# Overview
## Conference Program

| | 1. IOT & CONNECTIVITY | | | | 2. EMBEDDED OS | | 3. SAFETY & SECURITY |
|---|---|---|---|---|---|---|---|
| **DAY 1:** morning | Session 1.1<br>**Industrial IoT 1**<br>Room Prag | Session 1.10<br>**Intelligent IoT**<br>Room Budapest | | | Session 2.1<br>**Developing with Zephyr: Introduction**<br>Room St. Petersburg | | Session 3.1<br>**Trustworthy Embedded Devices**<br>Room Istanbul |
| **DAY 1:** afternoon | Session 1.2<br>**Industrial IoT 2**<br>Room Prag | Session 1.11<br>**OPC UA Use Cases**<br>Room Budapest | | | Session 2.2<br>**Developing with Zephyr: How to**<br>Room St. Petersburg | | Session 3.2<br>**Implementing the Cyber Resilience Act (CRA)**<br>Room Istanbul |
| | Session 1.3<br>**Localization & Tracking**<br>Room Prag | Session 1.12<br>**Vehicular Networks**<br>Room Budapest | | | Session 2.3<br>**Zephyr for Safety & Security Applications**<br>Room St. Petersburg | | Session 3.3<br>**Security in the Quantum Era**<br>Room Istanbul |
| **DAY 2:** morning | Session 1.4<br>**TSN for Industrial Automation**<br>Room Prag | Session 1.13<br>**Cellular IoT: 5G & 6G**<br>Room Budapest | | | Session 2.4<br>**Developing with Embedded Linux**<br>Room St. Petersburg | | Session 3.4<br>**Qualifiying Safe Embedded Systems**<br>Room Istanbul |
| **DAY 2:** afternoon | Session 1.5<br>**TSN Management**<br>Room Prag | Session 1.14<br>**Cellular IoT: Emerging technologies**<br>Room Budapest | | | Session 2.5<br>**Real-time Linux**<br>Room St. Petersburg | | Session 3.5<br>**Efficient Engineering of Safety/Security Projects 1**<br>Room Istanbul |
| | Session 1.6<br>**TSN Synchronization**<br>Room Prag | Session 1.15<br>**Mesh Networks**<br>Room Budapest | | | Session 2.6<br>**Yocto Use Cases**<br>Room St. Petersburg | | Session 3.6<br>**Efficient Engineering of Safety/Security Projects 2**<br>Room Istanbul |
| **DAY 3:** morning | Session 1.7<br>**Fieldbus Applications**<br>Room Prag | Session 1.16<br>**Bluetooth Technologies**<br>Room Budapest | Session 1.19<br>**IoT Identify Management**<br>Room Riga | Session 1.22<br>**Modular & Open Systems**<br>Room Kopenhagen | Session 2.7<br>**Optimization of Embedded OS**<br>Room St. Petersburg | | Session 3.7<br>**Developing Safe Software**<br>Room Istanbul |
| | Session 1.8<br>**Fieldbus Security**<br>Room Prag | Session 1.17<br>**Bluetooth Channel Sounding**<br>Room Budapest | Session 1.20<br>**IoT Security Management**<br>Room Riga | | Session 2.8<br>**Over The Air (OTA) Updates**<br>Room St. Petersburg | | Session 3.8<br>**The Way to Safe AI**<br>Room Istanbul |
| **DAY 3:** afternoon | Session 1.9<br>**CAN: Protocols & Security**<br>Room Prag | Session 1.18<br>**Wireless Connectivity with Matter & Thread**<br>Room Budapest | Session 1.21<br>**IoT Data Management**<br>Room Riga | | Session 2.9<br>**Virtualization: Hypervisors & Containers**<br>Room St. Petersburg | Session 2.10<br>**Embedded OS in Automotive Applications**<br>Room Krakau | Session 3.9<br>**Safety & Security Use Cases**<br>Room Istanbul |

## Conference Fees

| Fees Classes | Full Price |
|---|---|
| 1 Half-Day Class Ticket | EUR 495.00 |
| 2 Half-Day Classes Ticket | EUR 990.00 |
| 3 Half-Day Classes Ticket | EUR 1295.00 |
| 4 Half-Day Classes Ticket | EUR 1490.00 |
| 5 Half-Day Classes Ticket | EUR 1795.00 |
| 6 Half-Day Classes Ticket | EUR 1990.00 |

| Fees Sessions | Full Price |
|---|---|
| Sessions 1 Day Ticket | EUR 695.00 |
| Sessions 2 Day Ticket | EUR 845.00 |
| Sessions 3 Day Ticket | EUR 990.00 |

All fees excluded 19% VAT

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**Exhibition Ticket Included**

**REGISTER ONLINE:**
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**Terms and Conditions:**

1. The attendance fee includes participation on the booked conference days, proceedings, refreshments, and free admission to the embedded world 2025 Exhibition.
2. You will receive a confirmation of your conference registration along with your invoice.
3. Cancellations received in writing before or on 18 February 2025 will be subject to a service charge of EUR 50 for one-day registrations and EUR 100 for several-days registrations. For all cancellations received after 18 February 2025 the full conference fee remains payable. Substitutions within the same company are welcome at any time.
4. The organizers reserve the right to make changes in the program and/or speakers or to cancel sessions/classes if conditions beyond its control prevail.
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5. Students are granted a 50% reduction, student ID required. Please register online.
6. Exhibitors will receive a discount of 30%. Please use the code: EWC25EXH
7. For registrations of five persons and more from one company, please contact our conference department for special rates.
8. On-site-registration: Please register in advance. For on-site-registration a surcharge of EUR 70 per attendee will apply

