr. Frank Kindermann, NIO
Magnus Östberg, Mercedes-Benz
Mathias Pillin, Bosch
Igal Raichelgauz, Autobrains
Vishnu Gurusamy Sundaram, Stellantis
Dr.-Ing. Yankin Tanurhan, Synopsys
Dominik Wee, Microsoft
Dr. Rolf Zöller, Porsche & Porsche Digital

Main Topics:

- Open Source Software
- Software Technologies
- E/E-Architecture
- Automotive AI
- Automated Driving
- Security
- Electronics Technology
- E-Vehicle Mobility
- System Engineering and Processes

www.eliv-congress.com

Congress Highlights:

- **Automotive Trend Session: Open Source**
- **Panel Discussion: Transformation of Working Environment**
- **Parallel Conference E/E Commercial Vehicles**
- **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 18, 2023

07:45 Registration

Plenary Speeches – New York (Ground Floor)
Moderation: **Dr. Rolf Zöller,** Porsche AG und Porsche Digital, Weissach

08:45 Opening of the Congress, Current Market Situation & Hour of Topical Interest
Dr. Rolf Zöller, Director E/E Smart Connected Vehicle **Porsche AG** and Managing Director Porsche Digital, Chairman of the Program Committee and **Dr. Karl-Thomas Neumann,** former CEO of Continental AG, Volkswagen China and Adam Opel GmbH, Founder & Owner

09:10 Transforming the Future of Mobility with the Power of AI and the Cloud
Dominik Wee, Corporate Vice President – Manufacturing & Mobility, Sales, Business Strategy & Development, **Microsoft Corporation,** Munich

09:40 NIO – Smart Electric Vehicles and Battery Swapping
Dr. Frank Kindermann, Head of Battery System Europe, **NIO GmbH,** Munich

10:10 Re-Thinking E/E Architecture Design – A More Comprehensive Approach to Solve Future Challenges
Dipl.-Ing. Kai Lars Barbehön, Vice President Central Control Units, Wire Harness, Power Supply, **BMW Group,** Munich

10:40 Coffee break, Exhibition and Start-up Area visit

11:25 Parallel Sessions

Parallel Conference: Electric/Electronics for Commercial Vehicles 2023

Session 1: New York (Ground Floor)	Session 2: Nairobi (Ground Floor)	Session 3: Wien (Ground Floor)	Session 4: Bangkok (Basement)	Conference CV: Addis Abeba (Basement)
Software – Open Source Moderation: Dipl.-Ing. Uwe Michael, mps, Rödermark	**Automated Driving – Systems** Moderation: Dr. Torsten Wey, Ford, Cologne	**Electronics Technology** Moderation: Ralf Lenninger, Former Continental, Regensburg	**E-Vehicle Mobility – System** Moderation: Dr.-Ing. Dieter Rödder, Robert Bosch, Stuttgart	**Future of Transportation** Moderation: Jörg Lützner, Continental Automotive GmbH, Schwalbach

12:55 Lunch break, Exhibition and Start-up Area visit

14:25 Parallel Sessions

Software – Automotive Trend Session – Open Source Moderation: Dipl.-Inf. Elmar Fricken-stein, Elstein Consulting & former BMW AG, Munich	**Automated Driving – Sensors** Moderation: Jürgen Bortolazzi, Porsche AG, Weissach	**E-Vehicle architecture – Strategy** Moderation: Dr. Jutta Schneider, Mercedes-Benz, Sindelfingen	**E-Vehicle Mobility – Components** Moderation: Dipl.-Ing. Christof Kellerwessel, former Ford, Cologne	**Architecture & Software**

16:25 Coffee break, Exhibition and Start-up Area visit

17:10 Parallel Sessions

Software Moderation: Kai-Uwe Balszuweit, BMW Group, Munich	**Automotive AI – Innovations** Moderation: Joachim Langenwalter, Autobrains AI Technologies, Berlin	**E-Vehicle architecture – Aspects** Moderation: Dipl.-Ing. Stefan Teuchert, MAN Truck & Bus, Munich	**Connectivity** Moderation: Dr.-Ing. Michael Winkler, HELLA Fahrzeug-komponenten, Bremen	**Autonomous Driving**

18:40 End of the first Congress Day

19:00 Night of Electronics at the MS RheinEnergie
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 19, 2023

08:30 Parallel Sessions

Session 1: New York (Ground Floor)	Session 2: Nairobi (Ground Floor)	Session 3: Wien (Ground Floor)	Session 4: Bangkok (Basement)	Conference CV: Addis Abeba (Basement)
Software Moderation: Dr. Riclef Schmidt-Clausen, CARIAD SE, Ingolstadt	**Automotive AI – Applications** Moderation: Kay Talmi, HELLA GmbH & Co. KGaA, Berlin	**System Engineering and Processes**	**Security - Vulnerabilities** Moderation: Dipl.-Ing. Martin Schleicher, Continental, Erlangen	**Propulsion** Moderation: Dipl.-Ing. (FH) Stefan Riegl, MAN Truck & Bus SE, Munich

10:00 MB.OS – Our Chip-to-Cloud Architecture for a Luxury Experience
Magnus Östberg, Chief Software Officer – Executive Vice President, Research & Development, **Mercedes-Benz AG,** Sindelfingen

10:30 Always Fresh Cockpit Experience Built on Cloud Native Technology
Vishnu Gurusamy Sundaram, M. Sc., Senior Vice President, Cockpit, Mobile and Apps, **Stellantis,** Auburn Hills, MI, USA

11:00 Coffee break, Exhibition and Start-up Area visit

11:45 Parallel Sessions

Session 1: New York (Ground Floor)	Session 2: Nairobi (Ground Floor)	Session 3: Wien (Ground Floor)	Session 4: Bangkok (Basement)	Conference CV: Addis Abeba (Basement)
Panel Discussion: Transformation of working environment	**Software – Cloud & Data** Moderation: Dipl.-Ing. Stefan Singer	**System Engineering and Processes** Moderation: Dr.-Ing. Dieter Rödder, Robert Bosch, Stuttgart	**Security – Challenges** Moderation: Dipl.-Ing. Henning Harbs, Volkswagen AG, Wolfsburg	**Components, Subsystems & Integration** Moderation: Dr. Falk Hecker, Knorr-Bremse Systeme fuer Nutzfahrzeuge GmbH, Schwieberdingen

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

Plenary Speeches and Award Ceremony – New York (Ground Floor)
Moderation: **Dr. Rolf Zöller,** Porsche AG und Porsche Digital, Weissach

14:30 Liquid AI – Closing the Gaps toward Autonomous Driving
Igal Raichelgauz, B. Sc., Founder & CEO, **Autobrains Technologies Ltd.,** Tel Aviv-Yafo, Israel

15:00 Semiconductors Are Driving Sensing and Thinking
Dr.-Ing. Yankin Tanurhan, Senior Vice President of Engineering, Solutions Group, **Synopsys, Inc.,** Sunnyvale, CA, USA

15:30 Conclusion and Discussion
By Members of the Program Committee

16:00 Award Ceremony “Auto Electronic Excellence Award 2023”, best Start-up and Closing of the Congress

16:15 End of the Congress

1st Congress Day

Wednesday, October 18, 2023

07:45 Registration

Plenary Speeches – New York (Ground Floor)
Moderation: **Dr. Rolf Zöller,** Porsche AG und Porsche Digital, Weissach

08:45 Opening of the Congress, Current Market Situation & Hour of Topical Interest
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09:10 Transforming the Future of Mobility with the Power of AI and the Cloud
- Unlocking new business models, increasing efficiencies, creating new monetization opportunities using the power of AI and cloud computing
- Accelerating innovation in the software-defined and autonomous vehicle space
- Opening up new opportunities with the industrial metaverse

