

# 20th International Congress and Exhibition

October 20 - 21, 2021 in Bonn, Germany or via live stream

### **Top Speakers**:

Dr. Karl Thomas Neumann, former Continental AG, Volkswagen China & Adam Opel AG Dr. Rolf Zöller, Porsche AG & Porsche Digital Thierry Cammal, Group Renault Dr. Dirk Walliser, ZF Friedrichshafen AG Werner Koestler, Continental Automotive Maria Anhalt, Elektrobit Automotive Barak Matzkevich, AutoBrains



Including up-to-date contributions from:

BOSCH

Wissensforum

ന്ന

CARIAD (Ontinental') DAIMLER

## Main Topics:

- Software Technologies
- End-2-End Architecture
- Automated Driving
- AI -Self-Learning Vehicles
- E-Mobility & E-Vehicles
- Electronics Innovation
- Data Analytics
- Security

### Panel discussion:

**Operating Systems for Cars - Can OEMs** regain Independence from IT-Giants?

+ Extensive Exhibition + Special Start-up

+ Night of Electronics

Program

Stephan Durach, BMW Group Christoph Hartung, ETAS GmbH Joachim Langenwalter, Stellantis NV Anup Sable, KPIT Technologies Dr. Riclef Schmidt-Clausen, CARIAD SE

William Wei, Foxconn Technology Group

OUALCOMM.

Microsoft

Conference by VDI Wissensforum GmbH • www.eliv-congress.com • Phone +49 211 6214-201 • Fax +49 211 6214-154



#eliv

STELLANTIS

# www.eliv-congress.com

intel

K P I T

VDI

The must-attend event for all decision-makers and experts in the **automotive electronics** and **software industry!** 



### ELIV – Program Overview







# **1st Congress Day**

### Wednesday, October 20, 2021

Plenary Speeches - New York (Ground Floor)

Moderation: Dr. Rolf Zöller, Porsche, Weissach

#### 07:45 Registration

- 08:45 Opening of the Congress
  - Opening Speech: Automotive defined Digitalization Perspectives towards tomorrow Dr. Rolf Zöller, Director Smart Connected Vehicle Porsche AG and Managing Director Porsche Digital, Chairman of the Program Committee

•

- 09:15 The long Path of the Automotive Industry: From Hardware to Software, Cloud and Services Dr. Karl-Thomas Neumann, former CEO of Continental AG, Volkswagen China and Adam Opel GmbH, Founder & Owner
- 09:45 Panel Discussion: Operating Systems for Cars Can OEMs regain Independence from IT-Giants?
  - How to get on top of the software issue in automotive?
  - Connecting the automotive ecosystem to established IT-Ecosystems vs. OEMs regaining independence
  - Could a standardized, scalable middleware platform pave the way?
  - Stephan Durach. Senior Vice President Connected Company Development. Technical Operations. BMW Group, Munich Christoph Hartung, CEO, ETAS GmbH, Stuttgart
  - Joachim Langenwalter, Senior Vice President Software & Hardware, Stellantis NV, Paris, France
  - Moderator: Ken Fouhy, Editor-in-Chief, VDI nachrichten, VDI Verlag GmbH, Düsseldorf
- 10:45 Coffee break, Exhibition and Start-up Area visit

**Automated Driving** 

for Automated Driving

11:30 Collaborative development of a test environment

#### New York (Ground Floor)

Moderation: Kai-Uwe Balszuweit, BMW, Munich

Nairobi (Ground Floor)

#### Software Technologies

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

#### Automotive Software Development - Is it different?

- Usage of practically proven software development
- Highly complex simulation environments required by test platforms
- Know-how from various expert parties/companies must be brought together
- Joint feature backlogs and overarching project organizations as success factors
- Facilitating technical set-ups and interface standards
- Dr.-Ing. Tim Fricke, Modeling and Simulation Specialist, Test Infrastructure, Conduct Hardware, BMW Group, Munich and Johannes Ax, dSPACE GmbH, Team Lead Environment Sensor Simulation, Strategic Product Manager Real-Time Test and Development Systems, dSPACE GmbH, Paderborn, Co-Author: Dr.-Ing. Falko Schuck, BMW Group, Munich

- processes Combination of safety and security
- Handling the complexity of ADAS verification
- CI/CT tool chains for the collaboration between OEM and suppliers
- Dr. Stefan Krauß, Managing Director, Vector Informatik GmbH, Stuttgart

#### Wien (Ground Floor)

End-2-End Architecture Moderation: Dipl.-Ing. Rüdiger Roppel, Porsche, Weissach

#### Architecting for secure, safe and agile software defined vehicles

- How can we enable a future of continuously evolving capabilities and use experience?
- What are the analogies to modern OS design?
- What are the characteristics of a flexible and extensible in-vehicle software architecture?
- What changes are required in the development process to increase agility without compromising safety and cyber security?

Sean Selitrennikoff, M. Sc., Principal Software Engineer, Azure IoT Mobility, Co-Author: Mario Ortegon-Cabrera, both: Microsoft Corporation, Redmond, WA, USA

#### Anup Sable, CTO and Member of Executive Board, KPIT Technologies, Pune, India Dr. Riclef Schmidt-Clausen, Senior Vice President Intelligent Cockpit & Body, CARIAD SE, Ingolstadt

<u>.</u>

William Wei, CTO, Foxconn Technology Group & MIH, Taipei, Taiwan

#### Bangkok (Basement)

#### E-Mobility

Moderation: Dr. Anes Hodzic, Ford-Werke GmbH. Cologne

#### Wireless charging for electric vehicles with its boundary conditions – A contribution for market breakthrough

- · Boundary condition in the automotive environment
- Wireless power transfer for electric vehicles under boundary conditions

 Interoperable wireless power transfer systems Dr.-Ing. Mike Böttigheimer, Project Manager, Corporate Advanced Engineering Thermal Management, Co-Authors: Timo Lämmle, M. Sc., Dr. Christopher Lämmle, all of MAHLE International GmbH, Stuttgart





### 12:00 Reliable validation of Highly Automated Driving functions by increasing the virtualization level of high computing platforms and smart sensors Virtualization of Multi-Chip ADAS High Computing Platforms using Multi-Container Environments Transfer of Communication- and Middleware-Layer in the SiL Environment as Key Factor End-2-End-Communication and Vehicle Network in Sil Environments (e.g. CAN & Ethernet)

 Analysis of Technical State-of-the-Art in Virtualization with respect to Standardization Approaches
 Dipl.-Inf. Stefan Wonneberger, Product Manager
 Simulation & SiL Testing for ADAS & AD, ADAS & AD
 Data & Development Factory, Co-Author: Sinan Balci,
 M. Sc., both of CARIAD SE, Wolfsburg