| 4. HARDWARE DESIGN | | 5. SOFTWARE & SYSTEMS ENGINEERING | | 6. EMBEDDED VISION | 7. EDGE AI |
|---|---|---|---|---|---|
| Session 4.1<br>**CPUs & Coprocessors**<br>Room Oslo | Session 4.4<br>**MIPI I3C Serial Bus**<br>Room Krakau | Session 5.1<br>**Programming Languages**<br>Room Kiew | Session 5.10<br>**Embedded DevOps and CI**<br>Room Riga | | Session 7.1<br>**Compliance for Edge AI**<br>Room Kopenhagen |
| Session 4.2<br>**Multiprocessor System Design**<br>Room Oslo | | Session 5.2<br>**Programming Languages: Rust**<br>Room Kiew | Session 5.11<br>**Open Source Software**<br>Room Riga | Session 6.1<br>**MIPI for Embedded Vision**<br>Room Krakau | Session 7.2<br>**Workflows for Edge AI**<br>Room Kopenhagen |
| Session 4.3<br>**Developing with FPGAs**<br>Room Oslo | Session 4.5<br>**MIPI Interfaces**<br>Room Krakau | Session 5.3<br>**Software Coding Paradigms**<br>Room Kiew | Session 5.12<br>**Development Processes for SW-Defined Vehicles (SDV)**<br>Room Riga | | Session 7.3<br>**Strategies for Building Edge AI**<br>Room Kopenhagen |
| Session 4.6<br>**RISC-V Development Ecosystem**<br>Room Oslo | | Session 5.4<br>**Robust Software Architectures**<br>Room Kiew | Session 5.13<br>**Test Processes and Strategies**<br>Room Riga | Session 6.2<br>**Embedded Vision Use Cases**<br>Room Krakau | Session 7.4<br>**Hardware for Edge AI**<br>Room Kopenhagen |
| Session 4.7<br>**RISC-V System Design**<br>Room Oslo | | Session 5.5<br>**Artificial Intelligence (AI) Algorithms**<br>Room Kiew | Session 5.14<br>**Software Product Quality**<br>Room Riga | Session 6.3<br>**AI in Embedded Vision Applications**<br>Room Krakau | Session 7.5<br>**Frameworks for Edge AI**<br>Room Kopenhagen |
| Session 4.8<br>**Memory: Test for Zero Defect**<br>Room Oslo | | Session 5.6<br>**Debugging Software & Systems**<br>Room Kiew | Session 5.15<br>**Test Automation**<br>Room Riga | Session 6.4<br>**Embedded Vision Interfaces**<br>Room Krakau | Session 7.6<br>**Smart Sensing Based on Edge AI**<br>Room Kopenhagen |
| Session 4.9<br>**Developing Embedded Hardware**<br>Room Oslo | Session 4.11<br>**Measuring Power Supply Current**<br>Room Krakau | Session 5.7<br>**MISRA SW Coding Guidelines**<br>Room Kiew | | | |
| Session 4.10<br>**Sensors, Actuators, Radar**<br>Room Oslo | Session 4.12<br>**Ultra Low Power & Energy Harvesting**<br>Room Krakau | Session 5.8<br>**Static Code Analysis**<br>Room Kiew | | | Session 7.7<br>**Edge AI Case Studies 1**<br>Room Kopenhagen |
| | | Session 5.9<br>**How to Leverage AI for Development**<br>Room Kiew | | | Session 7.8<br>**Edge AI Case Studies 2**<br>Room Kopenhagen |

## STEERING BOARD

(from left to right):
Prof. Dr. Dirk Pesch,
Dr. Bernd Hense,
Caspar Grote,
Prof. Dr. Axel Sikora,
Prof. Dr. Peter Fromm,
Prof. Dr. Ansgar Meroth.

The steering board is the strategic think tank behind the embedded world Conference. Currently six senior engineers with excellent scientific and business records, with open minds and a lot of ideas, shape the future direction of the embedded world Conference.

The photo was taken at the Hochschule Offenburg, Germany.