Dominik Wee, Corporate Vice President – Manufacturing & Mobility, Sales, Business Strategy & Development, Microsoft Corporation, Munich

09:40 NIO – Smart Electric Vehicles and Battery Swapping – Smart EVs: next generation of BEV
- Battery Swapping: fully recharged within less than 5 minutes
- User Centric: aiming for the highest User satisfaction
- Driven by Design: a premium car

Dr. Frank Kindermann, Head of Battery System Europe, NIO GmbH, Munich

10:10 Re-Thinking E/E Architecture Design – A More Comprehensive Approach to Solve Future Challenges
- Automotive E/E architectures are significantly shaped by the top trends of digitalization
- Today's prevailing domain oriented E/E architectures result in hardly manageable functional interdependencies
- Zonal physical electrical power system architectures in combination with high-performance integration platforms will lead into the future
- Why and how BMW derives the central E/E infrastructure for the BMW NEW CLASS from a new, holistic E/E architecture approach

Dipl.-Ing. Kai Lars Barbehön, Vice President Central Control Units, Wire Harness, Power Supply, BMW Group, Munich

10:40 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 at 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
- General event information
- Evaluation and question function
- Exhibition information
- Service information
- Networking:
  - Digital Business Card: create your Digital Business Card. Share your data quickly and easily with other participants and save new contacts directly
  - Use the "Offer" and "Search" function to find and contact other participants
  - Meeting Arrangement: request appointments with other participants

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New York (Ground Floor)

Software – Open Source

Moderation: Dipl.-Ing. Uwe Michael, mps, Rödermark

11:25

11:25
Why Open Source – A New Generation Perspective

Patrick Böder, Senior Software Engineer and Open Source, Porsche Digital, Ludwigsburg

11:35
The Open Road Runs on Open Source

- Vision of software-defined vehicle requires accelerated pace of innovation
- Open source has been a driver of innovation in multiple industries
- Key success factors include open collaboration with ecosystem, a cloud-native and consistent platform and a functional safety certified base layer infrastructure
- Practicable solution must cover these success factors over entire vehicle life cycle (design to testing/ manufacturing to upgrades and maintenance)

Francis Chow, VP & GM, In-vehicle Operating System and Edge, Red Hat, Inc., Sunnyvale, CA, USA

11:55

AUTOSAR Software Architecture – A Cornerstone for Software Defined Vehicles and the Future of Mobility

- Strategic Vision
- Cooperations with other consortia
- Vehicle API approach

Dr.-Ing. Peter Redlich, EU Chief Architecture & Software, Product Development, Ford Werke GmbH, Cologne and **Dr. Eduard Metzker,** Manager for strategic technical cooperations, Products Embedded Software, Vector Informatik GmbH, Stuttgart

Nairobi (Ground Floor)

Automated Driving – Systems

Moderation: Dr. Torsten Wey, Ford, Cologne

Criticality Driven Data Acquisition in Autonomous Driving – A Basis for Completeness and Safety Argumentation

- Method developed in VVMethods
- Basis for ISO21448 SOTIF validation
- Efficient data acquisition in automated driving
- Smart Data analytics in automated driving

Dipl.-Ing. (FH) Max Nestoriuc, Teamleader ADAS Systemdesign & Validation, Co-authors: Himanshu Walia, M. Sc., both of AVL Deutschland GmbH, Stuttgart, Dipl.-Ing. Thomas Guntschnig, AVL List Gmbh, Graz, Austria

Vehicle-to-Vehicle (V2V) Communication as Enabler for Improved Automated Driving Functions

- Connection to EU-funded project
- Description of the enabler
- Description of use case and its test and verification

Markus Kremer, System Architect ADAS/AD, FEV.io GmbH, Aachen

Wien (Ground Floor)

Electronics Technology

Moderation: Ralf Lenninger, Former Continental, Regensburg

Estimation of Body Height, Weight, and Gender of Vehicle Occupants Using Machine Learning

- Deep Learning
- Vehicle Occupant Monitoring
- Feature Estimation

Patrick Laufer, M. Sc., Development Engineer, Vehicle Safety, IAV Fahrzeugsicherheit GmbH & Co. KG, Munich

Active Noise Control: Helping Carmakers Design Better Cars

- Overview of Road Noise Control technology
- Vehicle Design Compromises-cost, mass, complexity, ride quality, noise quality
- Analysis of selected mechanical versus electronic noise control problems
- Summary of RNC advantages for carmakers

Dr. John Feng, Head of Active Sound Management, Automotive Division, Bose Corporation, Framingham, MA, USA

Bangkok (Basement)

E Vehicle Mobility – System

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

A Holistic Approach for Designing a Battery Electric Vehicle Thermal Management System

- Virtual testing of entire vehicle in a single simulation environment
- Explore design space to refine component and system requirements
- Develop an electrothermal model of battery pack capturing individual cell behavior
- Assess impact of powertrain and cooling system designs on overall performance

Steve Miller, M. Sc., Product Manager Simscape Product Family, Technical Marketing, Co-author: Lorenzo Nicoletti, M. Sc., both of The MathWorks GmbH, Munich

Safe and Efficient Regenerative Braking Strategies for Heavy BEVs

- Regenerative braking of heavy articulated vehicles
- Model based brake force limitation
- Wheel Slip Control

Leon Henderson, PhD, Function Developer, Vehicle Motion Management, Co-authors: Daniel Möller, Maliheh Sadeghi Kati, all of Volvo GTT, Gothenburg, Sweden

Conference CV: Addis Abeba (Basement)

Future of Transportation

Moderation: Jörg Lützner, Continental Automotive GmbH, Schwalbach

Welcome to the Era of Logistics – Insights into Trends That Will Shape the Future

- Megatrends shaping the needs of societies and industries and the supply chains that serve them
- Navigating the future: The DHL Logistics Trends Radar - what it is, why it matters and how it supports innovation
- The DHL customer-centric innovation approach and ecosystem
- Use case examples, ideas for innovation and implementation leveraging technology as well as business & social trends

Dr. Klaus Dohrmann, Vice President, Head of Innovation & Trend Research, DHL, Troisdorf

UNICARagil – Rethinking Architectures for Fully Automated and Driverless Vehicles

- Automated Driving
- E/E Architecture
- Service Oriented Software Architecture
- Technical Supervision and Cloud Connectivity

Timo Woopen, M. Sc., Manager, Research Area Vehicle Intelligence & Automated Driving, Co-authors: Raphael van Kempen, M. Sc., Univ.-Prof. Dr.-Ing. Lutz Eckstein, all of RWTH Aachen University

12:25 **12:15**

Accelerating Software Defined Vehicles through Open Source Software

- Advantages of open source software for software-defined vehicles
- Overview of Automotive Grade Linux, an open source platform supported by 150+ members
- Production use cases for open source infotainment

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

12:35

Overview funding projects in the context of Automotive Open Source

Prof. Dr.-Ing. Habil. Alois Knoll, Chair of Robotic, Artificial Intelligence and Embedded Systems, Technical University of Munich

Technological Innovations Enabling the Scalable Deployment of Autonomous Driving for Heavy Trucks

- How autonomy will transform the trucking industry
- Market opportunity for highly automated driving (HAD) products
- Plus's case study of building and commercializing high-performance modular autonomous driving software solutions that are affordable and scalable across vehicle types and applications
- Plus's state-of-art data-driven system for continuous learning with minimal human intervention

Anurag Ganguli, PhD, Vice President of R&D, Plus, Santa Clara, CA, USA

New Opportunities with Software-Defined Lighting – Personalization and Emotionalization of Vehicle