# 12:30 Technological innovations enabling the scalable deployment of autonomous driving system for heavy trucks

- Challenges for the trucking industry and how automated trucks fit in
- Plus's commercialization strategy and approach to get to driverless trucks
- Deep dive on the innovations in hardware, sensing, compute, software, data management, and safety required for scalable commercial deployment of Plus's unique driver-in autonomous driving system **Anurag Ganguli**, Head of Perception and R&D, Plus, USA

## Agile development of safety-related automotive software

- Common misconceptions regarding the combination of agile methods and functional safety
- Recommendations from the ZVEI best-practice guideline "Introduction to the combined application of agile & safety in automotive software development"
- Examples from the combination of Scrum and ISO 26262
- **Dipl.-Ing. Steffen Kuhn**, Head of Consulting, Elektrobit Automotive GmbH, Erlangen

# Applying the SOVD Standard for future vehicle diagnostic and vehicle lifecycle management

- Diagnostics of HPC and complete vehicle using SOVD
- Unified remote diagnostics for different vehicle
- Proposed extensions for fully supporting development, production, and after sales

Dr. rer. nat. Oliver Meyer, Head of Department – Development Lifecycle Management & After Sales, and Dr. rer.-nat. Boris Böhlen, both of DSA Datenund Systemtechnik GmbH, Aachen

#### Electric Charge Lid - System components for future charge lid systems

- Generation of a charging experience through innovative components
- Simplification of the onboard charger through autonomous control unit
- Innovative lighting components for charging status display and other information
- Actuator technology based on an EC motor

**Thomas Valeiras Fernandez,** Head of Mechanical Design Actuation and **Dr. Andrej Wagner,** Head of Predevelopment for Car Body Lighting, HELLA GmbH & Co. KGaA, Lippstadt

#### Model-based Systems Engineering accelerated

- Bridge the gap between high-level systems architecture models and the detailed executable analytical models
- Support agile system architecture development & design, including real-time cross-function collaboration requires immediate feedback based on decentralized scalable models
- Provision of modeling capabilities, allowing for multi-disciplinary modelling for analyses and simulation of performance, safety, and cyber security against semi-formal requirements
- Transformation between common architectural system models and the domain-specific downstream development, analysis and verification analytical capabilities
   Christian Schrader, Technical Director Field Engineering EMEA for Systems, Software and Safety, Ansys Germany GmbH, Berlin

#### Electric Systems – Simplified and standardized engineering for sophisticated automotive electric/ electronics

- Success of future vehicle generations is closely linked to systematic focus on innovations, robust technologies and cost-optimized processes
- Basic principles of development using the example of electrical systems
- Scalability: Development of a modular system with cross-segment usability
- Automation: Implementation of robust data and energy distribution systems for cost-effective, automated production
- **Ralf Milke,** Head of Electric Systems Development, Volkswagen AG, Wolfsburg

#### Evaluation of a driver's compatibility with electric, plug-in hybrid, and hybrid vehicles based on mobility patterns analytics

- Range anxiety, longer charging time, lack of charging infrastructure, and relatively high acquisition costs as a barrier to transition to BEV or PHEV
- Driving behavior and mobility patterns to evaluate suitability
- Trip augmentation and profiling models to optimize fleet compositions and reduce CO, emissions

**Dr.-Ing. German Castignani**, CEO & Co-Founder, Board of Directors, Co-Authors: Sasan Jafarnejad, Ph. D., François Chandelle, all of Motion-S S.A., Mondorf-les-Bains, Luxembourg

13:00 Lunch break, Exhibition and Start-up Area visit

# **Continued 1st Congress Day**

#### Automated Driving

Moderation: Prof. Dr.-Ing. Lutz Eckstein, RWTH Aachen University, Aachen

#### 14:30 Removing blind spots: Infrastructure-assisted collective perception

- Collective perception seeing through the eyes of others
- Pedestrian detection by infrastructure sensors
- Perception beyond the vehicle sensor range
- Evaluating the reliability in challenging V2X use cases

Florian Schiegg, Research engineer, Corporate Research - Digital Mobile Communication and V2X Systems, Co-Authors: Dr. Frank Hofmann, Dr. Hugues Tchouankem, Dr. Ignacio Llatser, all of Robert Bosch GmbH, Hildesheim

#### 15:00 HERE HD Live Map - More than a sensor for Automated Driving

- HD Maps act as the memory of Automated Vehicles
- HERE HD Live Map is more than a sensor providing information beyond the line of sight and even in places a car hasn't driven before
- HERE HD Live Map provides needed data assets to automated cars for SAE levels 2+ and beyond

Dipl.-Kfm. Carsten Hurasky, Vice President Industry Solutions, HERE Technologies, Schwalbach

#### Software

.

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

#### **Transformation of the Software Integration** Process – From Classic Software Integration to **Co-Integration**

- Increasing complexity due to different software deliveries and increasing needs to speed up the validation feedback
- Key requirement: achieving maximum flexibility and pace while minimizing the validation efforts
- Presentation of new available technologies in

combination with well-established approaches Christopher Schwager, M. Sc., Senior Expert Embedded Architecture, ITK Engineering GmbH, Rülzheim

### ż End-2-End Architecture

Moderation: Dr. Jutta Schneider. Daimler. Sindelfingen

#### Software-Defined Vehicle Motion deployable on future E/E-Architectures

- Central motion integration platform
- Cross-domain vehicle motion functions
- Modular system architecture
- Model based systems engineering

Dipl.-Ing. Stefan Abendroth, Senior Expert Automotive Systems Engineering, Automotive Technology, Project Management for Systems Engineering, Co-Author: Marcus Boumans, both of Robert Bosch GmbH, Ludwigsburg

#### <u>.</u> E-Mobility

Moderation: Dipl.-Ing. Bernd Münsterweg, HELLA. Lippstadt

#### Empowering the next level of e-mobility

- Strengthen key assets of CCS, the Combined Charging System, and ISO15118 as the charging communication protocol
- Key factors for the further establishment of EVs
- The Megawatt Charging System (MCS), addressing trucks as well as the marine and aero industry Fabian Grill, Head HV Integration Loading & Cross

Section, Co-Authors: Claas Bracklo, Michael Keller, all Charging Interface Initative (CharIN) e. V., Berlin

#### Automotive digital twin: An approach for isolating and virtual validating of software updates in end-

- Reference model of digital twins
- Graph based approach for simulating functions in end-to-end architectures
- Reduction in complexity due to isolating of vehicle functions by their end-to-end linkage and interfaces