# Tuesday, 11 March
## Conference Program

| | 1. IOT & CONNECTIVITY | | 2. EMBEDDED OS | 3. SAFETY & SECURITY |
|---|---|---|---|---|
| 10:00-10:15 | **Opening & Welcome Remarks \| Room Tokio**<br>Prof. Dr. Axel Sikora, Hochschule Offenburg/Hahn-Schickard | | | |
| 10:15-10:45 | Conference Keynote: **Pushing Boundaries: Flexible AI at the Edge**<br>Sandra Rivera, Altera | | | |
| | **1.1: Industrial IoT 1** | **1.10: Intelligent IoT** | **2.1: Developing with Zephyr: Introduction** | **3.1: Trustworthy Embedded Devices** |
| 11:00-11:30 | **How Can Connectivity Innovations Transform the Industrial Market?**<br>Jonathan Regalado-Hawkey, Valens Semiconductor | **Intelligently Online When Needed: A Revolution in IoT Cellular Connectivity!**<br>Thomas Larsson, Giesecke+Devrient Mobile Security Germany | **What's in a Name: Is Zephyr Really (Just) an RTOS?**<br>Benjamin Cabé | **From Identification to Trust: Ensuring Brand Protection and Consumer Safety**<br>Benjamin Baratte, STMicroelectronics |
| 11:30-12:00 | **Unlocking Value and Driving Innovation: The Power of IoT in Manufacturing**<br>Marc Sauter, Vodafone Business IoT | **How to Get from Sensor Data to an AI Based Realtime Application – A Technical Deep Dive**<br>Simon Kneller, esentri | **Unlocking Streamlined Development and Simplifing Maintenance with Zephyr RTOS for IoT Devices**<br>Luka Mustafa, IRNAS | **Supply Chain Attacks: Strategies for Secure Supply Chain Management**<br>Dr. Martin Neumann, infoteam Software |
| 12:00-12:30 | **A Visionary Modelling Approach for Predictive Maintenance in a Highly Regulated Environment**<br>Peter Lieber, SparxSystems Software | **Edge AI Unleashed: Architecting Seamless Cloud-to-Edge Intelligence with Connected Services**<br>Channa Samynathan, Amazon Web Services | **Boosting Product Development with the Zephyr RTOS – A Critical Reflection**<br>Moritz Marquardt, Carl Zeiss | **Demystifying Reverse Engineering Attacks on Embedded Devices**<br>Nils Albartus, Emproof |
| 12:30-12:45 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| | Lunch Break | | | |
| | **1.2: Industrial IoT 2** | **1.11: OPC UA Use Cases** | **2.2: Developing with Zephyr: How to** | **3.2: Implementing the Cyber Resilience Act (CRA)** |
| 13:45-14:15 | **Built to Last: Critical Considerations for Future-Ready IoT**<br>Toby Gasston, Wireless Logic | **OPC UA at Field Level with Open Source Solutions**<br>Vasilij Strassheim, Linutronix | **Unlocking Zephyr's Potential: A Practical Guide to Efficient Product Development**<br>Dr. Tobias Kästner, inovex | **Understanding the CRA: Implications for Device Software**<br>Julien Bernet, Witekio |
| 14:15-14:45 | **Digital Product Passport as Key Enabler of Circular Economy**<br>Ricardo Dunkel, Open Industry 4.0 Alliance | **LADS OPC UA – Enabling Plug'n'Play Connectivity for Laboratory and Analytical Devices**<br>Dr. Melanie Kahl, infoteam Software | **From Code to Current: Reducing Energy Consumption in Zephyr Device Drivers**<br>Fabian Pflug, grandcentrix | **Compliance Requirements and Implementation for Embedded Devices under the Cyber Resilience Act**<br>Patrick Niklaus, TUV Rheinland Group |
| 14:45-15:15 | **Integrating Edge and Cloud: Technical Comparison and Performance Benchmarking of DDS, OPC UA, MQTT, and Kafka**<br>Dr. Gerardo Pardo, Real-Time Innovations (RTI) | **Time Sensitive Networking for Industrial Automation using OPC-UA**<br>Martin Kellermann, Microchip Technology | **Porting a Bluetooth Application to Zephyr OS – Benefits and Challenges**<br>Dr. David Egan, Infineon Technologies | **Implementing a Robust Firmware Signing Infrastructure Complying with the CRA**<br>Guillaume Crinon, Keyfactor |
| 15:15-15:30 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| | Coffee Break | | | |
| | **1.3: Localization & Tracking** | **1.12: Vehicular Networks** | **2.3: Zephyr for Safety & Security Applications** | **3.3: Security in the Quantum Era** |
| 16:00-16:30 | **AI-Driven Dynamic Multiprotocol Integration for Enhanced IoT Connectivity and Localization**<br>Dr. Wael Guibene, Silicon Labs | **The Emerging Importance of Connected V2X Mobility for Safety on Roads**<br>Thomas Jaeger, DEKRA SE | **Preparing for the CRA when using Open Source Projects**<br>Kate Stewart, Linux Foundation | **Protecting Devices and Data In the Quantum Era**<br>Bart Stevens, Rambus |
| 16:30-17:00 | **Is Tracking the Killer App for IoT? Incorporating Find My Functionality into Bluetooth Devices**<br>Dr. David Egan, Infineon Technologies | **Vehicle Communication System in Distributed Data Space**<br>Matija Bedeković, Cetitec | **Zephyr as a Secure Choice for Embedded Development**<br>Pierre Lecomte, Witekio | **Quantum-Resilient Architectures, Embedding Tomorrow's Security in Today's IoT**<br>Kevin Hilscher, DigiCert |
| 17:00-17:30 | **HD-FDD and the Art of Seamless Asset Tracking**<br>Igor Tovberg, Sony Semiconductor Israel | **Applying TSN and DDS to Software Defined Vehicles and Other Real-time Edge Applications**<br>Dr. Gerardo Pardo, Real-Time Innovations (RTI) | **Testing Embedded Software With Zephyr**<br>Mohammed Billoo, MAB Labs Embedded Solutions | **Crypto Agility for Industrial & IoT: Challenges and Opportunities when Migrating to Post-Quantum Cryptography**<br>Dr. Joppe Bos, NXP Semiconductors |
| 17:30-17:45 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |

## Tuesday, 11 March
## Conference Program

| 4. HARDWARE DESIGN | 4. HARDWARE DESIGN<br>5. SOFTWARE & SYSTEMS ENGINEERING | 5. SOFTWARE & SYSTEMS ENGINEERING | 5. SOFTWARE & SYSTEMS ENGINEERING<br>6. EMBEDDED VISION | 7. EDGE AI |
|---|---|---|---|---|
| **Opening & Welcome Remarks \| Room Tokio**<br>Prof. Dr. Axel Sikora, Hochschule Offenburg/Hahn-Schickard | | | | |
| **Conference Keynote: Pushing Boundaries: Flexible AI at the Edge**<br>Sandra Rivera, Altera | | | | |
| **4.1: CPUs & Coprocessors** | **4.4: MIPI I3C Serial Bus** | **5.1: Programming Languages** | **5.10: Embedded DevOps and CI** | **7.1: Compliance for Edge AI** |
| **Processing and Power Subsystem Co-development for Sustainable and Cost Effective Time to Market**<br>Juan Romero,<br>NXP Semiconductors | **An Introduction to MIPI I3C, the Next-Generation Serial Bus Enabling Industrial Applications**<br>Michele Scarlatella,<br>MIPI Alliance | **Making C++ Safe – or Better go Rust, C# or Cpp2?**<br>Klaas van Gend,<br>Sioux Technologies | **Embedded DevOps: Hardware in the CI Loop and the Transformative Power of Sharing Work-in-Progress**<br>Darwin Sanoy,<br>GitLab | **Law Compliance of AI Systems**<br>Prof. Dr. Julius Schöning,<br>Osnabrück University of Applied Sciences |
| **Designing Domain Specific Accelerators with High-Level Synthesis**<br>Prof. Russell Klein,<br>Siemens EDA | **Best Practices for Smooth Adoption of the MIPI I3C Interface**<br>Martin Cavallo,<br>Binho LLC | **Rust Embedded Ecosystem: An Overview**<br>Tamme Dittrich,<br>Tweede golf | **Toward Continuous Firmware Delivery**<br>Guilherme Costa,<br>Stratio Automotive | **Qualification of AI/ML Systems and Interfacing Devices**<br>Steve Di Camillo,<br>LDRA |
| **Mastering the Art of Microcontroller Selection for IoT and Edge Computing Innovations: A Deep Dive**<br>Sakshi Madaan,<br>Anders Electronics | **Enabling Next-Generation Embedded Vision Systems with MIPI I3C**<br>Marie-Charlotte Leclerc,<br>STMicroelectronics | **Embedded MicroPython: Viable and Surprisingly Capable for IoT and Embedded Systems**<br>Brad Stewart,<br>AeroSynth | **DevSecOps for Linux-Based MPUs**<br>Laurent Sustek,<br>STMicroelectronics | **Design, Exploration and Evaluation of Safety-Critical Software for Integrating AI/ML-based Algorithms**<br>Dr. Gabriel Pedroza,<br>Ansys |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Lunch Break | | | | |
| **4.2: Multiprocessor System Design** | **5.2: Programming Languages: Rust** | **5.11: Open Source Software** | **6.1: MIPI for Embedded Vision** | **7.2: Workflows for Edge AI** |
| **Enhance the Software Developer Experience in Semiconductor Industry**<br>Dr. Stefano Mangioni,<br>Accenture | **Rust in Embedded Systems: Safe and Efficient Programming for the Next Generation of IoT Devices**<br>Joseph Schneider, Dojo Five | **Enabling Software Defined Vehicles through Open Source Software**<br>Dan Cauchy,<br>Automotive Grade Linux | **Empowering Autonomous Driving: The Impact of MIPI CSI-2 on Advanced Sensor Technologies**<br>Simon Bussieres,<br>Rambus | **AI-Powered Workflow Automation: Autonomous Service Labeling and RAG Systems**<br>Dr. Philipp Dumbach,<br>infoteam Software |