- Software Defined Lighting
- Established signal functions in a new appearance
- Experience the vehicle by light
- EE architecture for Software Defined Lighting

Dr. Carsten Wilks, Head of Innovation Lighting Electronics, Co-authors: Dr. J. Roslak, both of Hella KGaA Hueck & Co., Lippstadt

A Cloud-based Self-Learning Digital Twin Solution for Increasingly Accurate Range Prediction in Battery Electric Vehicles

- Data-driven function development
- Framework for self-learning data-driven digital twin model
- Load profile prediction based on destination forecast, vehicle resistance information and speed profile prediction

Dr.-Ing. Marius Wegener, Team Leader Controls, E-Mobility Systems, Co-authors: Dr.-Ing., Rene, Savelsberg, both of FEV Europe GmbH, Aachen, Lukas Schäfers, M. Sc., RWTH Aachen University

Bulli, Pick Me Up: Continuous Testing as a Key for Developing a Robot-Taxi-System

- Autonomous vehicles, MaaS, TaaS, robot cab
- Continuous Integration/Continuous Deployment
- Software Integration
- Testing & simulation of automated vehicles

Dr.-Ing. Christian Rösener, Head of Integration & Verification, Autonomous Driving, MaaS, TaaS, Volkswagen AG, Wolfsburg

12:55 **Lunch break, Exhibition and Start-up Area visit**

Software – Automotive Trend Session – Open Source

Moderation: Dipl.-Inf. Elmar Frickenstein, Elstein Consulting & former BMW AG, Munich

Automated Driving – Sensors

Moderation: Jürgen Bortolazzi, Porsche AG, Weissach

Vehicle Architecture – Strategy

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

E Vehicle Mobility – Components

Moderation: Dipl.-Ing. Christof Kellerwessel, Former Ford, Cologne

Architecture & Software

14:25 ### Building an Open-Source Ecosystem for Software-defined Vehicles – The Good, The Bad, and the Ugly

- Perspective on Software-defined Vehicle from a non-automotive company
- Current state of Open Source Software
- Challenges of building an Open Source Ecosystem
- Eclipse Software-defined Vehicle: Overview & Current Status
- Success factors from a Microsoft perspective

Boris Engel, Program Director Automotive, Microsoft Corporation, Munich

Using Radar + Vision Fusion for Improved Low-light Pedestrian Detection

- Combining vision and radar in difficult situations to securely detect pedestrians
- Overall architecture and distribution between edge and central compute for high compute efficiency
- Using multi-static radar operation for highest point cloud density
- Showcase pedestrian and bicycle detection in real traffic situations

Dr. Peter Gulden, SVP of Radar Systems and Software, Co-author: Dr. Zorawar Bassi, both of indie Semiconductor, San Jose, CA, USA

Scalable Plug & Play High-Performance Computer and Fluid Cooling Solutions

- Flexible and scalable High-Performance Computer concept for any vehicle architectures
- Innovative "plug & play" fluid cooling solution for zero gap heat transfer
- Flexible cooling pad allows a maximum of flexibility for OEMs

Dipl.-Ing. Andreas Heise, Head of ADCU Technology, Principal Expert Mechatrlvoonic Technologies, Continental AG, Eschborn

How to Improve EV Battery Cell Quality

- Identify key challenges and industry trends for battery cell production.
- Learn about cutting edge test and inspection techniques (EIS, ACIR, scientific machine learning).
- Get insights to optimize cell testing during production to improve yield, quality, and throughput.
- Hear about today's industry use cases such as the Battery Innovation Center

Davide Cotterle, Senior Application Engineer, Transportation Business Unit, NI (National Instruments), Munich

SAE J1939 in AUTOSAR – CAN FD and CAN XL

- Realizing J1939-22 in AUTOSAR
- Higher transmission rates with CAN FD (J1939-22)
- Usage of the Multi-PG concept
- Outlook on J1939 with CAN XL

Timo Schwendner, Solution Manager J1939, Productline Embedded Software and Systems, Co-author: Martin Schlodder, both of Vector Informatik GmbH, Stuttgart

14:55 **14:45**

Eclipse SDV: Chances and Challenges of Collaboration in the Open

- Collaboration on implementation
- The advantages of Open Source in the automotive industry
- Jointly building a platform with scale
- How Open Source can help to attract developers

Michael Plagge, Vice President Ecosystem Development, Eclipse Foundation AISBL, Brussels, Belgium

15:05

Robert Day, Director, Autonomous Vehicles, Arm, San José, CA, USA

Automotive Radar Technology Innovations Power Next-gen ADAS and Autonomous Driving

- 28nm RFCMOS single-chip Radar integration
- High-resolution 4D Imaging Radar technology
- Next-generation vehicle architectures – enabling new Radar capabilities

Matthias Feulner, Senior Director Marketing, ADAS, NXP Semiconductors Germany GmbH, Munich

Strategically Migrating, Mapping and Scaling Software to New SoC, Domain & Zone Architectures and HPC

- Timing, Performance and Event Chains
- Mapping & software to new hardware
- Exploring architecture variants

Dr. Ralf Münzenberger, CEO, Co-author: Olaf Schmidt, both of INCHRON AG, Erlangen

Analysis of WBG Based Hybrid Semiconductors Approach for Bidirectional PFC in On-Board Charger Applications

- On board charger
- Wide band gap devices
- PFC
- Car electrification

Dr.-Ing. Domenico Nardo, Power Specialist for automotive applications, Technical Marketing, Co-authors: Francesco Gennaro, Giuseppe Aiello, all of STMicroelectronics GmbH, Aschheim

Event-Chain-Focused Development of System Architectures Makes Complex Systems Manageable

- End-to-end validation of real-time requirements in vehicle systems
- Event chain analysis for higher-level timing requirements
- Early error detection improves project planning security
- Development productivity can be significantly increased

Dipl.-Ing. Ferry Kraft, Function Architect, R&D Electric/Electronic, MAN Truck & Bus SE, Munich and **Dipl.-Ing. Florian Mayer,** Project Manager, Professional Services, Co-authors: Jan Apelt, Dr.-Ing. Ralf Münzenberger, all of INCHRON AG, Erlangen, Christian Winkler, MAN Truck & Bus SE, Munich

15:25 **An OEM Perspective of Open Source – Slot Reserved for BMW**

Combining SD Maps and ADAS Perception for Advanced Augmented Reality Guidance

- Overall In-car Augmented Reality Architecture
- Using Navigation and ADAS Perception input for Augmented Reality
- Situation Analysis
- 3D Scene Creation

Dr. Martin Pfeifle, CTO, NNG Kft., Budapest, Hungary, Co-authors: Prof. Dr.-Ing. Niclas Zeller, Hochschule Karlsruhe, Dr. Andreas vom Felde, StradVision, Munich

Towards the Next Step in Vehicle E/E Architectures

- Path towards future software-defined vehicle E/E architectures
- Technology enablers such as cross-domain integration platforms
- Focus on cost-efficient and salable solutions shaping future E/E designs

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

Power Electronic System Technology for Future High-Power Charging Systems on Highways or Large Inner-City Electric Charging Stations with Several MVA System Size

- System Topology
- Power Electronics
- Design
- Measurement Results

Dipl.-Ing. Andreas Hensel, Head of Group, Power Electronics and Grids, Co-author: Dipl.-Ing. David Derix, both of Fraunhofer ISE, Freiburg

How Data-Driven Approaches Enhance Agile and Quality-Assured Software Development for Automated Driving

- Data collection and management
- Data virtualization for digital twin creation
- Different Use-Cases for Data-Driven Software Development
- Processes/Methods/Tools Enabling Agile and Quality-Assured Software Development

