

## Senior Solution Architect

Automotive Onboard Software

### Personal Details

**Education Details** University of Hamburg, Germany

Mathematics: Combinatorics, Design Theory, Graph Theory, Numerical Methods

Computer Science: Software Design, Operating System Design, Programming Languages, Compiler Design

**Strengths** Analytical, Strategic, Communicative, Collaborative, Visionary

**Expertise** Technical Architecture, Leadership, Automotive Standards and Compliance

**Skills** Automotive Expertise, Requirements Evaluation, Incremental product development, Versatile collaboration, Mentoring

Visionary Solution Architect with a dual focus on scientific research and cutting-edge technology. Specializing in automotive software stacks and platform-independent solutions, this professional brings a unique blend of visionary thinking and hands-on expertise to every project. Key Strengths:

- **Strategic Development:** Implements staged development approaches, skillfully guiding projects from conceptualization to execution while maintaining a keen eye on competitor strategies.
- **Comprehensive SDLC Expertise:** Drives automotive and cross-domain solutions through all phases of the Software Development Life Cycle, ensuring seamless integration and optimal performance.
- **Collaborative Leadership:** Excels in fostering productive relationships with customers, stakeholders, and engineering teams to deliver exceptional technical solutions and successfully complete product development cycles.
- **System Optimization:** Adept at thoughtfully adapting and refactoring existing systems to align with desired architectural goals, enhancing overall efficiency and functionality.
- **Technical Proficiency:** Demonstrates expertise in designing and implementing sustainable, maintainable, adaptable, fault-tolerant, and high-performance systems.
- **Networking:** Leverages a robust cross-company contact network to facilitate knowledge exchange and drive innovation.

This solution architect combines a passion for technological advancement with practical implementation skills, making them an invaluable asset in bridging the gap between visionary concepts and real-world applications in the automotive industry and beyond.

## Professional Summary

### Key Achievements

Diagnosed problem related to NAND Flash memory Bad Blocks in OEM's Electronic Control Unit

- Implemented two-pronged solution:
  1. Optimized chip handling process in ECU's Linux kernel
  2. Enhanced Error-Correction algorithm from 5-bit to 8-bit capability
- Prevented potential recall of 2.5 million vehicles, averting costs of €400-€600 per unit
- Ensured continued reliability of luxury car line while delivering significant cost savings

Developed RAPS (Rapid Automotive Positioning System), an innovative Digital Horizon Provider:

- Addressed critical industry gap by creating first standalone DHP capable of handling multiple map providers simultaneously
- Key features:
  - Independent operation from navigation systems
  - Multi-format processing (GDF dialects, OpenStreetMap)
  - High-speed performance: compiled and imported European maps in 3-4 hours
- Secured €700,000 in investor funding, validating market demand and technology potential
- Pioneered solution for rapid map updates in automotive applications

### Skills

- **Architecture:** Construct and maintain technical architecture, especially ADAS systems and autonomous driving solutions.
- **Leadership:** Building and managing of software-development teams. Especially regarding automotive onboard and map-based ADAS projects.
- **Automotive Electronics:** Protocols: CAN, LIN, Flexray, ADASIS, NMEA 0183. E/E architectural concepts: Distributed, Domain, Zonal, Centralized zone-oriented.
- **OEM Integration & Standards:** ISO 26262, AUTOSAR (classic and adaptive), MISRA, ISO/SAE 21434, Automotive SPICE, IATF 16949 (QM), IEC 61508 (functional safety), ISO 21448
- **Communication:** Ability to "translate" between business and technical language. Clear and precise articulation of technical specifications.
- **Strategic and Analytical Thinking:** Staged development under strategic considerations, incrementally towards long term goals.
- **Leadership and Collaboration Skills:** Driving the collaboration of customers, stakeholders and engineering teams by adopting their viewpoints to comprehend their requirements and be on the same wavelength.
- **Mentorship and Cultural Development:** Sharing expertise and best practices to help developing new skills and competencies. Organizing review and planning meetings and workshops to endorse a supportive culture regarding excellence and compliance.
- **Languages:** German: Native, English: Full professional proficiency.
- **Other:** Licensed pilot for a *Small Sized Hovercraft* carrying up to 12 people.

## Professional Experience

**Customers** Audi, BMW, Cariad, DKS-Köln, Daimler, Ford, HarmanBecker, Höft&Wessel AG, Ibeo AS, Intermap, MAN, Here(Navteq), Opel, Porsche, Siemens, TomTom(Tele Atlas), Valeo, Volkswagen, Vorwerk, ZF

### Projects

Since 2022 Designing a tech stack for the automotive industry  
Cariad Transition from an Engineering- to a Software-Centric Business.

Role: Solution Architect

Responsibilities: Combination of several automotive build pipelines and technology stacks to significantly reduce turnaround times.

Achievements: Architecture models of all involved tool chains. Common parts eliminated. Toolchain interfaces aligned. Team sync reduced by automated steps.

2020 – 2022 Realtime Audio Analyzation Device  
Rheinmetal System for detection and analyzation of sound sources in combat vehicles.

Role: Embedded Software Architect and Developer

Responsibilities: BSP development for a custom iMX8 board equipped with two 32 channel, 24 bit, 192 kHz audio devices.

Achievements: Implemented a hybrid system by mixing industrial IO and ALSA plus a non-blocking queues.

2018 – 2019 Software Architect Autonomous Driving  
Siemens Mobility Autonomous driving solution for public transportation systems.

Role: Lead Software Architect

Responsibilities: Definition and management of the software architecture of an autonomous street railway prototype.

Analyzation of the E/E driving connectors, definition of a suitable interface.

Achievements: Given software architecture replaced by incremental all refactoring steps towards a suitable one.

2017 – 2018 Automotive Telematics Control Unit  
Valeo (BMW) Providing connected in-vehicle services regarding safety and security.

Role: Senior Consultant Embedded Linux

Responsibilities: Analyzation and correction of a noticable number of errors in a NAND flash chip..

Achievements: Fixed ONFI related settings and logical errors in Linux's weak-bit handling to eliminate the root cause.

2015 – 2017 Kitchen Appliance

Vorwerk Twelve Functions Kitchen Appliance Thermomix TM5 / TM6.

Role: Software Architect

Responsibilities: Definition and creation of a WiFi connectivity for the device.

Achievements: Implemented a WiFi driver permanently scanning for the best of the configured networks.

2014 – 2015 Video Monitoring for Public Transportation Systems

DKS-Köln (Siemens) Video streaming and recording system for train systems.

Role: Software Engineer

Responsibilities: Analyzation and fixing bugs that appeared when railroad cars are recombined, especially when their orientation was inconsistent.

Achievements: Introduced car-specific orientation layer for all cars of a train underneath the orientation of the train as a whole.

2013 – 2014 Mobile Communication Device

Höft & Wessel (SBB) Communication device for shunting, replacing analog radio by GSM-R.

Role: Software Engineer

Responsibilities: Analyzation and fixing NAND flash problems and unreliable connections.

Achievements: Added Bad-Block handling and thread-synchronization.

2009 – 2012 RAPS, ADAS, digital maps

Daimler, Ford, ZF Digital-horizon provider.

Role: Principal Software Architect / Project Manager

Responsibilities: Map-provider independent digital horizon provider.

Development team establishment. Negotiation with car manufacturers.

Achievements: System that works with any digital map in GDF format. Funded by Innovationsstiftung Hamburg (€700,000).