| **How Many CPUs is too Many?**<br>Hugh Breslin,<br>Microchip Technology | **Using Rust with Existing Systems**<br>Dion Dokter,<br>Tweede golf | **Enabling Safety in the SDV with Open-Source Software**<br>Dr. Alexander Mattausch,<br>Elektrobit Automotive | **Machine Vision Processing of Event-based Sensor with MIPI Interface on FPGAs**<br>Satheesh Chellappan,<br>Lattice Semiconductor | **Leveraging Automated AI Model Discovery and Development for Edge Processing**<br>Ali Osman Ors,<br>NXP Semiconductors |
| **Network Traffic Tunneling on Heterogenous SoCs**<br>Nitika Verma,<br>Texas Instruments | **Rust for Medical Device Development**<br>Milica Kostic,<br>Zuhlke Engineering | **Open-source GPU Drivers: Why you need them for your Embedded Products**<br>Samuel Iglesias Gonsálvez,<br>Igalia | **Addressing the Challenges in the Medical Industry's Transition to Disposable Endoscopes**<br>Jonathan Regalado-Hawkey,<br>Valens Semiconductor | **Tackling ML Performance Challenges In Multichannel Edge Environments**<br>David Steele,<br>Arcturus |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Coffee Break | | | | |
| **4.3: Developing with FPGAs** | **4.5: MIPI Interfaces** | **5.3: Software Coding Paradigms** | **5.12: Development Processes for SW-Defined Vehicles (SDV)** | **7.3: Strategies for Building Edge AI** |
| **Enhancing Workflow of FPGA Development through Container Orchestration**<br>Jonathan Hendriks,<br>Zuhlke Engineering | **Genius in Simplicity: A Practical Guide to Connecting DSI-2 Display Panels to Microcontrollers in Embedded Applications**<br>Dr. Mohamed Hafed,<br>Introspect Technology | **Low-Latency Embedded Applications: Optimizing for Speed and Responsiveness**<br>Ofra Bechor,<br>Green Hills Software | **Rapid Prototyping for Software-Defined Vehicles with GenAI and the digital.auto Playground**<br>Prof. Dr. Dirk Slama,<br>Bosch | **Contextual AI and the Creation of Efficient On-Device Assistants**<br>Dominic Pajak,<br>Synaptics |
| **Hybrid Verification Approaches for Large-scale FPGA-based SoCs**<br>Moumon Chatterjee,<br>Ericsson | **How Universal Flash Storage is Enabling Edge-AI in Automotive and Industrial Applications**<br>Bruno Trematore,<br>KIOXIA Europe (Speaking on Behalf of MIPI Alliance and JEDEC) | **Understanding "Memory Safety": Guarantees, Limits, and Different Solution Approaches**<br>Dr. Martin Becker,<br>The MathWorks | **Solving the Complexities behind Software Integration for SDVs**<br>Salvador Rodriguez Lopez,<br>TTTech Auto | **How to Bridge Technological Gaps in Edge AI Industrial Applications**<br>Umar Ahmad,<br>Advantech Europe |
| **From Breadboard to FPGA**<br>Pablo Trujillo,<br>controlpaths | **Soundwire When Compared to I2S and TDM**<br>Saravana Kumar Muthusamy,<br>Soliton Technologies | **Typedefs and Records and Generics, oh my: New Type Safety Features Coming in C2Y**<br>Alex Celeste,<br>Perforce Software | **How Continuous Integration is Transforming the Automotive Industry**<br>Philip Miesbauer,<br>Jaguar Land Rover | **How to Run Big AI Models Using NVIDIA TAO on the Latest CortexM85 ARM Based MCU's**<br>Amir Sherman,<br>Edge Impulse |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |

**Want more? See page 7 for additional classes!**

# Wednesday, 12 March

## Conference Program

| | 1. IOT & CONNECTIVITY | | 2. EMBEDDED OS | 3. SAFETY & SECURITY |
|---|---|---|---|---|
| | **1.4: TSN for Industrial Automation** | **1.13: Cellular IoT: 5G & 6G** | **2.4: Developing with Embedded Linux** | **3.4: Qualifiying Safe Embedded Systems** |
| 10:00-10:30 | **Keys to Scaling Time-Sensitive Networks and vPLCs for Mass Adoption of Industry 4.0**<br>Christopher Main,<br>TenAsys | **Reality Check 5G IoT: Revolution Delayed?**<br>Peter Gaspar,<br>A1 Digital International | **The Status of Debian for Embedded Systems**<br>Leonardo Held,<br>Toradex | **Successful SIL4 Project thanks to HIL Testing During Development**<br>Michael Weiß,<br>Hitex |
| 10:30-11:00 | **TSN-based Factory Backbone as an Enabler for vPLCs**<br>Philipp Neher,<br>University of Stuttgart | **Seamless Transitions between Terrestrial and Satellite Networks in IoT Systems**<br>Marco Guadalupi,<br>Sateliot | **Porting an Embedded Linux Driver from C to Rust**<br>Remo Senekowitsch,<br>ZHAW Institute of Embedded Systems | **Level up your Embedded Testing Game – Fretish, Robot and Twister: A Dream Team**<br>Christian Schlotter,<br>Carl Zeiss Meditec |
| 11:00-11:30 | **DetNet: How Industrial Automation Benefits from Cloud and Internet Technologies**<br>Dr. Florian Kauer,<br>Linutronix | **Green FPGA: The Role of FPGA in Waveform Agnostics Radio Unit (RU) for 5G and 6G Applications**<br>Dr. Hossam Fattah,<br>Lattice Semiconductor | **Running Sandboxed Programs in the Linux Kernel – Practical Use-cases for eBPF**<br>Jan Altenberg, Open Source Automation Development Lab (OSADL) | **Task Monitoring Unit for Temporal and Logical Flow Measurement in Safety Critical Automotive Microcontroller Units**<br>Giuseppe Dangelo, STMicroelectronics |
| 11:30-11:45 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| | Lunch Break | | | |
| | **1.5: TSN Management** | **1.14: Cellular IoT: Emerging technologies** | **2.5: Real-time Linux** | **3.5: Efficient Engineering of Safety/Security Projects 1** |
| 12:45-13:15 | **Enabling Intent-based Network Management for TSN by Modelling Complex Dependencies**<br>Hamza Chahed,<br>Karlstad University | **GCF Certification for Emerging IoT Cellular Technologies: 5G RedCap and NTN NB-IoT**<br>Carlos Pedraz Rodríguez,<br>Global Certification Forum | **Evolving IoT Patterns in Heterogeneous Multicore for Linux Real-Time (RT)**<br>Richard Elberger,<br>Amazon Web Services | **Dangers of Over-Engineering a Safe System**<br>Louay Abdelkader,<br>BlackBerry QNX |
| 13:15-13:45 | **Ensuring Reliable TSN Management by Monitoring Time Synchronization Precision**<br>Kedar Dnyaneshwar Naik,<br>Hochschule Offenburg | **SGP.32: Advancing Remote SIM Provisioning for the IoT**<br>Bertrand Moussel,<br>Trusted Connectivity Alliance | **Real Time Networking with PREEMPT_RT**<br>Kurt Kanzenbach,<br>Linutronix | **How Much Safety Can You ‘Buy’ for Less than a Dollar?**<br>Maria Teresa Jacob,<br>Microchip Technology |
| 13:45-14:15 | **Analyzing and Solving Common Interoperability Challenges in TSN-Networks**<br>Kilian Brunner,<br>ZHAW, Zurich University of Applied Sciences | **GCF Certification of Remote SIM Provisioning for Devices with IoT eSIM**<br>Lars Skjold Nielsen,<br>Global Certification Forum | **Optimizing Boot Time for Embedded Linux Systems Performance**<br>Frederic Hoerni,<br>The Embedded Kit by WITEKIO | **Mind the Economic Safety Gap: Accelerating Safety Innovation using Generative Artificial Intelligence**<br>Andreas Kreutz,<br>Fraunhofer IKS |
| 14:15-14:30 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| | Coffee Break | | | |
| | **1.6: TSN Synchronization** | **1.15: Mesh Networks** | **2.6: Yocto Use Cases** | **3.6: Efficient Engineering of Safety/Security Projects 2** |
| 15:00-15:30 | **Clock Manager: Revolutionizing Industrial Clock Synchronization with Real-Time Monitoring**<br>Jun Ann Lai,<br>Intel | **Self-Organizing Mobile Mesh Network**<br>Torsten Ohlenforst,<br>Fraunhofer IIS | **Application Integration on Yocto-based Linux Systems**<br>Pierre Gal,<br>The Embedded Kit | **Developing Safety Systems with Agile Methods**<br>Andre Schmitz,<br>Green Hills Software |
| 15:30-16:00 | **5G TSN Integration: Achieving Nanosecond-Level Time Synchronization Accuracy for Time-Critical Applications**<br>Weifeng Voon,<br>Intel Microelectronics | **Off-Grid Emergency Mesh: IoT-Enabled Meshtastic Networks for First Responders**<br>Channa Samynathan,<br>Amazon Web Services | **Building Yocto-based Linux Systems for Medical Device Compliance**<br>Pierre Lecomte,<br>Witekio | **A Model-based Approach to Safety-critical Automotive Systems**<br>Dr. Bernhard Kaiser,<br>Ansys Germany |
| 16:00-16:30 | **Time Synchronization over Network Redundancy in Real-Time Applications**<br>Daolin Qiu,<br>Texas Instruments | **Holistic Framework for LPWAN Protocol Development**<br>Johannes Neyer,<br>ZHAW Institute of Embedded Systems | **Unlocking Secure OTA Updates for IoT at Scale with Yocto and Containerization**<br>Raul Muñoz,<br>Foundries.io | **Open Source Software in Safety-Critical Applications: Challenges and Collaborative Solutions**<br>Philipp Ahmann,<br>ETAS (BOSCH) |
| 16:30-16:45 | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |

| 4. HARDWARE DESIGN | 5. SOFTWARE & SYSTEMS ENGINEERING | | 6. EMBEDDED VISION | 7. EDGE AI |
|---|---|---|---|---|
| **4.6: RISC-V Development Ecosystem** | **5.4: Robust Software Architectures** | **5.13: Test Processes and Strategies** | **6.2: Embedded Vision Use Cases** | **7.4: Hardware for Edge AI** |
| **Moving to RISC-V: Is it Really that Difficult? Designing Software to be Futureproof**<br>Hugh Breslin,<br>Microchip Technology | **The Role of Reusable Software Components in Safety-Critical Software Development**<br>Ehsan Salehi,<br>LDRA | **20 Years of Embedded Linux Quality Testing – Lessons Learned**<br>Alexander Bähr,<br>Open Source Automation Development Lab (OSADL) | **YOLOX Networks in Embedded Vision: Novel Tiled Training and One-Shot Inference for Small Object Detection, Quality Inspection, and Deployment**<br>Marco Roggero, The MathWorks | **Channeling AI to Revolutionize Semiconductor Dynamics**<br>Dr. Marco Addino,<br>Accenture |
| **Transforming the RISC-V Landscape: The Path to Ecosystem Alignment**<br>Angel Berrio,<br>Quintauris | **From Defense to Offense: A Paradigm Shift in Error Handling**<br>Tyler Hoffman,<br>Memfault | **Qualification of AI for Embedded Systems Testing: Accelerating DevSecOps Workflows**<br>Rainer Poisel,<br>honeytreeLabs | **OpenVX for Automotive: Accelerating Vision Processing Across Diverse Sensors**<br>Raphel Cano,<br>Robert Bosch | **Multi-die Design for Edge AI Applications**<br>Hezi Saar,<br>Synopsys |
| **How to Enable RISC-V Processor Customization without Re-verifying the Whole Processor**<br>Dr. Zdenek Prikryl,<br>Codasip | **Embedded Software Development for Complex System-on-Chip (SoC) Architectures**<br>Marcus Nissemark,<br>Green Hills Software | **Software Integration Testing for Functional Safety**<br>Jeffrey Fortin,<br>Vector Informatik | **Intelligent Glasses for Kids' Screentime Tracking**<br>Daniel Rossbach,<br>Hahn-Schickard Gesellschaft für Angewandte Forschung e.V. | **Multi-instance Machine Learning Models on Limited Hardware Resources**<br>Bartosz Boryna,<br>STMicroelectronics |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Lunch Break | | | | |
| **4.7: RISC-V System Design** | **5.5: Artificial Intelligence (AI) Algorithms** | **5.14: Software Product Quality** | **6.3: AI in Embedded Vision Applications** | **7.5: Frameworks for Edge AI** |
| **CVA6 MMU-less Virtualization – From Hardware to Software, and Vice Versa!**<br>Dr. Sandro Pinto,<br>Universidade do Minho / Zero-Day Labs | **Optimizing Implementation of AI Algorithms in Automotive Products**<br>Petri Solanti,<br>Siemens EDA | **Why Model Based Development Alone is not Sufficient to Ensure Safety and Security in Critical Embedded Software?**<br>Mark Richardson, LDRA | **Deploying Vision-Language Model Applications Efficiently on Embedded Devices**<br>Amit Badlani,<br>Ambarella | **Bringing Machine Learning to Embedded Devices with ExecuTorch**<br>Christopher Seidl,<br>Arm |
| **Wearable Biomarker Processing using Speckle Plethysmography Based on an Embedded RISC-V ASIP**<br>Carsten Rolfes, Fraunhofer IMS | **Ensuring Safety in AI/ML-Driven Embedded Systems**<br>Ricardo Camacho, Parasoft | **Virtual ECUs: Redefining Scalability and Efficiency in Embedded Software Development, Debugging and Testing**<br>Matthias Scheid, TASKING Germany | **State-Space Language Models for Visual Language Tasks: Advancing Efficiency in Embedded Visual Systems**<br>Bram-Ernst Verhoef, AXELERA AI | **Bridging the TinyML Language Gap with MicroPython and Emlearn**<br>Jon Nordby,<br>Soundsensing |
| **The Benefit of RISC-V for Machine Learning Applications**<br>Itai Yarom,<br>MIPS | **Using Intermediate Representations to Comprehend Embedded Software and Power Retrieval Augmented Generation**<br>Daniel Hensley,<br>Driver AI | **Importance of Control Coupling Analysis in Certifying Safety Multicore Systems**<br>Ehsan Salehi, LDRA | **Fast Online Recognition of Gestures using Hardware Efficient Spatiotemporal Convolutional Networks via Codesign**<br>Dr. Anthony Lewis,<br>Brainchip | **Tiny AI for Safety-Critical Embedded Systems**<br>Jonas Messner,<br>Robert Bosch |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Coffee Break | | | | |
| **4.8: Memory: Test for Zero Defect** | **5.6: Debugging Software & Systems** | **5.15: Test Automation** | **6.4: Embedded Vision Interfaces** | **7.6: Smart Sensing Based on Edge AI** |
| **An Easy RTL Approach to Boost up IP Subsystem Scan Test Coverage**<br>Shanshan Zhou,<br>Synopsys | **Comparing Debugging Strategies to Enhance System Reliability**<br>Dr. Carmelo Loiacono,<br>Green Hills Software | **Overcoming Challenges Deploying GoogleTest Unit Testing Frameworks for C/C++ Embedded Software Compliance**<br>Miroslaw Zielinski, Parasoft | **Kamaros – The Embedded Camera Open API Standard from Khronos**<br>Naushir Patuck,<br>Raspberry Pi | **Sensor Hub for Near-Sensor Low-latency Data Fusion in AI System**<br>Dr. Hoon Choi,<br>Lattice Semiconductor |
| **Silent Data Corruption (SDC) and No Trouble Found (NTF): Ways of Improving Industrial Semiconductor Test Towards 0ppm**<br>Prof. Dr. Peter Poechmueller,<br>Neumonda | **Highest Availability Needs In-field Debugging**<br>Dr. Albrecht Mayer,<br>Infineon Technologies | **Lessons Learned from Automated Testing of Embedded Devices**<br>Leonardo Held,<br>Toradex | **Migrating to COM Express for Rapid NPI**<br>Jeff Baldwin,<br>Sealevel Systems | **AI-based IoT Sensors with Autoencoders**<br>Kolja Bohne,<br>SSV Software Systems |
| **Errors to Avoid to Ensure Your Storage Media Lasts as Long as Your Device**<br>Thom Denholm,<br>Tuxera | **Everything You [N]ever Wanted to Know About Hardware Tracing – Utilizing Your Microcontroller's Trace Capabilities for Maximum Timing Insights**<br>Harald Paschke,<br>TASKING Germany | **Integration Tests for Embedded Linux in CI: Labgrid as the Foundation for Your Testing Workflow on Series Hardware**<br>Chris Fiege,<br>Pengutronix | **Precision Time Synchronization over MIPI Interfaces (Case Study)**<br>Roman Mostinski,<br>Mobileye | **Where Analog Signal Chains Meet the AI World**<br>Dr. Andrei Cozma,<br>Analog Devices |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |

**Want more? See page 7 for additional classes!**

# Thursday, 13 March

## Conference Program

| 2. Embedded OS<br>3. SAFETY & SECURITY | 3. SAFETY & SECURITY<br>4. HARDWARE DESIGN | 4. HARDWARE DESIGN | 4. HARDWARE DESIGN<br>5. SOFTWARE & SYSTEMS ENGINEERING | 5. SOFTWARE & SYSTEMS ENGINEERING<br>7. EDGE AI |
|---|---|---|---|---|
| **2.7: Optimization of Embedded OS** | **3.7: Developing Safe Software** | **4.9: Developing Embedded Hardware** | **4.11: Measuring Power Supply Current** | **5.7: MISRA SW Coding Guidelines** |
| **An Approach to a Maintainable OS-solution Based on Embedded Linux, Safe and Secure**<br>Dr. Michael Armbruster, emlix | **Debunking the Myth: How, Why, and When CPU Self Test Libraries Boost Microcontrollers Safety**<br>Alessandro Bastoni,<br>STMicroelectronics | **Design of a Surface-Mounted Qi-Compliant Wireless Power Coil**<br>Tobias Egerland,<br>Würth Elektronik eiSos | **Growing Significance of Battery-less BLE and its IoT Use Cases**<br>Jay Nagdeo,<br>ACAL BFi | **MISRA – What's New and What's Happening?**<br>Andrew Banks,<br>MISRA and LDRA |
| **Bringing High-End Memory Management to MCUs: Shared Objects for Resource-Constrained Systems**<br>Anders Lundgren,<br>IAR Systems | **Methods for Integrating Software-Test Libraries in Microcontroller Hypervisors**<br>Dr. Andrew Coombes,<br>Arm | **Deploying Simscape Electrical Models on FPGAs for HIL Testing**<br>Dimitri Hamidi,<br>The Mathworks | **IoT Node Powered by TEG in Tree-Air Configuration: 4 Years Results**<br>Manuel Böbel,<br>University of Applied Sciences, ZHAW-InES | **C, Rust, C-rusted and MISRA for Safe and Secure Embedded Software**<br>Prof. Dr. Roberto Bagnara,<br>University of Parma / BUGSENG |
| **Boot Time Optimization for Early Display and Graphics in Embedded Systems**<br>Divyansh Mittal,<br>Texas Instruments | **Accelerating Safety-Critical Development with Low-Code State Machine Design**<br>Anders Holmberg,<br>IAR Systems | **Why are 5-Volt Designs Still Relevant?**<br>Odd Jostein Svendsli,<br>Microchip Technology | **Innovative Battery Fuel Gauging Solution for Ultra-Low Power Applications**<br>Steve Harrell,<br>NXP Semiconductors | **Iron Carbide: Applying MISRA Rules to C and Rust in Practice**<br>Alex Celeste,<br>Perforce Software |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Coffee Break | | | | |
| **3.8: The Way to Safe AI** | **4.10: Sensors, Actuators, Radar** | **4.12: Ultra Low Power & Energy Harvesting** | **5.8: Static Code Analysis** | **7.7: Edge AI Case Studies 1** |
| **Possibilities on How to Integrate AI in Safety (Embedded) Systems**<br>Frank Poignée,<br>infoteam Software | **A Low-power DAC Sub-system for Digital Beam Forming**<br>Ankur Bal,<br>STMicroelectronics | **Streamlining Load Transient Test Setups**<br>Xinlei Tang,<br>NXP Semiconductors | **Static Analysis – Getting It Right**<br>Andrew Banks,<br>LDRA | **A Reinforcement Learning Based Controller for Shape Memory Alloy Valves**<br>Bryan Marcos Ramos Maldonado,<br>Hahn-Schickard Gesellschaft für Angewandte Forschung e.V. |
| **Can AI Applications be Functionally Safe?**<br>Jill Britton,<br>Perforce Software | **Faster Time to Market, Effective mmWave Radar Prototyping: A Unified Approach with TI MMIC and MATLAB**<br>Matthieu Chevrier, Texas Instruments;<br>Ahmad Saad, Mathworks | **Ultra Low Power Leak Detect**<br>Odd Jostein Svendsli,<br>Microchip Technology | **Challenges in Code Coverage Analysis for Safety-Critical C++ Applications**<br>Prof. Dr. Marcel Beemster,<br>Solid Sands | **AI Assisted Motor Control: From Simulation to Silicon on a RISC-V with AI Accelerator**<br>Steven Klotz,<br>Infineon Technologies |
| **A Workflow for Safe-AI**<br>Suzana Veljanovska,<br>Zurich University of Applied Sciences (ZHAW) | **A New Experience of Sound – How MEMS Microspeakers and Bone Conduction Sensors Redefine the Listening Experience**<br>Dr. Christina Strohrmann,<br>Bosch Sensortec | **Ultra-low Noise Wide Bandwidth Current Readout in CMOS Integrated Circuits**<br>Dr. Mohammad Amayreh,<br>Hahn-Schickard Gesellschaft für Angewandte Forschung e.V. | **Sound Signal Flow Analysis for C/C++**<br>Dr. Daniel Kästner,<br>AbsInt Angewandte Informatik | **GPU Based Audio Processing Platform with AI Audio Effects**<br>Simon Schneider,<br>Zürich University of Applied Sciences (ZHAW) |
| Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A | Discussion/Q&A |
| Lunch Break | | | | |
| **2.10: Embedded OS in Automotive Applications** | **3.9: Safety & Security Use Cases** | | **5.9: How to Leverage AI for Development** | **7.8: Edge AI Case Studies 2** |
| **An Open Source Automotive Middleware Stack for Secure and Real-Time Embedded Systems**<br>Lars Bauhofer, Qorix | **Unified Safety & Security Verification in Automotive**<br>Rolland Dudemaine,<br>TrustInSoft | | **GenAI – The 5th Industrial Revolution and its Impact on How to Share Technical Information**<br>Jürgen Mayer-Zintel,<br>Infineon Technologies | **Achieving Dependability of AI Execution with Radiation-Hardened Processors**<br>Carlos Rafael Tordoya Taquichiri, Zürich University of Applied Sciences (ZHAW) |
| **Navigating the Software Ecosystem for Software-Defined Vehicles: A Multi-OS Architecture Approach**<br>Himanshu Pande,<br>Wind River | **Mitigating Automotive Cybersecurity Risks in Software Containers for SDVs**<br>Gregor Knappik,<br>VicOne | | **AI-assisted Programming in Embedded Development: A Comparative Study of Human and AI-assisted Engineering Work**<br>Dr. Patrick Ott,<br>ERNI Deutschland | **Advances in Software Approaches to Execute AI/ML Inference for High-Reliability Applications on Resources Constrained Hardware**<br>Dr Pablo Ghiglino,<br>Klepsydra Technologies |
| **Zephyr Usage in Arm Automotive Solutions Software Stack**<br>Ed Doxat,<br>Arm | **Implementation of CHERI Capabilities in a Safety-critical Real-time Operating System and Type-1 Hypervisor for Intelligent Edge Systems**<br>Dmitriy Yeliseyev, Wind River | | **Accelerating Coding Standards Compliance using AI-augmented Static Analysis**<br>Arthur Hicken,<br>Parasoft | **Case Study of an Embedded Volume Determination**<br>Andy Walter,<br>Cloudflight Germany |
| Discussion/Q&A | Discussion/Q&A | | Discussion/Q&A | Discussion/Q&A |

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