Dipl-Ing. Till Fuchs, Doctoral student, Co-Authors: Dr.-Ing. Oliver Manicke, Dipl.-Wirt.-Ing. (FH) Matthias Zinser, all of Dr.-Ing. h. c. F. Porsche AG, Weissach, Prof. Dr.-Ing. Bernard Bäker, Technical University Dresden

#### MAN's new fully centralized EE architecture a driving fully connected server Platform to-end architectures based on customer vehicles

- Centralized functionallity (only one ECU as Brain in the middle)
- Open for third party software
- Modular
- Scalable
- Ready for automation & e-mobility
- Fully connected

Dipl.-Ing. Stefan Teuchert, Senior Vice President, Head of Electric/Electronic Systems (EE), MAN Truck & Bus SE. Munich

#### 15:30 Hybrid collaborative positioning/navigation scheme for performance enhancements and local perception improvement for automated driving

- Navigation using tightly coupled GNSS and terrestrial ranging measurements
- High accuracy positioning in dense urban areas with limited GNSS availability
- Improved detection of Vulnerable Road Users

David Bartlett, M. Sc., C. Eng., MIET, MRIN, Senior Principal Engineer Positioning, Product Centre Positioning – Technology, Stefania Sesia, M. Sc., Ph.D., both of u-blox, Cambridge, United Kingdom and Thalwil, Switzerland

#### **Rethinking Testing And Validation In An Environ**ment Of Increased Connectivity

- How do OTA updates change the landscape for
- software functionality testing and validation? What validation requirements are mandated by
- WP29 and Type Approval regulations? Testing software functionality in an agile develop-
- ment environment
- Utilizing Machine Learning to detect changes in software behaviour patterns
- Zohar Fox, CEO & Co-founder, Co-Author: Roger Ordman, both of Aurora Labs, Tel Aviv, Israel

#### New architecture approaches and their impact on automotive wiring harness

- Development of a consistent E2E architecture
- The wiring harness as the backbone of electronic vehicle architecture
- Direct impact of architectural decisions on the wiring harness impact on electrical range and the CO<sub>2</sub>-footprint

Dipl.-Ing. Oliver Bettgens, Head of Physical Laver and Wiring and Dr.-Ing Matthias Görber, Head of Networking Technologies and System Functions, both of CARIAD SE, Wolfsburg

#### Wireless Charging Systems for EVs - The answer to the consumers demand!

- Range anxiety? Is either a large battery or an automated charging system the solution?
- Cityscape? How do cities look like with lot's of charging pillars, cables or even cages for charging robotics? Aren't invisible systems more suitable?
- Cost of charging? How much can a consumer afford to charge a vehicle?
- · Handling? Automated parking requires automated charging without cables/wires!

Dipl.-Ing. Thomas Nindl, COO, Managing Director, BRUSA Elektronik (München) GmbH, Munich

#### Real-time Contextual Intelligence Services for **Connected Electrified Vehicles**

- · Model-based AI automated learning cloud platform for Context-aware Smart E-Mobility services
- Behavior prediction based on physics principles and artificial intelligence
- Contextual intelligence distributed to vehicle ECUs via ADASIS and NDS.Live

Prof. Francesco Borelli, Professor, Department of Mechanical Engineering, University of California, Berkeley, CA, USA and Dr. Martin Pfeifle, Chief Technology Officer, NNG Kft., Budapest, Hungary, Co-Author: Santosh Alexander, WideSense, Berkeley, CA, USA



#### -Automated Driving Software Technologies Moderation: Rob Csongor, NVIDIA, Pleasanton, Moderation: Dr. Rolf Zöller. Porsche AG CA. USA 16:45 The Evolution of Automation in Parking: Assisted, Next paradigm change in the car: Abandon Automated. Autonomous proprietary solutions – embrace open standards • Parking has a high potential for Automation VIRTIO is an open standard for device Supervised vs. unsupervised virtualization, that Sensor concepts and scalable architectures Moves guest OSs among different hypervisors Fully "Automated Valet Parking" following different Enables to break free from vendor lock-in • Enables to re-use software platforms standards Insights about products and research activities • Enables to start the concept of a systems from the software perspective. The decision for hardware Dr. Andree Hohm, Head of Autonomous Driving Program, Continental, Frankfurt am Main use follows after having designed the software architecture Ralph Sasse, Lead Solution Engineer, OpenSynergy GmbH, Berlin 17:15 Trajectory tracking using Neural Network for autonomous driving systems Vehicle path planning and tracking for autonomous Architectures driving decision making · Neural network used to develop adaptive control platforms Classsic (CP) as well as Adaptive Platform (AP) system Model predictive control including linear and Discussion on proprietary OS solutions non-linear dynamics of vehicles to combat model Potential answers by AUTOSAR AVOS Future Challenges for AUTOSAR mistmatches Rinat Asmus, BMW Group und AUTOSAR Chairper-Dr. Lee Gonzales Fuentes, ADAS Application Engineer, Automotive Microcontroller, Infineon son, Co-Author: Dr. Ing. Günter Reichart, Technologies AG, Neubiberg, Co-Authors: Manoj AUTOSAR Spokeperson, Aschheim near Munich Harihar, Marco Cassol, both of Infineon Technologies AG, Munich 17:45 Real Time Physics Based Radar Simulation -An Enabler for Machine Learning in the Context of **Autonomous Driving** approach Real time physics-based radar simulation Machine learning in electromagnetic applications in the auto industry for autonomous driving Multi-faceted, cross-domain, transparent and Automatic generation and labeling of radar data sets for machine learning applications industry edge Tool-chain integration using the Open Simulation ware Interfaces & Middleware Initiative" Interface (OSI)

Dr. Kmeid Saad, Senior Principal Application Engineer, Pre-Sales Support, Ansys Germany GmbH, Otterfing, Germany, Co-Authors: Arien Sligar, Ansys Inc, Beaverton, OR, USA, Jeffrey Decker, Ansys Inc, Champaign, IL, USA

### The case for an open cross-domain and integrating OS and middleware specification and development

- Current approaches to architecture and OS design
- open approach as key for a unique competitive
- Participation in joint initiative "Automotive Soft-

Prof. Dr.-Ing. habil. Alois Knoll, Full Professor, Chair of Robotics, Artificial Intelligence and Real-Time Systems, Technical University of Munich, Co-Author: Dipl.-Ing. Gereon Hinz, STTech GmbH, Munich

#### Digital light for digital life

- Light based Car2X Communication
- Light innovations für autonomous cars
- driver-centric safety supported by light
- new car architecture supporting highly functional digital light

Dr. rer. Nat. Michael Kruppa, Head of Light Innovations and Functions Development, AUDI AG, Ingolstadt

#### Long distance e-mobility in the trade-off between battery capacity & charging power - Battery immersion cooling as enabler technology?

