

Bardia Shahbaz

SENIOR FUNCTION & CONCEPT ENGINEER · PRODUCT OWNER

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Senior engineer with 14 years of experience in function development and systems architecture for highly automated driving. Expert in safety-critical systems (Vehicle Motion Management / ESC) with deep expertise in ISO 26262, ASPICE, and MBSE (Matlab/Simulink). Experienced in virtual validation (vECUs), SiL/HiL methods, and agile requirements management in a large OEM environment.

EXPERIENCE

03.2025 – present
Ingolstadt / Hybrid

Senior Function & Concept Engineer CARIAD SE

- Project lead and successful series launch of safety-critical modules (hold & standstill management, FailSafeStop) within a global platform software.
- Conception and design of the logical and technical system architecture for highly automated driving functions.
- End-to-end process ownership (requirements-to-release) to safeguard functional requirements and safety standards.
- Central interface in change and stakeholder management to harmonize technical requirements.
- Holistic root-cause analysis and durable problem-solving to ensure the highest software quality and system stability.

06.2022 – 03.2025
Ingolstadt / Hybrid

Senior Function & Concept Engineer CARIAD SE

- Strategic introduction of development-accompanying SiL testing to accelerate release cycles through early defect detection.
- Holistic validation of complex driving functions using vECUs and vehicle tests to reduce hardware dependencies.
- Technical integration of ~70 sub-modules into the overall VMM software and ensuring it ran on the platform.
- Technical alignment of requirements between module developers and the overarching architecture.
- Responsible for build management, configuration, and deployment of software releases.

01.2017 – 06.2022
Ingolstadt

Function Owner, Motion Management AUDI AG

- Development of the logical and technical function architecture for Vehicle Motion Management (VMM) in automated driving.
- Prototype implementation of driving functions and their commissioning and validation in real vehicle testing.
- Conception and build-up of a simulation-based development environment in Matlab/Simulink for VMM.
- Development of automated evaluation and validation tools for efficient analysis of measurement data from testing.

- 10.2014 – 12.2016
Ingolstadt
- Function Owner, Deceleration Management**
AUDI AG
- Function ownership and series release of deceleration management across multiple vehicle platforms.
 - End-to-end function development from design and integration through to calibration and validation in vehicle testing.
 - Steering of requirements, change, and defect management in close coordination with system suppliers and specialist departments.
 - Ensuring homologation readiness and release quality in strict compliance with ISO 26262 and market-specific quality standards.
- 08.2011 – 09.2014
Ingolstadt
- Function Integration / Calibration, Deceleration Management**
EFS GmbH / Wotech GmbH (for AUDI AG)
- Commissioning, calibration, validation, and series release of the deceleration-management module within the electronic stability control (ESC).
 - Defect and change management to ensure stable function development.
- 09.2009 – 05.2011
Oberpfaffenhofen
- Student Assistant**
DLR – Institute of Robotics and Mechatronics
- Diploma thesis: development of a haptic feedback device for the human foot.
 - Internship: concept study for a haptic feedback device on the foot.
- 08.2007 – 08.2009
Dresden
- Student Assistant**
Fraunhofer IZFP-D
- Behavioral simulation of piezo materials for non-destructive testing methods.

EDUCATION & CERTIFICATIONS

- 09.2005 – 05.2011
Dresden
- Mechatronics (Dipl.-Ing.)**
Technische Universität Dresden
- Focus areas: robotics, hydraulics / pneumatics.
- 2026
Udacity
- AI / ML Nanodegrees**
Udacity
- AI Programming with Python: Python, NumPy, pandas, Matplotlib, PyTorch, Anaconda / Jupyter.
 - ML DevOps Engineer: MLflow, Weights & Biases, DVC, FastAPI, Hydra, GitHub Actions CI/CD, pytest, model monitoring; clean-code practices (PEP8, pylint).
- 2025
Coursera
- Data Science**
IBM
- What is Data Science?; Tools for Data Science.
- 2017
Coursera
- Deep Learning**
DeepLearning.AI
- Neural Networks and Deep Learning; Improving Deep Neural Networks (hyperparameter tuning, regularization, optimization); Structuring Machine Learning Projects.

SKILLS

AI & MACHINE LEARNING ■ Deep Learning ■ Neural Networks ■ MLOps / ML DevOps
■ LLM application engineering (RAG, agents) ■ Prompt engineering & evals ■ PyTorch
■ MLflow ■ Weights & Biases ■ DVC ■ FastAPI ■ NumPy / pandas

SAFETY-CRITICAL SYSTEMS & ARCHITECTURE ■ ISO 26262 (functional safety) ■ ASPICE ■ MBSE (Matlab/Simulink)
■ System & function architecture ■ Vehicle Motion Management
■ Virtual validation (vECU, SiL/HiL) ■ Requirements engineering

PROGRAMMING ■ Python ■ C / C++ ■ C# ■ TypeScript ■ SQL ■ HTML / CSS

TOOLS & PLATFORMS ■ Matlab/Simulink ■ CarMaker ■ IBM DOORS ■ CANoe / CANape ■ Silver (Synopsys)
■ dSpace TargetLink ■ CodeBeamer ■ Supabase ■ Docker ■ n8n
■ GitHub Actions / CI-CD ■ Jira

LANGUAGES German C2 English C1
Spanish A1 Persian Native
