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

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?
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

Including up-to-date contributions from:

www.eliv-congress.com
#eliv
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

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
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?
Moderator: Ken Fouhy, Editor-in-Chief, VDI nachrichten, VDI Verlag GmbH, Dusseldorf

10:45 Coffee break, Exhibition and Start-up Area visit

11:30 Parallel Session
Session 1: New York (Ground Floor) Session 2: Nairobi (Ground Floor) Session 3: Wien (Ground Floor) Session 4: Bangkok (Basement) Session 5: Start-Up Stage (Basement)

Automated Driving
Moderation: Kai-Uwe Balszuweit, BMW, Munich

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

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

E-Mobility
Moderation: Dr. Anes Hodzic, Ford, Cologne

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

Start-up Session
hosted by: The Mathworks

14:30 Parallel Session

Automated Driving
Moderation: Prof. Dr. Lutz Eckstein, RWTH Aachen University, Aachen

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

End-2-End Architecture
Moderation: Dr. Jutta Schneider, Daimler, Sindelfingen

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

16:00 Coffee break, Exhibition and Start-up Area visit

16:45 Parallel Session

Automated Driving
Moderation: Rob Conger, NVIDIA, Pleasanton, CA, USA

Software Technologies
Moderation: Dr. Rolf Zöller, Porsche AG

Electronics Innovation
Moderation: Ralf Lenninger, Continental Automotive, Regensburg

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

18:45 End of the first Congress Day

18:50 Night of Electronics
All congress participants are invited to the ELIV evening event with delicious food, great networking opportunities and a special evening keynote by John W. Kelly, Founder and CEO of Graphika on “Mapping Social Networks – Shepherding Automotive Innovation in the 21st Century”.

Register at: www.eliv-congress.com
2nd Congress Day  
Thursday, October 21, 2021

08:30 Parallel Session
- Session 1: New York (Ground Floor)
  - Data Analytics  
    Moderation: Karsten Michels, Continental Automotive, Villingen-Schwenningen
- Session 2: Nairobi (Ground Floor)
  - Electronics Innovation  
    Moderation: Dr. Peter Redlich, Ford, Cologne
- Session 3: Wien (Ground Floor)
  - End-to-End Architecture  
    Moderation: Dr. Thomas Hollmann, Volkswagen AG, Wolfsburg
- Session 4: Bangkok (Basement)
  - E-Vehicle  
    Moderation: Rémi Bastien, Groupe Renault, Guyancourt, France
- Session 5: Start-Up Area (Basement)
  - Start-up Session  
    Hosted by: The Mathworks

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- Session 4: Bangkok (Basement)
  - E-Vehicle  
    Moderation: Rémi Bastien, Groupe Renault, Guyancourt, France
- Session 5: Start-Up Area (Basement)
  - Start-up Session  
    Hosted by: The Mathworks

10:00 Flashlight on High Performance Computing
  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

11:15 Parallel Session
- AI – Self learning vehicles  
  Moderation: Dipl.-Inf. Elmar Frickenstein, Elstein Consulting & former BMW AG, Munich
- Software Technologies  
  Moderation: Michael Jaeger, HELLA, Lippstadt
- Electronics Innovation  
  Moderation: Dipl.-Ing. Stefan Teuchert, MAN Truck & Bus, Munich
- Security  
  Moderation: Stephan Esch, Volkswagen AG, Wolfsburg

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

14:30 Flashlight on E/E Architecture
  Cammal Thierry, Alliance Global Vice President Software Factory & Director General Renault Software Labs, Groupe Renault, Tournefeuille, France

14:45 Flashlight on Software
  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 Flashlight on AI
  Barak Matzkevich, AutoBrains, Tel Aviv, Israel

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

16:00 Award Ceremony "Auto Electronic Excellence Award 2021", best Start-up and Closing of the Congress

16:15 End of the Congress
1st Congress Day

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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

11:30 Collaborative development of a test environment for Automated Driving
• 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

Automotive Software Development – Is it different?
• Usage of practically proven software development 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

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 Ortega-Cabrera, both: Microsoft Corporation, Redmond, WA, USA

11:45 Lunch break

Register at: www.eliv-congress.com
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
• 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, 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

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

12:00 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

12:30 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


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

12:00 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 Daten- und Systemtechnik GmbH, Aachen

12:30 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

13:00 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

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13:00 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 CO2 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
Continued 1st Congress Day

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 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 Latser, 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, Chief Technology Officer, NNG Kft., Budapest, Hungary, Co-Author: Claas Bracklo, Michael Keller, all Charging Interface Initiative (CharIN) e. V., Berlin