- Long distance e-mobility use case analysis
- High Power Charging (HPC) for short break times

 Battery Systems with high cell load (= high c-rates) Battery Thermal Management – Immersion Cooling Dennis Mehlig, M. Sc., Market & Technology Monitoring, Corporate & Sales Planning, Co-Authors: Joachim Treier, Andre Loges, Markus Müller, all of MAHLE International GmbH, Stuttgart

### AUTOSAR Vehicle Operating System (AVOS): The Safe and Secure framework for Automotive SoC

Current development status of both AUTOSAR

#### Active Acoustics Innovations Supported by Tuning & Prediction Tools

- Use of Active Acoustics to enhance user experience and meet regulations
- Support all megatrends from electric to autonomous, connected and shared driving by Active Acoustics Innovations
- Creating Personal Acoustic Zones using the Personal Sound Bubble TM
- CAD tool to support and reduce integration time of **Active Acoustics Solutions**

**Dr. Ziv Hermon.** Chief Business Officer. Co-Author: Amir Slapak, Silentium, Ness-Ziona, Israel

#### Power Electronics: High stake for the competitiveness of BEV

- New systems optimized for wide band gap components SiC and GaN
- Towards a new standard for the power modules
- Modular systems in order to address all the applications from mild HEV till BEV through HEV and PHEV

Jean-Philippe Mercier, Expert Leader, Groupe Renault, Paris, France

, Moderation: Dipl.-Ing. Harald Deiss. ZF Friedrichshafen. Auerbach

#### How to solve the tradeoff between vehicle dynamics, traveling time and CO<sub>2</sub>-emissions. The

- CO,-Life Cycle Assessment for the Porsche Taycan • Analysis of the mayor CO<sub>2</sub>-contributions during the
- production, the operation and the recycling of the battery vehicle
- The presentation describes how the CO<sub>3</sub>-emissions of BEV's can be reduced

Dipl.-Ing. Otmar Bitsche, EEE | Electrical/electronic engineering emobility, Porsche AG, Weissach

#### • **Electronics Innovation**

Moderation: Ralf Lenninger, Continental Automotive, Regensburg

#### **Perceptive Advanced Car-driver Drowsiness** Monitoring Neuro-Embedded System

- Physiological Assessment of the car driver through
- Photoplethysmography-driven car driver drowsiness monitoring system
- Embedded system with Photoplethysmography

# embedded car bio-sensing platform

- and Motion Magnification Systems

# Dr. Eng. Francesco Rundo, Ph. D., Senior Technical

Staff Engineer, ADG Central R&D Division, STMicroelectronics, Catania, Italy





# **Continued 1st Congress Day**

#### 18:15 Automated Driving – How cloud infrastructure plays a vital role in future of validation for Automated Driving

- Advantages due to flexibility of used camera (lens, imager) which can be adapted to any specific needs
- Datasets are well balanced and can be enhanced with additional corner cases on demand without losing it
- Automatically generated labels which are 100 % precise and correct

**Manaswini Rath,** VP and Global Head for Autonomous Driving, KPIT, Stockholm, Sweden

#### Paving the way for the "Software-defined vehicle"

- Challenge of combining software lifecycle and automotive quality
- Software thinking: architecture, development methods, culture, and business models
- Building blocks for the software-defined vehicle:
- hardware, OS/middleware, cloud and toolchain
- Continental's approach for the software-defined vehicle

**Dipl.-Inf. Martin Schleicher,** Head of Software Strategy, he[a]t Architecture & Software, Continental Teves AG & Co. OHG, Frankfurt am Main

# SeatCentric Experiences for Tomorrow's Vehicle Cabins

- Whole-vehicle computing becoming the norm vs. past/current state of a multitude of purposespecific processors
- New expectations from end users about in-vehicle experience and their extensibility over the lifetime vehicles
- SeatCentric or seat-based listening experiences being developed for the next generation of automobiles

**Peter Kosak,** Vice President, Automotive Systems, Bose Corporation Automotive Systems Division, Framingham, MA, USA

#### Shifting Left the Development of Electric Vehicle Products, from System to Software

- Early System Level simulation studies of xEV Electromechanics
- Efficiency gains in products and the development process
- Software development and test readiness significantly ahead of hardware availability
- PC based Virtual Hardware in the Loop testing with software and detailed electrical simulations
   Kevin Brand, Senior R&D Manager, Verification Group, Synopsys Inc, Mountain View, CA, USA

- 18:50 Mapping Social Networks Shepherding Automotive Innovation in the 21st Century Evening keynote by world's leading expert on social network analysis John W. Kelly, Founder and CEO of Graphika, USA
- 19:20 End of the 1st Congress Day
- 19:30 Night of Electronics

Ä

All congress participants are cordially invited to join our ELIV evening event at the end of the first congress day. Use this **great networking opportunity** to finally meet your peers again and make new contacts in a comfortable and stimulating atmosphere. We prepare **delicious food, drinks, and entertainment** for you. Do not miss out this year's evening keynote by world's leading expert on social network analysis John W. Kelly. In addition, we offer live music as well as calm lounge areas for in-depth conversations with partners, customers, and friends.

Be part of this get-together and combine new business opportunities with pleasure. Enjoy a wonderful night at the ELIV in Bonn.

We are looking forward to meeting you at the Night of Electronics!

Note: We are continuously monitoring the situation during the Corona Pandemic and will consider appropriate concepts for the evening event.