Dipl.-Ing. Klaus Fuchs, Senior Product Manager, ADAS/AD, AVL Software and Functions GmbH, Regensburg and **Dipl.-Ing. Gernot Hasenbichler,** Senior Product Manager, ADAS/AD, AVL List GmbH, Graz, Austria

15:55 **15:45**
Panel Discussion on "Open source"

Moderation: **Elmar Frickenstein,** Elstein Consulting & former BMW AG

Panelist:
Francis Chow, Red Hat
Michael Plagge, Eclipse
Boris Engel, Microsoft
Robert Day, Arm
BMW

Development and Testing Autonomous Vehicles (AV) at Scale
- Data at scale for hybrid cloud infrastructures for smart AD data logging and processing
- Linear scalability of performance with optimized costs
- Lower cost of infrastructure from edge to cloud, by avoiding the need to store the data across multiple locations
- Based on open source and secure standards to maintain a single source of truth
- Data management and data orchestration, scalable based on the containerized applications

Dipl.-Ing. Frank Kraemer, System Architect, Technical Presales, IBM, Frankfurt am Main

Mastering Complexity in Modern Vehicle Software Updates
- Software dependency model as interface between engineering and after sales
- Unifying over-the-air-updates and workshop operations
- Tracing software updates for UN-ECE SUMS
- Detecting and handling invalid vehicle states

Dr. rer. nat. Oliver Meyer, Head of Department, System Development Lifecycle Management & After Sales, Co-author: Dr. rer. nat. Boris Böhlen, both of DSA Daten- und Systemtechnik GmbH, Aachen

Multi-Level GaN Inverter – Development of HV Solutions for Highest EV Performance and Efficiency
- Benefits include higher voltages, reduced harmonic losses, and improved NVH characteristics and EMC behavior
- GaN components show additional superior influence on systems over traditional silicon applications
- New ways to improve e-motor efficiency and reduce losses in the WLTP drive cycle by 25 %

Lukasz Roslaniec, PhD, Department Leader & Engineer, Power Electronics, Co-author: Thomas Hackl, both of hofer powertrain, Nürtingen

Usage of UDS Service 0x29
- UDS service 0x29 (Authentication Service)
- Library
- scalable solutions
- secure gateway

Lothar Zizala, Vehicle Security & Safety, MAN Truck & Bus SE, Munich and **Ralf Ramrath,** iQmine GmbH, Munich

16:25 Coffee break, Exhibition and Start-up Area visit

Software
Moderation: Kai-Uwe Balszuweit, BMW Group, Munich

Automotive AI – Innovations
Moderation: Joachim Langenwalter, Autobrains AI Technologies, Berlin

Vehicle Architecture – Aspects
Moderation: Dipl.-Ing. Stefan Teuchert, MAN Truck & Bus, Munich

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

Autonomous Driving

17:10 **What It Really Takes to Empower Software Defined Vehicles**
- The industry's journey to bring truly software defined vehicles at scale to the roads
- Key levers: decoupling hardware and software at decisive points in the vehicle architecture, data-driven development and operations, scalable service architectures
- Tangible contributions a software-driven Tier1 can bring to the industry

Dr. Mathias Pillin, Member of the Business Sector Board Bosch Mobility Solutions, Head of Mobility Technology, Gerlingen

How to Become a Leader By Development of AI: ChatGPT Research Papers Analyzed
- AI can facilitate fascinating things.
- The development methodology from ChatGPT reveals important learnings about successful AI development
- These learnings can be well transferred to automotive use cases
- If the learnings are followed, automotive can be successful with AI

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

Continuous System Architecture Development for Automated Driving Features
- Agile development processes and methods applied to Model-based Systems Engineering
- Continuous, parallelized system architecture development with SysML and CI/CD
- Toolchain to automate model quality assurance, configuration and integration

Anuj Malvankar, M. Sc., Team Leader, Systems Engineering Processes, Co-authors: Stephan Riediger, Vijay Konenki, all of FEV.io GmbH, Aachen

Achieving Ubiquitous Connectivity for Future Vehicles
- In-vehicle 5G mmWAVE helps to solve the capacity issue for V2N & V2X
- Non-terrestrial-networks (NTN) complement the cellular terrestrial-networks (TN) to close the existing coverage gap, starting with 5G Rel. 17, further enhancements in 5G advanced and towards 6G
- The digital in-vehicle connectivity architecture supports the integration of 5G mmWAVE and e.g. Satellite Broadband Communication

Dipl.-Ing. Thomas Hinzmann, Lead Technologist, Strategy & Innovation, Connected Mobility Solutions, Co-author: Dipl.-Ing. Dietmar Schnepp, both of Molex CVS Bochum GmbH, Bochum

Unlocking the Power of Automated Driving Technology Today
- How autonomy will transform the trucking industry
- Market opportunity for highly automated driving (HAD) products
- Plus's unique approach to empowering driver-in and fully autonomous solutions via Open Autonomy Platform
- Plus's case study of building and commercializing high-performance modular autonomous driving software solutions that are affordable and scalable across vehicle types and applications

Sun-Mi Choi, MBA, VP of Business Development, Plus, Santa Clara, CA, USA

17:40

The Digital, Connected, Software-Driven Future of Automotive

- Digital transformation of automotive driven by electrification, autonomy
- Changing vehicle architectures as cars become increasingly software-defined
- Smart, connected cars of the future require new digital technology like cloud connected services, advanced driver assistance systems, and customized in-vehicle infotainment
- AI and wireless technologies will support evolving transportation trends

Enrico Salvatori, SVP & President Europe/MEA, Qualcomm, Munich

Seeing with Sound: AI-Based Detection of Participants in the Automotive Environment from Passive Audio

- Using passive sound field to extend ADAS capability
- Overcoming challenges with AI
- Practical system architecture on limited automotive MCUs
- Performance in live testing

Jeffrey Sieracki, PhD, Director of AI Engineering, AIoT Center of Excellence, Co-authors: Rui Yang, Matthew Caggiano, all of Renesas Electronics, Columbia, MD, USA

Development of a Centralized EE Architecture

- Challenges and Tasks of the Centralized and Service Oriented End-to-End EE Architecture
- STLA Brain: a new Stellantis Tech new platform
- Collaboration model strategies with new Stellantis partnerships

Leandro Lara, Vice President, HW Engineering & EE Architecture Stellantis, Paris, France

Cooperative Perception Services to Improve the Safety of Road Users

- Radar detection range extension via V2X
- Cooperative blind spot detection
- Non-line-of-sight perception

Dr. rer. nat. Patrick Friedel, Advanced Engineering Program Manager, Advanced Engineering Electronics, Co-authors: Shan Danfeng, Kamill Eliasch, all of HELLA GmbH & Co. KGaA, Lippstadt/Nanjing, China

Automated Trucking: Vision, Current State, and Challenges

- Safe Autonomous driving
- Daimler Truck dual partnership strategy
- Development Strategy Torc Robotics for Autonomous Trucks
- Challenge of releasing an autonomous truck

PhD Axel Gern, Managing Director, Development, Torc Europe GmbH, Stuttgart

18:10

Maintaining Open-Source Based Software or What Is the True Cost of Free?

- Regulations like UNECE R 156 and ISO/SAE 21434 mandating long periods of fixes and updates
- Need for car manufacturers to take a proactive approach to software maintenance and support
- Problems and possible solutions associated with open-source components and platforms in the automotive industry

Dr. Joachim Schlosser, Senior Manager, Strategic Consulting, Co-author: Jens Petersohn, both of Elektrobit Automotive GmbH, Munich

How Can AI Reduce Automotive Software Development Costs by 30%?

