

Rajeshkanna Viswanathan

Avionics Embedded Software Developer · 13+ Years

Bremen, Germany · EU Blue Card · German Driving Licence

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PROFESSIONAL PROFILE

Avionics and automotive embedded engineer, 13+ years in safety-critical development. Currently at POLARIS Raumflugzeuge GmbH: avionics architecture, FPGA/VHDL, sensor drivers, and DO-178C DAL B certification for supersonic and hypersonic UAV platforms. Previously seven years at Bosch GmbH: AUTOSAR BSW, ISO 26262 ASIL-B/C/D braking and steering ECUs, Ethernet stack, and Flex Gateway for GM, Daimler, Toyota-Lexus and JLR. 100% first-pass safety audits under ISO 26262; DO-178C DAL B certification evidence submitted and under DER review.

TECHNICAL PROFILE

Standards	DO-178C DAL B · DO-160 · ISO 26262 ASIL-B/C/D · ASPICE
Avionics Arch.	Centralized compute · IMA partitioning · HW/SW partitioning · safety architecture · interface definition
FPGA / VHDL	Xilinx Vivado/ISE · Microsemi Libero · RT PolarFire SoC (signal processing, actuator control, redundancy/voting logic)
Sensor Drivers	IMU (SPI/I2C) · GNSS (UART/SPI) · airdata/pitot-static driver development, sensor fusion, redundancy management
Comms Drivers	ARINC 429 · CAN Aerospace driver development · RF/datalink telemetry · ground station pipeline
AUTOSAR BSW	BswM · EcuM · RTE · MCAL braking and steering ECU integration · Flex Gateway (CAN / FlexRay / Ethernet)
Ethernet	TCP/IP · SOME/IP · SOAD · PLCA · LAN8670 · AD330x PHY
Debug & Tools	CANoe · CANalyzer · Trace32 · JTAG · Picoscope · VX1132 · Renesas E1/E2 · SIL/HIL
Languages	C · MISRA C · C++ · Python · CAPL · VHDL
Process	DOORS · Eclipse · GIT · JIRA · PREEvision · Agile/SAFe · 8D

PROFESSIONAL EXPERIENCE

Avionics Embedded Software Engineer

POLARIS Raumflugzeuge GmbH · Bremen, Germany · Nov 2025 to Present

- Contributed to a centralized, reusable avionics and flight control computer (FCC) architecture for supersonic and hypersonic UAV: IMA partitioning, HW/SW interface definition, data bus topology, DAL B alignment.
- Developed FPGA/VHDL and HDL workflows on Xilinx Vivado/ISE, Microsemi Libero and RT PolarFire SoC: signal processing, actuator control, redundancy/voting logic.
- Developed IMU (SPI/I2C), GNSS (UART/SPI) and airdata sensor drivers with fault detection and redundancy handling; 95% acquisition accuracy on bench.
- Developed CAN Aerospace and ARINC 429 drivers for avionics data buses; supported RF/datalink telemetry and ground-station integration.
- Evaluated GNSS vendors against DO-160/DO-178C criteria, ran bench benchmarks and produced a trade-off report for the programme decision.

- Collaborated with the GNC team on flight-control law development in MATLAB/Simulink; produced DO-178C verification evidence (MC/DC structural coverage, DOORS traceability) and supported SIL, PIL and HIL validation planning.

Software Developer, Braking ECU, Gateway and Ethernet

Bosch GmbH · Abstatt, Germany · Sep 2023 to Oct 2025

- AUTOSAR BSW integration (BswM, EcuM, RTE, MCAL) for brake and steering ECUs to ISO 26262 ASIL-B/C/D; 100% first-pass safety audits, full ASPICE delivery.
- Flex Gateway configured for GM, Daimler, Toyota-Lexus CAN/FlexRay/Ethernet routing; SDV E/E bring-up; integration time cut by 20%.
- Ethernet stack (TCP/IP, SOME/IP, SOAD, PLCA) on LAN8670 and AD330x: signal loss down 40%; 100% OEM protocol compliance.
- Brake ECU hardware failure from a reversed SPI traced via schematic; interface fixed, BSW driver updated; programme back on track for winter test.
- 50+ OEM scenarios validated at -30 °C; bug resolution 25% faster, test coverage up 15% via CANoe/CANalyzer automation.

Software Engineer to Lead Engineer, AUTOSAR BSW and E/E Architecture

Bosch Global Software Technologies · Coimbatore, India · May 2017 to Sep 2023

- AUTOSAR BSW design for GM, JLR, Daimler, Toyota-Lexus (BswM, EcuM, RTE) via DOORS and Eclipse; ECU defects down 20%.
- ISO 26262 ASIL-B/C brake ECU: 100% first-pass safety audits; owned FMEA/FTA and ASPICE milestone reviews.
- PREEvision signal models and DBC-to-ARXML scripts (Python/CAPL): OEM config cycles 30% faster, manual effort down 25%.
- Ethernet rollout from platform to customer OEM validation 15 to 20% faster; under 1% signal drop; 10+ ECU releases in Agile/SAFe.

Embedded Software Developer

ZAN Computech · Tamil Nadu, India · Sep 2015 to May 2017

- Sensor drivers on ARM Cortex 32-bit (I2C, ADC, Timer): 95% data accuracy; OTA bootloader via Wi-Fi/BLE.

Embedded Software Developer

Inziki Technologies · Staan Bio Med · Tech Flair India · Tamil Nadu, India · Jan 2013 to Sep 2015

- MCAL drivers for Renesas RH-850; ARM7 and PIC16F firmware (SPI, I2C, UART, ADC) across medical and industrial applications.

EDUCATION

MS by Research, Computer Vision and AI · KLE Tech University, India · Sep 2020 to Nov 2024

BE, Electronics and Communication Engineering · Anna University, India · Jul 2010 to Apr 2013

Diploma, Electrical and Electronics Engineering · DOTE, India · Jun 2007 to Apr 2010

LANGUAGES

English: Fluent · German: B1