# **2nd Congress Day**

Thursday, October 21, 2021						
•	Data Analytics Moderation: Karsten Michels, Continental Automotive, Villingen-Schwenningen	Electronics Innovation     Moderation: Dr. Peter Redlich, Ford, Cologne	End-2-End Architecture Moderation: Dr. Thomas Hollmann, Volkswagen AG, Wolfsburg	<b>E-Vehicle</b> Moderation: Rémi Bastien, Groupe Renault, Guyancourt, France		
• 08:30	<ul> <li>End-to-End Architecture and Methods for Chassis</li> <li>Health Management</li> <li>Value Drivers</li> <li>Digital Twin</li> <li>On-board/Off-board partitioning</li> <li>DiplIng. Joe Klesing, Product Line Executive, PL, Co-Author: Peter Schmitt, both of Nexteer Automotive Corporation, Auburn Hills, MI, USA</li> </ul>	<ul> <li>A Cloud based Remote Test System for High-Performance Vehicle Computers</li> <li>Remote Access to sample devices in the test field via remote-DLT &amp; remote-HMI</li> <li>Centralized storage of the traces for building digital twins &amp; identifying recurring failures</li> <li>Cross device and cross model analysis helps to automatically recognize the expected &amp; unexpected behavior of different components</li> <li>Moez Selem, Project Manager, Robert Bosch GmbH, Hildesheim</li> </ul>	<ul> <li>New E/E architectures and how TC4xx enables it</li> <li>Optimizing the In-vehicle network by a zonal approach</li> <li>Improve platform flexibility with new E/E architecture</li> <li>Automotive Security</li> <li>Zonal architecture in automotive E/E architecture</li> <li>Dr. Karel Heurtefeux, Principal system architect, Co-Authors: Manoj Kumar, Marco Cassol, all of Infineon Technologies AG, Neubiberg</li> </ul>	<ul> <li>A Battery Digital Twin framework for Predictive Maintenance and State of Health Estimation of Electric Vehicles</li> <li>Distributed cloud storage-based framework of battery digital twins</li> <li>Intelligent Predictive Maintenance</li> <li>Learning based State of health estimation</li> <li>Krishna Priya Ganesh, Specialist-Transportation Business Unit, Co-Authors: Kiran Thomas, Dr. Anjana P Das, all of Tata Elxsi Ltd., India</li> </ul>		
• 09:00	<ul> <li>A new perspective for manufacturers: Cloud-based utilization of operational fleet data</li> <li>Interaction and information flow between fleets' stakeholders</li> <li>Integration of real-world operational fleet data into the manufacturer's processes</li> <li>Use case of Battery Electric Vehicles fleets</li> <li>Friedrich von Bülow, M. Sc., Ph. D. Student Data Science, Co-Authors: Felix Heinrich, M. Sc., both of Volkswagen AG, Wolfsburg, Prof. DrIng. Tobias Meisen, Bergische Universität Wuppertal</li> </ul>	<ul> <li>CAN XL: The third CAN protocol generation</li> <li>Data link layer with 2048-byte data field</li> <li>CAN XL protocol with layer-management information</li> <li>Data protection with cascaded CRC sequences</li> <li>Physical transmission with up to 10 Mbit/s and more</li> <li>Holger Zeltwanger, Managing Director, CAN in Auto- mation e. V., Nuremberg</li> </ul>	<ul> <li>A Safety-Certified Vehicle OS to Enable Soft- ware-Defined Vehicles</li> <li>Vehicle operating system enabling software- defined vehicles</li> <li>End-to-end operating system for mobility, smart machines and IoT</li> <li>End-to-end operating system addressing all mobility megatrends.</li> <li>Functional safety certification to ISO 26262</li> <li>Software Development Kit based on ROS-APIs</li> <li>Dr. Jan Becker, CEO, Apex.AI, Inc., Palo Alto, CA, USA</li> </ul>	<ul> <li>Towards lead-acid free 12V power supply for electrified vehicles and highly automated driving functions</li> <li>12V lithium-ion batteries as the new standard</li> <li>Electrification of the powertrain will influence the design of the future 12V board net supply</li> <li>Redundant 12V supply for highly automated driving Björn Kleinsteinberg, Battery expert (simulation and modelling), Co-Authors: Dr. Kay Klobedanz, DiplInf. André Hohenhövel, all of HELLA GmbH &amp; Co. KGaA, Lippstadt</li> </ul>		
09:30	<ul> <li>Graph-based Optimization of Vehicle Diagnostics using Machine Learning Methods</li> <li>Revealing causal relationships of fault causes and fault symptoms</li> <li>Processing of different fault information and fault propagation</li> <li>Automated fault classification via training on vehicle data</li> <li>Melissa Gresser, M. Sc., Ph. D. Candidate, Co-Authors: DiplIng. Michael Mende, both of BMW Group, Munich, Prof. DrIng. Bernard Bäker, TU Dresden</li> </ul>	<ul> <li>How to improve the efficiency, peak power density and current density in an automotive SiC drive train inverter - Sensitivity analysis of design parameters</li> <li>Effect of Rds,on improvement on different losses</li> <li>Benefits of a better cooling</li> <li>Which parameters improve the WLTP-efficiency?</li> <li>Which parameters improve the peak-current?</li> <li>DrIng. Stefan Hain, Head of core development semiconductors, ZF Friedrichshafen AG, Bayreuth</li> </ul>	<ul> <li>Safety Architectures for Automotive Cross Domain Servers - Challenges and Potentials</li> <li>Next generation vehicle E/E-architectures</li> <li>Safety aspects of future cross domain servers</li> <li>"Diversity and Redundancy" - basic safety principles applied in automotive servers</li> <li>Mixed-criticality - methodes for handling in high performance controller</li> <li>DiplIng. Dirk Geyer, Head of Segment Safety &amp; Security, Co-Author: Christian Miedl, M. Sc., both of AVL Software &amp; Functions GmbH, Regensburg</li> </ul>	<ul> <li>State of Health and State of Charge Estimation method - A Machine Learning based hybrid approach</li> <li>"Hybrid Approach" an intelligent combination of Battery physics and Artificial intelligence</li> <li>Neural Network Architecture</li> <li>An implementation example in a Mild Hybrid BMS using PowerPC controller</li> <li>Mahesh Ghivari, Senior Director and Debango Chakraborty, Senior Designer, R&amp;D, both of KPIT Technologies GmbH, Munich</li> </ul>		

1:00 Flashlight on High Performance Computing – Implementation experiences: Architecture, System Integration & Project Management Werner Koestler, Head of VNI Key Projects within Vehicle Networking and Information Business Area, Continental, Continental Automotive, Regensburg