- Enabling root cause analysis for integration validation
- Identification of high probability testing focus
- Enabling continuous and seamless OTA updates at 10% of the cost
- Evidence of effects to regulated systems from software updates in accordance with UNECE WP.29 (R156)
- Pre-error detection of software function deviations, on the road

Zohar Fox, CEO and Co-founder, Management, Aurora Labs, Tel Aviv, Israel

New E/E Architecture

- Current situation and challenges of the E/E Architecture
- Trends in the E/E Architecture

Dipl.-Inform. Yves Duhr, Central E/E Architect, MB.OS Architecture, Mercedes-Benz AG, Sindelfingen

A Holistic Approach for a Universal Vehicle-to-Automotive-Service-Robot Communication Interface

- Introduction into the field of Automotive Service Robots (ASR)
- Trade-Off of modern R2X and V2X communication interfaces
- Requirements and resulting adaptations for V2ASR communication for a specific ASR use case
- Detailed explanation of a universal vehicle communication interface (UVCI) model

Lukas Heinrich, M. Sc., Industrial PhD Candidate, Robotics, Group Innovation, Co-authors: Malte Springer, M. Sc., both of Volkswagen AG, Wolfsburg, Prof. Dr. Jürgen Pannek, TU Braunschweig

Key Factors of a robust and safe Automated Driving Function – Transferable Insights of City-Bus Platooning in Munich

- System performance – Required upgrade of the electronic architecture
- Redundancy for operational reliability and safety
- Methods for a well-structured evelopment and test phase
- Application example: Analysing the platooning of EBUSCO 3.0 12m city-buses

Nicole Kechler, M. Sc., Member of Scientific Staff, R&D, Karlsruhe Institute of Technology (KIT), Co-authors: Niranjana Venkatesh, M. Sc., Ebusco, Deurne, The Netherlands, Prof. Dr.-Ing. Eric Sax, Institut fuer Technik der Informationsverarbeitung (ITIV) – Karlsruhe Institute of Technology (KIT)

18:40 End of the 1st Congress Day

19:00 Night of Electronics at the MS RheinEnergie

The VDI invites all participants, speakers, sponsors and exhibitors to join the “Night of Electronics” aboard Europe’s largest event liner, the MS Rheinenergie. 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.

2nd Congress Day

Thursday, October 19, 2023

New York (Ground Floor)

Software
Moderation: Dr. Riclef Schmidt-Clausen, CARIAD SE, Ingolstadt

08:30

Transcending Physical Time – Accurate Simulation of Novel HW/SW-Decoupled Systems

- Despite all attempts to create hardware abstraction layers, automotive software is often tightly coupled to HW timing behavior
- Next generation middleware can help do decouple timing dependencies from functional code
- We get more robust code with higher portability across HW generations and vendors
- We can build highly accurate test feedback loops without perfect HW simulators

Christian Uebber, CTO, Engineering, ETAS GmbH, Stuttgart, Co-authors: Dr. Karsten Muehlmann, Dr.-Ing. Philipp Mundhenk, both of Robert Bosch GmbH, Stuttgart

09:00

A Unified Middleware for SoC-Agnostic Application Development

- Production-ready middleware based on open source
- Unified application framework for microcontrollers, microprocessors and hardware accelerators
- Relocation of applications with minimum effort

Dipl.-Ing. (FH) Stefan Duda, Vice President Product, Co-author: Laurent Emmerich, both of Apex.AI GmbH, Munich

Nairobi (Ground Floor)

Automotive AI – Applications
Moderation: Kay Talmi, HELLA GmbH & Co. KGaA, Berlin

AI-Based Energy Management of Next Generation Architectures

- New power distribution concept in the upcoming Server-Zone E/E architecture
- Investigation in different Electrical and Electronic (E/E) structures, and evaluate their advantages, features, and potentials
- Division of responsibilities between the server and different zones improved using machine learning or artificial intelligence

Dipl.-Ing. Martin Schlecker, Head of Department, Vehicle Control Unit, Co-authors: Thomas Zipper, Dr. Lin Li, all of AVL Software and Functions GmbH, Regensburg

Generative AI – How AI Models Change the Way We Develop Automotive Products

- Generative AI can help us develop better products and is a key enabler for self-supervised learning
- From design and prototyping to quality control and user experience
- Optimization of products, material usage and final performance

Dr.-Ing. Pia Dreiseitel, Growth Field Manager AI Technologies, Research and Advanced Engineering, Co-author: Dr. Dilara Yesilbas, both of Continental Automotive Technologies GmbH, Frankfurt am Main/Regensburg

Wien (Ground Floor)

System Engineering and Processes

Virtual Homologation (UNECE R 155/156/157) – New Opportunities for the Automotive Industry to Enable More Efficient Development Processes and Improving Safety and Quality of Vehicles for High Scaling Software Updates Based on Current and Future Regulations

- Number of homologation relevant software updates will explode in near future
- New approaches for homologation/type approval are required in order to fulfill customer expectations and in compliance with legal authorities and OEMs product roadmaps
- Partnerships between legal authorities, certifiers, OEMs and technology companies

Dipl.-Ing. Robert Lokner, MBA, Director Automotive, Automotive Industry, Microsoft Corporation, Munich and **Dipl.-Ing. Alexander Kraus,** CTO, Mobility Division, TÜV SÜD Auto Service GmbH, Munich

An Approach to Digital Lifecycle Management as a Service

- New customer experience by modifying the automotive ecosystem
- Strategic development and control of software updates for new user experiences in automotive industry
- Software updates as a new approach to create customer value

Dipl.-Inf. Henry Bastian, Product Manager DLCM Control Center, Digital Lifecycle Management, Co-authors: Dipl.-Ing. Benjamin Baron, Dr. Frank Althoff, all of CARIAD SE, Wolfsburg

Bangkok (Basement)

Security – Vulnerabilities
Moderation: Dipl.-Ing. Martin Schleicher, Continental, Erlangen

Automotive Software Vulnerabilities: Strategies for Early Detection, Mitigation, and Prevention in the Software-Development-Lifecycle

- Root causes of automotive software vulnerabilities
- Most common weakness classes of automotive software vulnerabilities
- Testing methodologies for detecting vulnerabilities
- Preventing most vulnerabilities during development

Dr.-Ing. Andreas Weichslgartner, Senior Technical Security Engineer, Architecture, Security & Technologies, CARIAD SE, Nuremberg

New Standards and Best Practices to Mitigate Supply Chain Security Risks of Software-Driven Products

- Insights into new standards regarding supply chain security risks
- Insights on how these standards influence software driven products in automotive industry
- Sharing best practices how to mitigate risks in this context

Tobias Löhr, Associate Partner Cyber Security & Digital Compliance, Security Consulting and **Benedikt Bauer,** Security & IT Consultant, both of p3 automotive GmbH, Stuttgart

Conference CV: Addis Abeba (Basement)

Propulsion
Moderation: Dipl.-Ing. (FH) Stefan Riegl, MAN Truck & Bus SE, Munich

Hydrogen – A Game Changer in the Automotive Industry ... and Beyond

- H2 market and potentials
- The road to net zero: H2 as preferred solution?
- Bosch's Contribution in mobile applications
- ...and beyond (stationary applications)

Dr. Silke Spitzer, Senior Vice President SW Engineering Powertrain Solutions – Electronic Controls, Robert Bosch GmbH, Plochingen

Electrified Commercial Vehicle Trailers – How to Turn a Conventional Trailer into a Hybrid Vehicle

- Electrification/hybridisation of heavy duty trailers
- Decarbonisation of commercial vehicle transport
- eMobility