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

16:00 Coffee break, Exhibition and Start-up Area visit

14:30 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

15:00 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


15:30 New architecture approaches and their impact on automotive wiring harnesses
- 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 CO2-footprint

Zohar Fox, CEO & Co-founder, Co-Author: Roger Ordman, both of Aurora Labs, Tel Aviv, Israel

Wiring Harness academia and research group presentation, Network of Excellence E-Mobility

16:00 MAN’s new fully centralized EE architecture – a driving fully connected server Platform
- Centralized functionality (only one ECU as Brain in the middle)
- Open for third party software
- Modular
- Scalable
- Ready for automation & e-mobility
- Fully connected

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

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, NING Kft., Budapest, Hungary, Co-Author: Santosh Alexander, WideSense, Berkeley, CA, USA

Register at: www.eliv-congress.com
16:45 The Evolution of Automation in Parking: Assisted, Automated, Autonomous
- Parking has a high potential for Automation
- Supervised vs. unsupervised
- Sensor concepts and scalable architectures
- Fully "Automated Valet Parking" following different standards
- Insights about products and research activities

Dr. Andree Hohm, Head of Autonomous Driving Program, Continental, Frankfurt am Main

17:15 Trajectory tracking using Neural Network for autonomous driving systems
- Vehicle path planning and tracking for autonomous driving decision making
- Neural network used to develop adaptive control system
- Model predictive control including linear and non-linear dynamics of vehicles to combat model mismatches

Dr. Lee Gonzales Fuentes, ADAS Application Engineer, Automotive Microcontroller, Infineon Technologies AG, Neubiberg, Co-Authors: Manoj 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
- Real time physics-based radar simulation
- Machine learning in electromagnetic applications for autonomous driving
- Automatic generation and labeling of radar data sets for machine learning applications
- Tool-chain integration using the Open Simulation Interface (OSI)

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

AUTOSAR Vehicle Operating System (AVOS): The Safe and Secure framework for Automotive SoC Architectures
- Current development status of both AUTOSAR platforms Classic (CP) as well as Adaptive Platform (AP)
- Discussion on proprietary OS solutions
- Potential answers by AUTOSAR AVOS
- Future Challenges for AUTOSAR

Rinat Asmus, BMW Group and AUTOSAR Chairperson, Co-Author: Dr. Ing. Günter Reichart, AUTOSAR Spokesperson, Aschheim near Munich

Next paradigm change in the car: Abandon proprietary solutions – embrace open standards
- VIRTIO is an open standard for device virtualization, that
- Moves guest OSs among different hypervisors
- Enables to break free from vendor lock-in
- Enables to re-use software platforms
- Enables to start the concept of a systems from the software perspective. The decision for hardware use follows after having designed the software architecture

Ralph Sasse, Lead Solution Engineer, OpenSynergy GmbH, Berlin

Perceptive Advanced Car-driver Drowsiness Monitoring Neuro-Embedded System
- Physiological Assessment of the car driver through embedded car bio-sensing platform
- Photoplethysmography-driven car driver drowsiness monitoring system
- Embedded system with Photoplethysmography and Motion Magnification Systems

Dr. Eng. Francesco Rundo, Ph. D., Senior Technical Staff Engineer, ADG Central R&D Division, STMicroelectronics, Catania, Italy

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

Active light for digital life
- Light based Car2X Communication
- Light innovations for 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

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

Battery Thermal Management – Immersion Cooling
- 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

Digital Acoustics Innovations for Automotive Applications from extreme to pleasant
- Multi-faceted, cross-domain, transparent and industry edge
- Participation in joint initiative “Automotive Software Interfaces & Middleware Initiative”

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

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

SeatCentric Experiences for Tomorrow’s Vehicle Cabins
• Whole-vehicle computing becoming the norm vs. past/current state of a multitude of purpose-specific 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
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.