### 10:15 Flashlight on OS

Maria Anhalt, CEO, Elektrobit Automotive GmbH, Erlangen

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

- 🚔

# **Continued 2nd Congress Day**

Oliver Manicke, Dr.-Ing. h.c. F. Porsche AG, Weissach

•	AI – Self learning vehicles Moderation: Elmar Frickenstein, Elstein Consul- ting & former BMW AG, Munich	Software Technologies Moderation: Michael Jaeger, HELLA, Lippstadt	Electronics Innovation Moderation: DiplIng. Stefan Teuchert, MAN Truck & Bus, Munich	Security Moderation: Stephan Esch, Volkswagen AG, Wolfsburg
• 11:15	<ul> <li>Al-based Signal Integrity Monitoring for Integrated Vehicle Health Management (IVHM)</li> <li>Next generation VHM using deep learning at the edge</li> <li>Early detection of malfunctions and performance degradation</li> <li>Root cause insights to streamline maintenance</li> <li>Combining AI with physics and domain expertise Sasha Apartsin, Head of Data Science, SafeRide Technologies, Tel Aviv, Israel</li> </ul>	<ul> <li>An Eco-System for the Development of Automotive Innovation Roadmaps</li> <li>A knowledge-base backend enables the aggre- gation of general data, facts and prognoses for availability, performance and/or constraints of features</li> <li>Quantitative evaluation and analysis of possible innovations for an automotive roadmap</li> <li>Interactive frontend enabling quick exploration of possible innovations in a collaborative process</li> <li>DiplIng. Berthold Hellenthal, Head of Computing Platform and Semiconductors, CARIAD SE, Ingol- stadt, Co-Authors: Prof. Dr. Christoph Grimm, TU Kaiserslautern, Alexander Breckel, Ulm University</li> </ul>	<ul> <li>User Experience - The key to successfully combining electric mobility and connectivity</li> <li>The importance of user experience</li> <li>Needs of users for electric and connected mobility</li> <li>E-mobility products, connected services and HMI concepts: trends and how they impact the experience of end users</li> <li>E-Experience Drive and other methods to successfully combine electric and connected mobility</li> <li>Audrey Matarage, M. Eng., Co-Lead User Experience, Co-Author: Rico Ludwig, B. Eng., both of P3 automotive GmbH, Stuttgart</li> </ul>	<ul> <li>Scalable Automotive Intrusion Detection Systems: From the ECU to the VSOC</li> <li>Regulatory requirements drive need for Intrusion Detection Systems (IDS)</li> <li>Scalable automotive IDS solution from the ECU to the vehicle security operation center (VSOC) is required</li> <li>Solution based on automotive standards and of-the-shelf IT SW is reasonable</li> <li>Dr. rer. nat. Eduard Metzker, Solution Manager Cybersecurity, Embedded Systems, Co-Author: Dr. Maximilian Engelsberger, both of Vector Informatik GmbH, Stuttgart</li> </ul>
• 11:45	<ul> <li>Make AI Testing Meaningful: From Understanding to Mastering of AI Testing</li> <li>Testing of AI based systems needs an extension of existing best practices</li> <li>Testing AI includes testing what has not been learned</li> <li>We propose the Deep Regression Test scheme to make AI testing effective and meaningful</li> <li>The underlying principles are especially important for self-learning vehicles</li> <li>Dr. Ulrich Bodenhausen, Manager Consulting, Vector Consulting Services GmbH, Stuttgart</li> </ul>	<ul> <li>Future collaboration ecosystem for automotive microelectronic innovation processes</li> <li>Model-based collaboration along the future automotive value networks</li> <li>Knowledge-based innovation roadmapping for future E/E</li> <li>Enabling comprehensive innovation roadmapping with Roadmap-Lifecycle-Management</li> <li>DrIng. Christoph Heer, Product management Asia, loT Group, Autonomous Transportation &amp; Infrastructure, Intel Deutschland GmbH, Neubiberg, Co-Authors: DiplIng. Damun Mollahassani, Sven Forte, M. Sc., both of University Kaiserslautern</li> </ul>	<ul> <li>Augmented Reality Guidance based on 6D Positioning and HD Lanes</li> <li>Applying visual-inertial odometry for precise positioning</li> <li>Projecting HD lane information into a video stream</li> <li>Navigation guidance based on an AD decision making module</li> <li>Dr. Martin Pfeifle, Chief Technology Officer, CTO Office, NNG Kft., Budapest, Hungary, Co-Authors: Prof. Daniel Cremers, Technical University of Munich &amp; CSO Artisense GmbH, Munich, Philip Hubertus, HERE Technologies, Schwalbach</li> </ul>	<ul> <li>The Crossroads of Automotive Security and GDPR <ul> <li>Relevance of data protection increases with transformation of mobility</li> <li>Compliance with data protection as a key requirement for automotive industry</li> <li>Systematic approach towards automotive privacy and security engineering</li> <li>Dr. rer. nat. Matthias Wachs, Lead Engineer Cybersecurity &amp; Connectivity, Highly Automated Driving – Software &amp; Systems Quality, Co-Authors: Jean Jäger, M. Sc., both of TÜV SÜD Autoservice GmbH, Garching, Dr. rer. nat. Alexandre Berthold, LDA Brandenburg, Kleinmachnow</li> </ul></li></ul>
• 12:15	<ul> <li>Machine learning approach towards remote diagnostics and repair of electric vehicle charging processes</li> <li>(How) can electric vehicles learn to deal with faulty charging behaviour?</li> <li>Digital twins of electric vehicles and charging infra- structure for backend simulation of interaction</li> <li>Machine learning for automated parameterisation during function tests</li> <li>DiplIng. Kevin Renatus, Research Assistant, Chair of Vehicle Mechatronics, Dresden Institute of Auto- mobile Engineering, Co-Authors: Prof. DrIng. Bernard Bäker, both of Dresden University of Technology, DrIng.</li> </ul>	<ul> <li>Software Security Strategies for Embedded Software</li> <li>Business and technical challenges of embedded systems</li> <li>Large and complex software supply chains increasing the complexity of software supply chain assurance</li> <li>Addressing major engineering challenges by binary scanning</li> <li>Adam Boulton, CTO, BlackBerry Technology Solutions and Ian Todd, IoT Practice Lead, Security Services, both of BlackBerry, London, United Kingdom</li> </ul>	<ul> <li>Shy Tech Displays – Enabling a new era of puristic vehicle design and enhanced user experience</li> <li>UX Trend "Simplicity" – technology is hidden until needed</li> <li>Seamless GUI integration without postcard effect</li> <li>Design Freedom – realistic simulation of interior materials with natural texture and haptics</li> <li>Reducing potential sources of driver distraction DrIng. Frank Rabe, Executive Vice President, Head of Business Unit Human Machine Interface, Continental Automotive GmbH, Babenhausen</li> </ul>	<ul> <li>Automotive Cyber-Attacks Via Over-the-Air Software Updates – a Case Study</li> <li>Introduction to the concept of over-the-air software updates in the automotive world</li> <li>A case study from a real pen-test – remotely hijacking a vehicle via software updates vulnerabilities</li> <li>Thoughts on mitigation and prevention</li> <li>Shaked Delarea, Security Researcher, Research, Co-Author: Ohad Peled, both of Argus Cyber Security, Tel Aviv, Israel</li> </ul>



