
Profile summary

Embedded Systems Engineer with **9+ years of experience** across automotive, robotics and IoT embedded systems. Experienced in system-level hardware and firmware validation, HIL/SIL testing, test automation, DAQ, CAN/CAN FD, embedded test-controller development and system validation.

Currently working in robotics validation with ownership of hardware, embedded and system-level validation activities across multiple electronic controllers and robotics platforms. Leading and mentoring a 8 member validation team, developing automated Test JIGs, EOL validation frameworks, CAN tools, validation workflows and HIL infrastructure.

Earlier experience includes Active Safety ECU validation, HIL/SIL test development, requirements-based testing and automation at Bosch and Continental, with hands-on experience in C, C++, Python, Perl, CAPL, DOORS, ETAS LABCAR/CCHIL, EB tresos, CAN/DBC and automotive test environments

Core Competencies

Skills

- Robotics testing and validation frameworks using Python, Gazebo & NVIDIA Isaac Sim
- Validation of AMRs using custom automated test frameworks
- Development of Test JIGs, DAQ systems and EOL automation for robotics ECUs
- Validation of motors, motor controllers, encoders, brakes, steering/gearbox and safety-related interfaces
- Development of firmware for test controllers using STM32, Arduino, MSP430 and TI Delfino
- Programming in Embedded C, C++, Python and CAPL
- Development of engineering and validation tools using Python, Tkinter and Bootstrap
- CAN / CAN FD, SocketCAN, PCAN and DBC-based communication and test automation
- HIL & SIL testing and HIL test-bench/infrastructure development
- EOL and FOTA validation for embedded controllers and robotics systems
- System and vehicle-level validation across tuggers, pallet movers and lifters
- Experience with Active Safety ECUs and VAFs
- Requirements analysis and test development using IBM DOORS
- Test design, test-case development and test-environment creation
- Test automation using PyTest, Robot Framework and Selenium
- Scripting using Python and Perl
- Experience with SDLC, Agile methodologies and V-Model-based validation
- ETAS HIL and dSPACE ControlDesk HIL environments
- Understanding of ISO 26262 functional-safety concepts

Tools/Software

- DOORS , ETAS toolchain, EB Tresos
- GIT, Jenkins
- IMS, , Jira, ALM, SVN, Confluence
- HS+ VCI, VN1640, VN8914 , PCAN
- CAN, UART, I2C, SPI ,Flexray
- Visual Studio, Eclipse, CCS, STMCUBE
- Vector Canalyzer, Canoe, Isystem WinIdea,
- Ubuntu / Linux , SocketCAN ,n8n
- Gazebo, NVIDIA Isaac Sim

Experience

Senior Engineer – Hardware validation • ATI Robotics , Bangalore

(2025 May – Present)

PROJECT : Validation of AMR for material movement

- Lead and mentor 8 member validation team, driving hardware, embedded firmware, controller and system-level validation across 5 robotics SKUs including tuggers, pallet movers and lifters.
- Own validation of 7 electronic controller/PCB platforms plus 1 Ubuntu-based compute board, covering functional, communication, firmware and integration testing.
- Developed 4 automated Test JIGs for steering/gearbox, safety encoder, automatic hitch/unhitch and PCB EOL validation, supporting 200+ production units.
- Developed custom robotics testing and validation frameworks using Python, Gazebo and NVIDIA Isaac Sim, with Python/Tkinter EOL GUI, YAML-based configuration and DAQ automation.
- Developed CAN/SocketCAN automation tools in Ubuntu and firmware for validation/test controllers using STM32, Arduino, MSP430 and TI Delfino.
- Performed FOTA, HIL and vehicle/system validation, including motors, motor controllers, encoders, brakes, steering/gearbox and safety-related interfaces; automated nearly 15 validation workflows.
- Established a V-Model-oriented QA and validation approach integrating requirements, test design, hardware/firmware validation, HIL and vehicle validation, supported by Agile and Jenkins workflows.

Senior Software Engineer • Bosch Global Software Technologies , Bangalore

(2023 May – 2025 April)

PROJECT : ESP IS – Test systems development

- Test Framework development for HIL/SIL testing using C & C++ in CCHIL (ETAS) toolchain
- NET simulation support across multiple OEM
- Rest Bus Simulation component development using EB tresos
- Developing Checksum Algorithm for Frames using C++ for multiple OEM adapting Autasar based logics

Senior software Engineer – Continental Automotive India Ltd, Bangalore

[Payroll : Alten India Pvt Ltd, Bangalore]

(2021 April – 2023 May)

PROJECT : HCP4 for Audi

- Performing system testing with manual and automation test cases in HIL environment
- Development of testcases based on requirements from DOORS
- Automating the test cases as test scripts using programming in C, Python
- Unit testing of software modules

Associate software engineer – Robert Bosch Eng. & Business Solutions, Coimbatore

[Payroll : Brigosha Technologies]

(2020 March–2021 Feb)

PROJECT : Active safety – ESP

- Performing system testing with manual and automation test cases in ETAS LABCAR
- Development of testcases based on requirements from DOORS
- Automating the test cases using programming in Perl
- Integration of software components from various development units
- Manage software change requests
- Creating Test environment from DBC

Junior Embedded Engineer – Mcwane India Pvt Ltd, Coimbatore

(2017 Sep –2020 March)

PROJECT : Automatic Meter Reader for Water meter

- Firmware development in ARM Microcontroller & MSP430 Microcontrollers using Embedded C
- Integrating wireless modules like LoRa, GSM/LTE modules, Wifi Modules via UART , i2C protocols
- Measuring analog data using reed switch, IR sensor , ultrasonic sensors for metering solutions
- Unit testing of software modules
- Developing Gateway devices to collect data & to communicate with different meters
- Developing microcontroller-based test modules to automate the application test.
- Designing test rigs for Bulk meters delivery using Datalogger

Education

RVS College of engineering and technology, Coimbatore (Affiliated by Anna university, Chennai)

Bachelor of Engineering – EEE (Electrical & Electronics Engineering)

- Graduated: May 2017
- Academic project : Health monitoring Jacket with Sensor hub integrated with IoT dashboard
- CGPA: 6.1

Government Higher Secondary School, Valparai, Coimbatore

HSC

- Graduated: May 2013
- Percentage : 67%

Government Higher Secondary School, Valparai, Coimbatore

SSLC

- Graduated: May 2011
- Percentage : 87%