Register at: www.eliv-congress.com
2nd Congress Day

Thursday, October 21, 2021

08:30  End-to-End Architecture and Methods for Chassis Health Management
- Value Drivers
- Digital Twins
- On-board/Off-board partitioning
Dipl.-Ing. Joe Klesing, Product Line Executive, PL, Co-Author: Peter Schmitt, both of Nexteer Automotive Corporation, Auburn Hills, MI, USA

08:45  A Cloud based Remote Test System for High-Performance Vehicle Computers
- Remote Access to sample devices in the test field via remote-DLT & remote-HMI
- Centralized storage of the traces for building digital twins & identifying recurring failures
- Cross device and cross model analysis helps to automatically recognize the expected & unexpected behavior of different components
Moez Selem, Project Manager, Robert Bosch GmbH, Hildesheim

09:00  A new perspective for manufacturers: Cloud-based utilization of operational fleet data
- Interaction and information flow between fleets’ stakeholders
- Integration of real-world operational fleet data into the manufacturer’s processes
- Use case of Battery Electric Vehicles fleets
Friedrich von Bülow, M. Sc., Ph. D. Student Data Science, Co-Authors: Felix Heinrich, M. Sc., both of Volkswagen AG, Wolfsburg, Prof. Dr.-Ing. Tobias Meisen, Bergische Universität Wuppertal

09:15  CAN XL: the third CAN protocol generation
- Data link layer with 2048-byte data field
- CAN XL protocol with layer-management information
- Data protection with cascaded CRC sequences
- Physical transmission with up to 10 Mbit/s and more
Holger Zeltwanger, Managing Director, CAN in Automation e.V., Nuremberg

09:30  Graph-based Optimization of Vehicle Diagnostics using Machine Learning Methods
- Revealing causal relationships of fault causes and fault symptoms
- Processing of different fault information and fault propagation
- Automated fault classification via training on vehicle data
Melissa Gresser, M. Sc., Ph. D. Candidate, Co-Authors: Dipl.-Ing. Michael Mende, both of BMW Group, Munich, Prof. Dr.-Ing. Bernhard Bäker, TU Dresden

09:45  How to improve the efficiency, peak power density and current density in an automotive SiC drive train inverter – Sensitivity analysis of design parameters
- Effect of Rds.on improvement on different losses
- Benefits of a better cooling
- Which parameters improve the WLTP-efficiency?
- Which parameters improve the peak-current?
Dr.-Ing. Stefan Hain, Head of core development semiconductors, ZF Friedrichshafen AG, Bayreuth

10:00  A Safety-Certified Vehicle OS to Enable Software-Defined Vehicles
- Vehicle operating system enabling software-defined vehicles
- End-to-end operating system for mobility, smart machines and IoT
- End-to-end operating system addressing all mobility megatrends
- Functional safety certification to ISO 26262
Dr. Jan Becker, CEO, Apex.AI, Inc., Palo Alto, CA, USA

10:15  Safety Architectures for Automotive Cross Domain Servers – Challenges and Potentials
- Next generation vehicle E/E-architectures
- Safety aspects of future cross domain servers
- Diversity and Redundancy – basic safety principles applied in automotive servers
- Mixed-criticality – methods for handling in high performance controller

10:30  Towards lead-acid free 12V power supply for electrified vehicles and highly automated driving functions
- 12V lithium-ion batteries as the new standard
- Electrification of the powertrain will influence the design of the future 12V board net supply
- Redundant 12V supply for highly automated driving
Björn Kleinsteinfeld, Battery expert (simulation and modelling), Co-Authors: Dr. Kay Klobedanz, Dipl.-Inf. André Hohenhövel, all of HELLA GmbH & Co. KGaA, Lippstadt

- “Hybrid Approach” an intelligent combination of Battery physics and Artificial intelligence
- Neural Network Architecture
- An implementation example in a Mild Hybrid BMS using PowerPC controller
Mahesh Ghiwari, Senior Director and Debango Chakraborty, Senior Designer, R&D, both of KPI Technologies GmbH, Munich

10:45  Data Analytics
Moderation: Karsten Michels, Continental Automotive, Villingen-Schwenningen

10:45  Electronics Innovation
Moderation: Dr. Peter Redlich, Ford, Cologne

10:45  End-2-End Architecture
Moderation: Dr. Thomas Hollmann, Volkswagen AG, Wolfsburg

10:45  E-Vehicle
Moderation: Rémi Bastien, Groupe Renault, Guyancourt, France
Continued 2nd Congress Day

11:15  **AI-based Signal Integrity Monitoring for Integrated Vehicle Health Management (IVHM)**
- Next generation VHM using deep learning at the edge
- Early detection of malfunctions and performance degradation
- Root cause insights to streamline maintenance

**Sasha Aparstain**, Head of Data Science, SafeRide Technologies, Tel Aviv, Israel

**Oliver Manicke**, Dr.-Ing. h.c. F. Porsche AG, Weissach
**Bäker**, both of Dresden University of Technology, Dr.-Ing. mobile Engineering, Co-Authors: Prof. Dr.-Ing. Bernard of Vehicle Mechatronics, Dresden Institute of Automotive