Dr. Nils Pfullmann, Team leader System Solutions Trailer, ZF Friedrichshafen AG, Hannover

09:30

Automotive OS Reloaded – Refocus and Reality Check

- The three big promises of the SW defined vehicle – are we on track?
- Tectonic shifts: The Automotive Landscape is changing fast
- Breaking the Gordian Knot for Scalable SW Platforms
- Imperatives beyond 2023

Dr. Dipl.-Phys. Dipl.-Math. Christof Horn, Head of Automotive Europe Industry X, Industry & Transformation, Accenture, Kronberg

Validation and Interpretation of Neural Networks: DNN-Based Object Detector as an Example

- Use-case study and hands-on experience of AI validation
- Extend Explainable AI to complex architectures such as an Object Detector
- A two-stage approach for AI validation and interpretation
- AI autonomous driving

Dr.-Ing. XinXing Wang, Team Manager Systems and Sensors Validation, Electronics & Virtual Testing Solutions, Bertrandt Group, subsidiary Ingolstadt and **Dr. Khanlian Chung,** Product Owner AI Testing, Vector Informatik GmbH, Karlsruhe

Master Algorithm for Event-based Co-Simulation with FMI 3.0 for Timing Accurate Software- in-the-Loop

- Master Algorithm for discrete event driven co-simulation
- Simulation of FMI 3.0 FMUs with Event mode
- Clock Based synchronization of FMUs at events
- Timing Accurate Software-in-the-loop

Mythreya Vinnakota, Researcher, Regional Digital Technologies, Bosch Global Software Technologies PVT LTD, Bengaluru, India, Co-authors: Dr. Oliver Kotte, Dr. Laura Beermann, Robert Bosch GmbH, Renningen

Tales from an Automotive Penetration Testing Team

- Automotive Cyber Security
- ECU Zero-day vulnerabilities
- Security aware automotive development

Itay Lidovski, Security Researcher, Consulting and Research, Co-author: Amit Geynis, both of Argus Cyber Security, Ramat-Gan, Israel

AWARD project

- Project presentation
- Hub to hub use case
- Forklift use case
- Port use case

Julien Collier, M. Sc., Project Manager, System, Easy Mile, Toulouse, France

10:00 **MB.OS – Our Chip-to-Cloud Architecture for a Luxury Experience**

- Why designing an own architecture
- Mercedes-Benz Operating System – separation of software and hardware
- Global footprint and continuous integration
- Outlook – what's next

Magnus Östberg, Chief Software Officer – Executive Vice President, Research & Development, Mercedes-Benz AG, Sindelfingen

10:30 **Always Fresh Cockpit Experience Built on Cloud Native Technology**

- Staying ahead of the curve with Cockpit Experience
- Multimodal Engaging Experience
- Preparing the architecture for Scalability with Cloud and EDGE
- Working with the ecosystem

Vishnu Gurusamy Sundaram, M. Sc., Senior Vice President, Cockpit, Mobile and Apps, Stellantis, Auburn Hills, MI, USA

11:00 **Coffee break, Exhibition and Start-up Area visit**

Panel Discussion

Software – Cloud & Data
Moderation: Dipl.-Ing. Stefan Singer

System Engineering and Processes
Moderation: Dr.-Ing. Dieter Rödder, Robert Bosch, Stuttgart

Security – Challenges
Moderation: Dipl.-Ing. Henning Harbs, Volkswagen AG, Wolfsburg

Components, Subsystems & Integration
Moderation: Dr. Falk Hecker, Knorr-Bremse Systeme fuer Nutzfahrzeuge GmbH, Schwieberdingen

11:45

A Leap in Innovation? – What European OEMs Can Learn from Chinese OEMs in Terms of User Experience

- History of Chinese OEM brands and their arrival on the European market
- Development and latest advancements of Chinese vehicles
- What European OEMs can learn from their Chinese counterparts and how Chinese OEMs can succeed in Europe

Audrey Matarage, Independent consultant, Audrey Matarage Consulting, Stuttgart

Sustainable Software Development for Cloud-Native Vehicles

- Standardization of Vehicle APIs cross the Automotive Industry
- Creating open Eco Systems like Machines, Devices, Applications and DevOps
- Defining the next generation of Zonal Architectures to realize the SDV

Dipl.-Ing. (FH) Martin Bornemann, Vice President, Advanced Technology & Architecture, CTO Office, Co-author: Florian Baumann, both of Aptiv Services Deutschland GmbH, Wuppertal

Challenges in the Synchronous Development of Software, Hardware and Mechanics for Drive Systems

- Challenges due to different development processes of software, hardware and mechanics
- New holistic development process based on systems engineering
- Future possibilities using Big Data, AI and virtual development methods

Dr.-Ing. Peter Fietkau, Manager Drive System Electronics, Systems Engineering, Co-author: Laetitia Diebolder, both of Dr. Ing. h.c. F. Porsche AG

Why Trusted Execution Environments are Critical for Automotive Security

- Introduction to Trusted Execution Environments
- Common Automotive Use Cases
- Future Use Cases to support Software Defined Vehicles

Andrew Till, B.A., General Manager Secure Platform, Executive Team, Trustonic Limited, Cambridge, United Kingdom

Modular High-Power-DCDC-Platform for FC-Applications – The sixth Generation Bidirectional DCDC

- A challenge accepted: steady state and highly dynamic operation at the same time
- Modular approach for scalability and cost-efficiency
- Flexible design for a wide range of application and markets

Dr.-Ing. Bernhard Budaker, Vice President, Product Division PE, BRUSA HyPower AG, Buchs, Switzerland

12:15 **Panel Discussion: Transformation of Working Environment**

Panelists:

Rui Cordeiro, M. Sc. CEO, Critical TechWorks, Porto, Portugal

Sebastian Dörner, Software Engineering Community Advocate, People & Culture, Porsche Digital GmbH, Ludwigsburg

Andreas Heim, VP of Design, Process and Technology Engineering, Automotive Business Group, Flex, Stuttgart

Joe Justice, Chair Of The Board Of Directors, Agile Business Institute, Tokyo, Japan

Joachim Langenwalter, Senior Vice President Autonomous Driving, Autobrains AI Technologies GmbH, Berlin

12:45

Martin Schleicher, Head of Software Strategy, Continental AG, Erlangen

Rust for Automotive: A Modern, Memory-Safe and Secure Programming Language

- Rust programming language on the rise for automotive and industrial applications
- Rust for embedded applications
- Rust compiler support for Infineon AURIX: Challenges, solution & benefits

Dipl.-Ing. Mario Cupelli, CTO, HighTec EDV-Systeme GmbH, Saarbrücken

A Review of using Artificial Intelligence in Large Projects for Requirements Classification

- Distributing requirements in large projects to ~30 teams
- Using state-of-the-art transformer AI models
- Review of EU regulations and Bosch principles using AI for this purpose

Dr.-Ing. Lutz Trautmann, Group leader for SW and System Architecture and Requirements Management, Cross-Domain Computing Solutions, Robert Bosch GmbH, Hildesheim and **Hamza Ghezali,** Master Student, Technical University of Clausthal, Co-authors: Steffen Witke, Robert Bosch GmbH, Hildesheim, Prof. Dr. Steffen Herbold, University of Passau

Distributed Development along the Automotive Supply Chain: 8 Insightful Recommendations for OEMs and Suppliers to Jointly Implement Cybersecurity

- Cybersecurity as a new quality dimension in distributed development in the automotive industry
- Success factors for cybersecurity on the side of the OEM and for Tier-N-Suppliers
- Requirements for compliance with UN Regulation No 155 and application of ISO/SAE 21434
- Best practices and reliable tips for collaboration in cybersecurity challenges: Cybersecurity management/ Cybersecurity engineering