	12:45	<ul> <li>Safe-Al – A new approach to make Autonomous Driving safe</li> <li>Mathematical provable uncertainty determination within the Al</li> <li>Automatic edge case detection</li> <li>Enhancement of the safety case for ISO 26262</li> <li>Real-time monitoring of the autonomous driving stack</li> <li>Dr. Ralph Meyfarth, Managing Director, Co-Authors: Sven Fülster, Sebastian Hempel, all of Deep Safety GmbH, c/o The Drivery GmbH, Berlin</li> </ul>	<ul> <li>Needs and challenges of the transformation towards software defined vehicle in China</li> <li>Fast adaption to market needs in China</li> <li>Time savings</li> <li>Reusing existing elements</li> <li>Software platform as a key to market</li> <li>DiplIng. Francis Man, Vice President Global</li> <li>Operational Excellence, Elektrobit Automotive GmbH, Erlangen</li> </ul>	<ul> <li>Adaptive Driving Beam – The next mandatory Safety System?</li> <li>LEDs as headlamp light source enable low-cost glare free main beams</li> <li>Multi-Purpose Cameras are already standard equipment</li> <li>The safety benefit during night driving is extremely high</li> <li>DrIng. Wolfgang Huhn, Senior Advisor, Driving Vision News, Neuilly-sur-Seine, France</li> </ul>	<ul> <li>Implementing adequate security for UN R 155 with AUTOSAR</li> <li>Impact of UN R 155 on E/E architectures and product roadmaps</li> <li>View and status of the automotive industry based on a global survey</li> <li>Systematic and traceable approach to identify and meet the UN R 155 requirements</li> <li>AUTOSAR's security building blocks as core of imple- mentations in the context of UN R 155 Annex 5</li> <li>Marcel Rücker, Security Consultant, Professional Security Services, Co-Authors: Moritz Minzlaff, Dr. Michael Schneider, all of ESCRYPT GmbH, Bochum/Stuttgart/Berlin</li> </ul>			
۱¢	13:15	Lunch break, Exhibition and Start-up Area visit						
		Plenary Flashlight Speeches and Award Ceremony – New York (Ground Floor)						
	14:30	30 Flashlight on E/E Architecture Vision on Future E/E Architectures framed by Service Oriented Architecture to maximize the Potential of the Software Thierry Cammal, Alliance Global Vice President Software Factory & Director General Renault Software Labs, Groupe Renault, Tournefeuille, France						
9	14:45	Flashlight on Software How Software Solutions and High Performance Controllers enable Vehicle Intelligence Dr. Dirk Walliser, Senior Vice President Corporate Research & Development, ZF Friedrichshafen AG, Friedrichshafen						
	15:00	Flashlight on 5G and Artificial Intelligence Transforming Cars and the Transportation System Stefan Marxreiter, Vice President, Qualcomm CDMA Technologies GmbH, Munich						
•	15:15	5:15 Flashlight on Al Self-learning AI for Autonomous Vehicles Barak Matzkevich, AutoBrains, Tel Aviv, Israel						
ė	15:30	0 Conclusion and Discussion By Members of the Program Committee						
ė	16:00	Award Ceremony "Auto Electronic Excellence Award						
ė	16:15	5 End of the Congress						

# 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.

- Areas of the app:
- Digital congress program: create your own agenda at once
- Networking: Use the "Offer" and "Search" function to find and contact other participants
- General event information
- Service information
- Evaluation and question function
- Exhibition information



# **Start-up Area**

Again this year ELIV offers young companies the opportunity of presenting their latest developments and products in automotive electronics at the start-up area. Start-ups are invited to seize their opportunity and interact directly with an exclusive, international circle 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 at 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:

### Martina Slominski

Team Leader Exhibition & Sponsorship Phone: +49 211 6214-385 Email: slominski@vdi.de

# **Program Start-ups**

Visit our start-up stage and learn about the latest innovations by young companies in the field of automotive electronics. Our start-up session takes place on both congress days.

Listen to the following presentations, among others:

**"Speeding-up data-driven applications on the new Infineon AURIX™ TC4xx with ease**" by Oliver Oey, Technical Product Manager; emmtrix Technologies GmbH

**"Next generation vehicle positioning solution"** by Dr. Nicolas Thorstensen, Founder and Managing Director; IVISO GmbH

**"Training Aid - The fastest way reduce your training times by 50 % with AR"** by Kerim Ispir, COO & Co-Founder; REFLEKT GmbH

"Automated MIL/SIL/HIL Testing in the Cloud"

Dr.-Ing. Florian Göbe, Head of Research & Development, Mindmotiv GmbH

**"Take Control of the Battery Lifecycle – with Predictive Battery Analytics Software"** by Lucas Reinfeld, Battery Solutions Specialist; TWAICE

"Robust LiDAR sensors for robust object detection"

Kris de Meester, VP Sales & Business Development, XenomatiX

You will find the revised program on the homepage and in the EventApp from August on.

### **Start-up Award**

Vote for the best start-up at the ELIV!

"The Best Start-Up" award ceremony will take place at the end of the second congress day following the "Auto Electronic Excellence Award 2021".

### Start-ups already registered:

aSR advanced Simulated Reality GmbH Cognata Ltd. Cymotive emmtrix Technologies GmbH IVISO GmbH Mindmotiv GmbH RE'FLEKT GmbH WideSense Xenomatix N. V.





## **Gold Sponsor**



KPIT is a leading independent software development and integration partner helping mobility leapfrog towards a clean, smart, and safe future. With 7000 automobelievers across the globe specializing in embedded software, AI, and digital solutions, KPIT accelerates clients' implementation of next-generation technologies for the future mobility roadmap. With engineering centers in Europe, the USA, India KPIT works with leaders in automotive and mobility and is present where the ecosystem is transforming.

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 Phone: +49 89 3229966-0 Email: info@kpit.com Website: www.kpit.com

### **Silver Sponsors**



Brose is the world's fourth-largest family-owned automotive supplier. The company develops and produces mechatronic systems for vehicle doors and seats as well as electric motors, drives and electro-

nics, among others for steering, brakes, transmissions and engine cooling. About 25,000 employees generated turnover of 5.1 billion euros in 2020.

#### Contact:

Brose Fahrzeugteile SE & Co. Kommanditgesellschaft, Bamberg Berliner Ring 1 | 96052 Bamberg Phone: +49 951 7474 4744 Email: christoph.maag@brose.com Website: www.brose.com

### Qualcom

With 30+ years of mobile technology leadership and more than 20 years of automotive industry experience, Qualcomm Technologies has developed an extensive product portfolio that uses our mobile and compute platforms. Today we're at the center of

the global automotive ecosystem, helping automakers and Tier 1s develop vehicles with one of the most advanced Telematics, Digital Cockpit, ADAS/autonomous driving, cellular vehicle-to-every-thing (C-V2X) and Car-to-Cloud solutions available.