- The underlying principles are especially important
- We propose the Deep Regression Test scheme to make AI testing effective and meaningful
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- The underlying principles are especially important


**Sven Forte**, M. Sc., both of University Kaiserslautern
**Co-Authors: Dipl.-Ing. Damun Mollahassani, Dr.-Ing. Christoph Grimm, TU Kaiserslautern, Alexander Breckel, Ulm University

**Future collaboration ecosystem for automotive microelectronic innovation processes**
- Model-based collaboration along the future automotive value networks
- Knowledge-based innovation roadmapping for future E/E
- Enabling comprehensive innovation roadmapping with Roadmap Lifecycle Management

**Dr.-Ing. Christoph Heer**, Product management Asia, IoT Group, Autonomous Transportation & Infrastructure, Intel Deutschland GmbH, Neubiberg, Co-Authors: Dipl.-Ing. Damun Mollahassani, Sven Forte, M. Sc., both of University Kaiserslautern

**Electronics Innovation**
- Augmented Reality Guidance based on 6D Positioning and HD Lanes
  - Applying visual-inertial odometry for precise positioning
  - Projecting HD lane information into a video stream
  - Navigation guidance based on an AD decision making module

**Dr. Martin Pfeifle**, Chief Technology Officer, CTO Office, NNG Kft., Budapest, Hungary, Co-Authors: Prof. Daniel Cremers, Technical University of Munich & CSD Artisense GmbH, Munich, Philip Hubertus, HERE Technologies, Schwalbach

**Shy Tech Displays – Enabling a new era of puristic vehicle design and enhanced user experience**
- UX Trend "Simplicity" – technology is hidden until needed
- Seamless GUI integration without postcard effect
- Design Freedom – realistic simulation of interior materials with natural texture and haptics
- Reducing potential sources of driver distraction

**Adam Boulton**, CTO, BlackBerry Technology Solutions and **Ian Todd**, IoT Practice Lead, Security Services, both of BlackBerry, London, United Kingdom

**Register at: www.eliv-congress.com**

11:45  **Make AI Testing Meaningful: From Understanding to Mastering of AI Testing**
- Testing of AI-based systems needs an extension of existing best practices
- Testing AI includes testing what has not been learned
- We propose the Deep Regression Test scheme to make AI testing effective and meaningful
- The underlying principles are especially important for self-learning vehicles

**Dr. Ulrich Bodenhausen**, Manager Consulting, Vector Consulting Services GmbH, Stuttgart

**Software Technologies**
- Future collaboration ecosystem for automotive microelectronic innovation processes
- Model-based collaboration along the future automotive value networks
- Knowledge-based innovation roadmapping for future E/E
- Enabling comprehensive innovation roadmapping with Roadmap Lifecycle Management

**Dr.-Ing. Christoph Heer**, Product management Asia, IoT Group, Autonomous Transportation & Infrastructure, Intel Deutschland GmbH, Neubiberg, Co-Authors: Dipl.-Ing. Damun Mollahassani, Sven Forte, M. Sc., both of University Kaiserslautern

**Software Security Strategies for Embedded Software**
- Business and technical challenges of embedded systems
- Large and complex software supply chains increasing the complexity of software supply chain assurance
- Addressing major engineering challenges by binary scanning

**Adam Boulton**, CTO, BlackBerry Technology Solutions and **Ian Todd**, IoT Practice Lead, Security Services, both of BlackBerry, London, United Kingdom

**Security**
- Scalable Automotive Intrusion Detection Systems: From the ECU to the VSOC
  - Regulatory requirements drive need for Intrusion Detection Systems (IDS)
  - Scalable automotive IDS solution from the ECU to the vehicle security operation center (VSOC) is required
  - Solution based on automotive standards and of-the-shelf IT SW is reasonable

**Dr. rer. nat. Eduard Metzker**, Solution Manager Cybersecurity, Embedded Systems, Co-Authors: Dr. Maximilian Engelsberger, both of Vector Informatik GmbH, Stuttgart

- **The Crossroads of Automotive Security and GDPR**
  - Relevance of data protection increases with transformation of mobility
  - Compliance with data protection as a key requirement for automotive industry
  - Systematic approach towards automotive privacy and security engineering

**Dr. rer. nat. Matthias Wachs**, Lead Engineer Cybersecurity and Connectivity, Highly Automated Driving – Software & Systems Quality, Co-Authors: Jean Jäger, M. Sc., both of TÜV Süd Autoservice GmbH, Garching, Dr. rer. nat. Alexandre Berthold, LDA Brandenburg, Kleinmachnow