Manuel Sandler, Partner, Consulting, CYRES Consulting Services GmbH, Munich

The Challenges to Move to Fail-Safe Operation in E/E Architecture

- Specific challenges regarding fault-tolerant power-net architectures in commercial vehicles
- Comparison with redundancies in already existing systems in commercial vehicles (in particular brake systems) and in aviation
- Concept of a fail tolerant, ASIL capable and modular power-net architecture for commercial vehicles

David Kiss, Product Owner, R&D, Knorr-Bremse SfN GmbH, Budapest, Hungary

Software Defined Vehicle: Combining Real-Time Safety Critical Functions with Cloud Connectivity

- The importance of the right choice of RTOS and middleware for Software Defined Vehicles
- Possible ways of consolidating vehicle safety critical and cloud connected applications
- Managing complexity and performance in a heterogeneous software architecture
- Outlook on central computer architectures and cloud native automotive development

Nikola Velinov, Senior Business Development Engineer, Green Hills Software LLC, Santa Barbara, CA, USA and **Sreeja KS,** Senior Architect, Transportation Business Unit, Co-author: Jyotsana Singh, both of Tata Elxsi Ltd., Trivandrum/Bangalore, India

Addressing the Challenge of 'Integrating Everything' – Creating a Blueprint for Automotive Integrated Development

- Integrate standards, regulations, and different domains
- Holistic approach how to master complexity
- To manage work product and
- product maturity
- Challenges of integrating “everything”

Christian Hübscher, Principal Consultant and **Ralf Geppert,** Consultant, both of Kugler Maag Cie GmbH by UL Solutions, Kornwestheim

Where is Everybody? Looking for Remote Attacks on Cars in the Wild

- Honeypot application in the automotive domain
- Systems that an automotive honeypot should mimic
- Existing open-source tools that can be used to build an automotive honeypot

Niclas Ilg, M. Sc., PhD Student, Corporate Research – Reliable Distributed Systems, Co-authors: Dr. Paul Duplys, Dr. Dominik Sisejkovic, all of Robert Bosch GmbH, Renningen/ Ludwigsburg/Hildesheim

Enabling a Software Platform for Faster-feature Deployment in Next-generation Commercial Vehicles

- How to migrate existing functions to HPC environments
- How to increase significant reuse of existing legacy software and systems
- How to create hybrid functions that include service and signal driven designs
- How to speed-up integration activities for such functions

Omkar Panse, Vice President, Head of Middleware Solutions, KPIT Technologies Ltd., Pune, India and **Nico Hartmann,** CTO, Qorix, Munich

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

Plenary Speeches and Award Ceremony – New York (Ground Floor)
Moderation: Dr. Rolf Zöller, Porsche AG und Porsche Digital, Weissach

14:30 Liquid AI – Closing the Gaps toward Autonomous Driving

- Hitting the supervised learning wall - today's AD road-blockers
- Technology solutions for cost efficient AD
- Liquid AI: A technical deep dive
- Autobrains' vision for a safe transition to AD

Igal Raichelgauz, B. Sc., Founder & CEO, Autobrains Technologies Ltd., Tel Aviv-Yafo, Israel

15:00 Semiconductors Are Driving Sensing and Thinking

- Impact semiconductor chips and software have had on our world
- Macrotrends driving these innovations
- Resulting discontinuities that must be overcome
- A new world where semiconductors drive sensing and thinking across many applications is within reach

Dr.-Ing. Yankin Tanurhan, Senior Vice President of Engineering, Solutions Group, Synopsys, Inc., Sunnyvale, CA, USA

15:30 Conclusion and Discussion
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 2023" and best Start-up

16:15 End of the Congress

Book separately!

Friday, October 20, 2023

Power Electronics and Circuit Board Design for E-Mobility – The Latest Megatrends Without Ignoring the Enablers or the Classic Topics

In modern vehicles, power electronics are becoming increasingly important due to electro-mobility and the increasing number of electronically controlled functions. An important component of power electronics are printed circuit boards. Various electronic components are connected to each other on these, allowing them to communicate with each other. The demands on printed circuit boards are also increasing rapidly – higher currents and low volumes bring with them a conflict of objectives that developers must meet.

In this workshop you will first receive a practice-oriented overview of the energy storage devices, switching elements and basic circuits of the power electronics used in modern vehicles. These are presented using practical examples. Furthermore the challenges in the layout and design of printed circuit boards for automotive applications will be discussed. In addition to larger currents and the associated higher temperatures, e.g. an EMC-compliant design and thermal management must be taken into account. You will learn which materials and assemblies are suitable for use in electric vehicles. You will get an overview of the advantages and disadvantages of the various offers on the market and be able to take them into account when designing printed circuit boards.

Who is the target group of this workshop?
- Development Engineers
- Project managers
- Technical executives

in the vehicle and supplier industry and at development service providers in the E/E sector

Content of this workshop
- Energy storage, consumers, systems, the need for voltage transformation
- Basics HV and the voltage transformation
- Basic voltage transformation circuits
- Interference suppression, mains filter, XY-capacitors, mains filter structure
- Requirements for interference suppression capacitors (DIN EN)
- Components (power transistor, diodes, relays)
- Electronics design process of a circuit board and assembly
- Circuit board manufacturing

Date and venue:
October 20, 2023
Dorint Hotel Venusberg, Bonn, Germany

Time: 09:00 – 16:30

Workshop Chair:
Andreas Wirtz, blue square consulting UG, Cologne

The workshop will be held in German language and with German documentation – no translation!

Register at:
www.vdi-wissensforum.de/01ST158

List of Exhibitors (June 13, 2023)

3D Mapping Solutions GmbH
ANavS Sensor Technologies GmbH
Apex.AI GmbH
APL Automobil-Prüftechnik Landau GmbH
ARM Limited
Aurora Labs
AVL List GmbH
Bertrandt AG
Brose Fahrzeugteile SE & CO. KG, Bamberg
Cadence Design Systems GmbH
Continental Engineering Services GmbH
CTAG
Deep Safety GmbH
Digitalwerk GmbH
dSPACE GmbH
EDAG Engineering GmbH
Elexir AG
Elmos Semiconductor SE
EPICNPOC SAS
ETAS GmbH
FERCHAU Automotive GmbH
FEV Europe GmbH
Fraunhofer Institute for Integrated Circuits IIS
GLIWA embedded systems GmbH & Co. KG
GMV
Göpel electronic GmbH
Green Hills Software GmbH
Hamamatsu Photonics Deutschland GmbH
Hella GmbH & Co. KGaA
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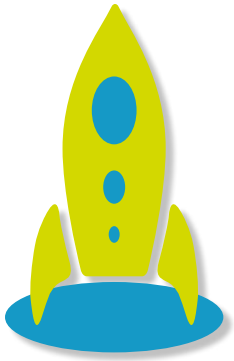
Martina Slominski
Team Leader Exhibition & Sponsorship
Phone: +49 211 6214-385
E-Mail: slominski@vdi.de

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:

Jasmin Habel
Project Consultant
Exhibition & Sponsorship
Phone: +49 211 6214-213
Mail: jasmin.habel@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:
ANavS Sensor Technologies GmbH | Deep Safety GmbH | Elexir AG | EPICNPOC SAS | KooSys GmbH | Scantinel Photonics

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E-Mail: info@dspace.de
Web: www.dspace.com

KPIT Technologies is a global partner to the automotive and Mobility ecosystem for making software-defined vehicles a reality. It is a leading independent software development and integration partner helping mobility leapfrog towards a clean, smart, and safe future. With 10000+ automobelievers across the globe specializing in embedded software, AI, and digital solutions, KPIT accelerates its clients' implementation of next-generation technologies for the future mobility roadmap. With engineering centers in Europe, the USA, Japan, China, Thailand, and India, KPIT works with leaders in automotive and Mobility and is present where the ecosystem is transforming.