#### Contact:

Qualcomm CDMA Technologies GmbH Anzinger Str. 5, 81671 München, Germany Phone: +49 89 6146940000 Website: www.qualcomm.com/products/automotive



### **Bronze Sponsor**



Contact: The MathWorks GmbH | Friedlandstr. 18 | 52064 Aachen Phone: +49 241 4757-6700 | Email: contact@mathworks.de Website: www.mathworks.de/automotive

### Sponsor



### List of Exhibitors (October, 2021)

A2Mac1 Automotive Benchmarking ANSYS Germany GmbH Apex.AI GmbH Arilou Cyber Security aSR advanced Simulated Reality GmbH Aurora Labs Avelabs GmbH AVL List GmbH **Bertrandt** AG Brose Fahrzeugteile SE & Co. KG, Bamberg Brusa Elektronik (München) GmbH b-plus GmbH Cognata Ltd. CyMotive Technologies Ltd. Daimler AG dSPACE GmbH EDAG Engineering GmbH **Electronic Specifier** emmtrix Technologies GmbH ETAS GmbH FEV Europe GmbH Göpel electronic GmbH Green Hills Software GmbH Hailo Technologies LTD. ICT Netherlands B.V. Indie Semiconductor Institut für Kraftfahrzeuge - ika -

IPG Automotive GmbH IVISO GmbH iambit GmbH **KDPOF** KIT Karlsruher Institut für Technologie **KPIT Technologies GmbH** Kugler Maag CIE GmbH MAGNA Steyr Fahrzeugtechnik AG & Co. KG MAN Truck & Bus SE MathWorks GmbH Method Park Holding AG Mercedes-Benz AG Mindmotiv GmbH Molex CVS Bochum GmbH MURATA Electronics Europe B.V. NNG LLC **OPAL-RT** Germany GmbH Prisma Sales Service GmbH Prozesswerk GmbH Qualcomm Europe Inc. **RE'FLEKT GmbH** SafeRide Technologies SAM Standard and More GmbH & Co. KG Silentium Silicon Mobility Silver Atena GmbH STAR COOPERATION

# **Media Partner**



autömotive

STMicroelectronics N.V. TASKING Germany GmbH TDK – Micronas GmbH TDK Europe GmbH TraceTronic GmbH TTTech Auto AG TWAICE Technologies GmbH umlaut systems GmbH Valens Vector Informatik GmbH ViGEM GmbH WideSense Xenomatix N. V.

### Exhibition & Sponsorship

#### We'll connect you - and your business.

Would you like to meet the key players at this congress and present your products and services to a selected circle of industry professionals? Then, participate in the event as an exhibitor or sponsor. If you are interested, get in touch with:

> Contact: Martina Slominski, Project Consultant Exhibition & Sponsorship Phone: +49 211 6214-385 Email: slominski@vdi.de

### **Special exhibitions**

The topic of highly automated driving is on everyone's lips. Make the most of your visit to ELIV and take a look at the technology exhibition on this hot topic. OEMs and suppliers will show you important background conditions on the basis of vehicles, measurement systems, etc:

- High-precision maps
- Sensor technology (radar, camera, lidar, ...) and sensor fusion (IDC)
- Actuator technology (steering, brake, ESP, ...)
- Vehicle integration
- Human-machine interface and system understanding
- In addition, there will be a special exhibition on the forecourt.
- Subject to change -

### **Networking lounges**

Participants have the opportunity of booking meeting rooms at the World Conference Center Bonn for about an hour. Additionally to gaining new insights and findings from the lectures, this is an excellent opportunity for sharing your thoughts with your business partners in a quiet room behind closed doors. If you are interested, please contact:



# **General Information**

### **P**rogram Committee – The brains behind the congress

ELIV offers a host of networking opportunities, a large exhibition and above all a very topical program of presentations for participants to discover the very latest developments, current new trends and routes to future solutions.

Putting together this world-class agenda requires decisions to be taken long before the call for papers is published. This job is the responsibility of ELIV's program committee.

High-level representatives of OEMs and leading suppliers accurately identify the latest megatrends without ignoring the enablers or the classic topics.



Kai-Uwe Balszuweit. Vice President Software & BMW Car IT GmbH. BMW Group. Munich, Germany



Rémi Bastien. Vice President Automotive Prospective, Groupe Renault, Guyancourt, France



Rob Csongor, Former Vice President Autonomous Machines, NVIDIA, Pleasanton, CA, USA



Dipl.-Ing. Harald Deiss, Vice President Electronic Systems, ZF Friedrichshafen AG, Auerbach, Germany



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



Dr. Thomas Hollmann, Electrics/Electronics Development, Volkswagen AG, Wolfsburg, Germany



Dipl.-Ing. Christof Kellerwessel, Director, Ford MEB Office, Ford-Werke GmbH, Cologne, Germany



Joachim Langenwalter, Senior Vice President Software & Hardware, Stellantis NV, Paris, France



Ralf Lenninger, Vehicle Networking and Information, Strategy and Future Solutions, Continental Automotive GmbH, Regensburg, Germany

Main, Germany Dr. Burkhard Milke. Director Electric &



Dipl.-Ing. Uwe Michael, mps, Frankfurt am



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





Dr. Jutta Schneider, Director EE Powernet, Daimler AG, Sindelfingen, Germany





### **Scientific Support**

The VDI Society for Vehicle and Transport Technologies, VDI-FVT in short, has around 28.000 members that are affiliated to at least one of its 8 technical sections. This makes it the second biggest of the VDI's dedicated societies. VDI-FVT is the community for engineers working in the vehicle industry, as well as for engineers dealing with transport and traffic outside manufacturing industries. Traditionally, a majority of members work in automotive. VDI-FVT is the German affiliate of the world federation of automotive engineers' societies. FISITA, and it is the intellectual sponsor of many big conferences on automotive technology and thus fosters exchange and knowledge transfer both nationally and internationally. It also sponsors Formula Student Germany, awarding VDI membership to all German participants, and promotes other student competitions for transport engineers. VDI-FVT has recently reconstituted technical sections for rail and marine technologies, as well as space and aircraft. It is putting a strong focus on transport and traffic in general and aims to mediate between technology and society.

More information: www.vdi.de/fvt

### Information on Coronavirus Safety

The health and safety of our customers and employees is our top priority. We have therefore developed a safety concept to ensure protection against the risk of coronavirus. We will closely observe official national and regional regulations and will, of course, comply with current coronavirus protection measures. This may in some circumstances result in some restrictions for participants.