**Automotive Cyber-Attacks Via Over-the-Air Software Updates – A Case Study**
- Introduction to the concept of over-the-air software updates in the automotive world
- A case study from a real pen-test – remotely hijacking a vehicle via software updates vulnerabilities
- Thoughts on mitigation and prevention

**Shaked Delarea**, Security Researcher, Research, Co-Authors: Ohad Peled, both of Argus Cyber Security, Tel Aviv, Israel

12:15  **Software Technologies**
- Next generation VHM using deep learning at the edge
- Early detection of malfunctions and performance degradation
- Root cause insights to streamline maintenance
- Combining AI with physics and domain expertise

**Sasha Aparstain**, Head of Data Science, SafeRide Technologies, Tel Aviv, Israel

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**Shaked Delarea**, Security Researcher, Research, Co-Authors: Ohad Peled, both of Argus Cyber Security, Tel Aviv, Israel
12:45  **Safe-AI – A new approach to make Autonomous Driving safe**
- Mathematical provable uncertainty determination within the AI
- Automatic edge case detection
- Enhancement of the safety case for ISO 26262
- Real-time monitoring of the autonomous driving stack

**Dr. Ralph Meyfarth**, Managing Director, Co-Authors: Sven Füster, Sebastian Hempel, all of Deep Safety GmbH, c/o The Drivery GmbH, Berlin

13:15  **Needs and challenges of the transformation towards software defined vehicle in China**
- Fast adaption to market needs in China
- Time savings
- Reusing existing elements
- Software platform as a key to market

**Dipl.-Ing. Francis Man**, Vice President Global Operational Excellence, Elektrobit Automotive GmbH, Erlangen

14:30  **Adaptive Driving Beam – The next mandatory Safety System?**
- LEDs as headlamp light source enable low-cost glare free main beams
- Multi-Purpose Cameras are already standard equipment
- The safety benefit during night driving is extremely high

**Dr.-Ing. Wolfgang Huhn**, Senior Advisor, Driving Vision News, Neuilly-sur-Seine, France

14:45  **Implementing adequate security for UN R 155 with AUTOSAR**
- Impact of UN R 155 on E/E architectures and product roadmaps
- View and status of the automotive industry based on a global survey
- Systematic and traceable approach to identify and meet the UN R 155 requirements
- AUTOSAR’s security building blocks as core of implementations in the context of UN R 155 Annex 5

**Marcel Rücker**, Security Consultant, Professional Security Services, Co-Authors: Moritz Minzlaff, Dr. Michael Schneider, all of ESCRYPT GmbH, Bochum/Stuttgart/Berlin

16:00  **Award Ceremony “Auto Electronic Excellence Award 2021” and best Start-up**
16:15  **End of the Congress**

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**ELIV – The App**

The App will be available for download at the [Apple App Store](https://appstore.com) and the [Google Play Store](https://play.google.com) 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**
- **Evaluation and question function**
- **Exhibition information**
- **Service information**

Simply download the Event-App and register!
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, RE’FLEKT GmbH

“Automated MIL/SIL/HIL Testing in the Cloud” by Lucas Reinfeld, Battery Solutions Specialist, TWAICE

“Robust LiDAR sensors for robust object detection” by 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

Register at: www.eliv-congress.com
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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
- HALO Technologies LTD.
- ICT Netherlands B.V.
- Indie Semiconductor
- Institut für Kraftfahrzeuge - ika -
- IPG Automotive GmbH
- IVISO GmbH
- jambit 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
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- OPAL-RT Germany GmbH
- Prisma Sales Service GmbH
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- STMicroelectronics N.V.
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- TDK – Micronas GmbH
- TDK Europe GmbH
- TraceTronic GmbH
- TTECHTech AG
- TWAICE Technologies GmbH
- umlaut systems GmbH
- Valens
- Vector Informatik GmbH
- VIGEM GmbH
- WideSense
- Xenomatix N. V.

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 -

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.

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

Register at: www.eliv-congress.com
**Program 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.

### Program Committee Members

- **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/Electronic 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
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- **Dipl.-Ing. Stefan Teuchert**, Senior Vice President, Head of Electric/Electronic Systems (EE), MAN Truck & Bus SE, Munich, Germany
- **Dr. Rolf Zöller**, Director Smart Connected Vehicle Porsche AG and Managing Director Porsche Digital, Weissach, Germany (Chair)

**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.