Contact:
KPIT Technologies GmbH
Frankfurter Ring 105b
80807 Munich
Web: www.kpit.com

Tata Technologies GmbH, a subsidiary of Tata Technologies, is strategically set up to help German OEMs and Tier 1s conceptualize, develop, and realize better products that are safer, cleaner, and improve the quality of life for all the stakeholders. It leverages our global diverse talent pool of 11000+ innovators spread across 27+ countries, and global best practices to help our customers develop competitive products and win at the marketplace.

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Dipl.-Inf. Elmar Frickenstein, Elstein Consulting & former BMW AG, Munich


Steffen Glemser, Senior Director Automotive OEM Strategic Sales, Renesas Electronics Europe GmbH, Düsseldorf


Dr.-Ing. Axel Heinrich, Head of Electrical/Electronic Development, Volkswagen AG, Wolfsburg


Dipl.-Ing. Christof Kellerwessel, former Ford-Werke GmbH, Cologne


Joachim Langenwalter, Senior Vice President Autonomous Driving, Autobrains AI Technologies GmbH, Berlin


Ralf Lenninger, former Continental AG, Regensburg


Dipl.-Ing. Uwe Michael, mps, Rödermark


Dr. Burkhard Milke, Director GME Electrical Systems & Infotainment, Opel Automobile GmbH, Rüsselsheim


Dr.-Ing. Dieter Rödder, Senior Vice President Advance Engineering Systems 1 – Future Automotive Systems, Robert Bosch GmbH, Stuttgart


Maik Rohde, Head of IID-System, Volkswagen AG, Wolfsburg


Dipl.-Ing. Martin Schleicher, Head of Software Strategy, Continental AG, Erlangen


Dipl.-Ing. Stefan Singer


Dr. Riclef Schmidt-Clausen, Senior Vice President Intelligent Cockpit & Body, CARIAD SE, Ingolstadt


Dr. Jutta Schneider, Director Vehicle Powernet and EE Hardware, Mercedes-Benz AG, Sindelfingen


Dipl.-Ing. Stefan Teuchert, President and CEO E/E Function Development, MAN Truck & Bus SE, Munich


Dr.-Ing. Michael Winkler, CEO, HELLA Fahrzeugkomponenten GmbH, Bremen


Joachim Ziethen, Member of the Executive Board BU Electronics – Product Center Body/Lighting Electronics, HELLA GmbH & Co. KGaA, Lippstadt


Dr. Rolf Zöller, Director Smart Connected Vehicle Porsche AG and Managing Director Porsche Digital, Weissach (Chair)

Scientific Support

The VDI Society Automotive and Traffic Systems Technologies (FVT) with its five Technical Divisions offers a home for engineers from a wide range of disciplines in the fields of “road”, “rail”, “air” and “water” transport. Through active interplay with the working groups of the VDI Regional Associations, the students and young engineers as well as the other VDI Technical Societies, the VDI FVT is networked nationally and internationally with other cooperation partners. The stated task of the VDI FVT is to strengthen the perception of the engineering profession and to establish the VDI as a technical-scientific opinion leader in professional circles, politics and society. The aim here is to promote the interaction of the various mobility areas and to provide technical impetus, as well as to develop perspectives for cross-sectional topics relating to “People and Mobility” and “Means of Transports and Infrastructure.

More information: www.vdi.de/fvt

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Good Reasons to be part of this industry meeting:

- √ Technical content of high quality: more than 80 expert presentations with technical depth
- √ ELIV is the world's largest Congress for Automotive Electronics, Software and Applications – be part of the community in Bonn!
- √ Reach out to long-known fellow experts, find new project partners and pave the way to establish new business ties
- √ Free entrance to the parallel running "E/E in Commercial Vehicles"
- √ Speakers corners – debate with the presenters personally
- √ Great trade exhibition with about 100 international exhibitors gives an overview of new products and solutions

Who you will meet:

Delegate groups: decision-makers, engineers, technicians, developers etc. from the field of industry (OEM, Tier 1+2), economy, research & development

24 %	Car Manufacturers
28 %	Tier 1 / Tier 2 – Automotive suppliers
17 %	Software Providers
7 %	Hardware Providers
6 %	Electronics
10 %	Mobile Communications
8 %	Cities, Fleet, Infrastructur


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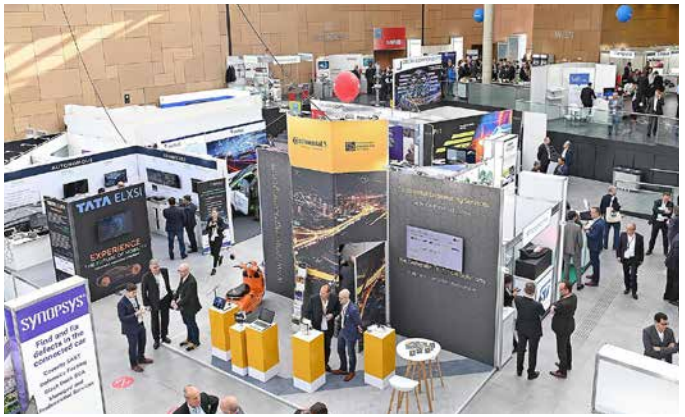
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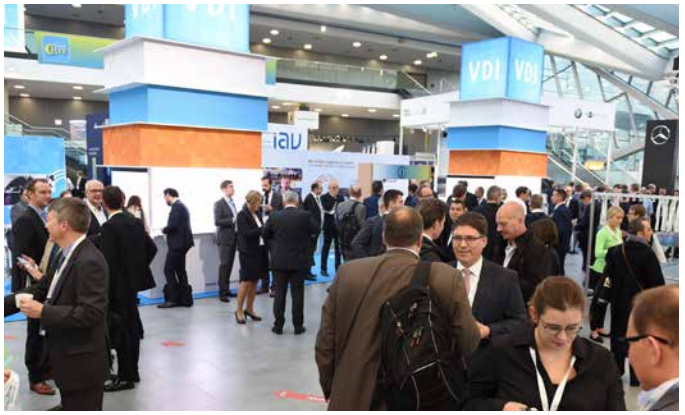
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21st International Congress with Exhibition
ELIV 2023

ELIV – Electronics in Vehicles

The ELIV (Electronics in Vehicles) congress is an exceptional event that brings together top industry professionals and experts in the field of automotive electronics. It offers a unique combination of strategic keynote presentations and an unparalleled technical program, making it a perfect platform for both technical executives seeking insights into industry trends and engineers involved in research and development looking to acquire the latest technical know-how.

Participation Fee

Please register online at eliv-congress.com

EUR 1,890.00 plus VAT

The following services are included:

- Access to Keynotes and Sessions of the ELIV and parallel Conference E/E Commercial Vehicles
- Digital event documentation
- Event-App Access
- Beverages during breaks
- Lunch on both Congress Days
- Night of Electronics at the MS RheinEnergie
- Visit to the exhibition, Start-up Area and special Start-up Program

Venue

World Conference Center Bonn
Platz der Vereinten Nationen 2
53113 Bonn
Germany

Accomodation

A limited number of rooms have been reserved for congress participants.

Please visit www.eliv-congress.com for further information.

More Hotels close to the congress venue may be found via our HRS service www.vdi-wissensforum.de/hrs.

HRS Das Hotelportal

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Any more questions?
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