

Sunkuru Jagabandhu Patro

Software Engineer & Architect

Currently Integration & Application Tool Development Engineer at Valeo eAutomotive Germany

Erlangen, Germany · sjagabandhupatro@gmail.com · +49 1521 8159449
sjpatro.com · linkedin.com/in/sjagabandhupatro · github.com/JagabandhuPatro

Work authorization: Permanent residence permit for Germany (Niederlassungserlaubnis), no sponsorship needed · **Notice period:** 1 month
Languages: English (Fluent), German (B1, learning B2), Odia (Native)

PROFILE

14+ years building engineering software for the automotive industry: measurement-data platforms, calibration and diagnostics tooling, HPC data pipelines and AI-assisted engineering workflows.

Open to: Software Architect, AI / ML Engineer, Data Engineer and Test Automation / System Integration Engineer. Based in Erlangen, Germany · open to roles across Germany and remote within the EU.

PROFESSIONAL EXPERIENCE

Integration & Application Tool Development Engineer
Jan 2020 – Present

Valeo eAutomotive Germany GmbH · Erlangen, Germany

Senior developer and architect for the C#/.NET, Python and MATLAB tools behind e-motor calibration, validation and measurement-data analysis.

< 10 min data processing, down from hours **16+ h** manual effort saved per iteration **5 teams** use the shared frameworks I built

- **Architecture:** Turned a legacy monolithic export workflow into an event-driven REST platform in C#/.NET (Clean Architecture, Kiota-generated API client), ready for AVL CRETA v6+.
- **Data & HPC:** Built the Measurement Class Library and HPC pipelines that unify MDF/MF4, Parquet and MAT data and move analysis from workstations to the cluster.
- **Quality:** Delivered the CaRuMa calibration rule platform with MS SQL and Test-Driven Development (NUnit), plus End-of-Line tooling with CRC patching for production.
- **AI:** Use AI coding agents (Claude Code, GitHub Copilot, Gemini CLI) daily and built ML and generative-AI tools for effort forecasting and architecture checks.
- **DevOps:** Own CI/CD with Jenkins and Git and set SOLID-based architecture standards across teams.

C# · .NET · Python · MATLAB · REST · MS SQL · NUnit · HPC · Jenkins · Claude Code

Technical Specialist
Oct 2016 – Dec 2019

Continental Automotive GmbH · Bangalore, India

Module Lead and Scrum Master for the multi-brand aftermarket diagnostic platform, turning OEM diagnostic data into one standardized source.

6 engineers led as Scrum Master **95%+** data accuracy across OEM formats **+25%** on-time delivery

- **Leadership:** Led and mentored a cross-functional team of six as Scrum Master, aligning development, test, UX and product teams.
- **Diagnostics:** Architected ODX/PDX and OTX authoring tools and data plugins for Honda, GM, Mercedes and BMW; decoded GM's proprietary data format under tight deadlines.
- **Engineering:** Built C#/.NET and SQL desktop and backend tools with MVVM, dependency injection and asynchronous processing, and developed the VDO Autodiagnos Check workshop tester in C++/Qt with a touch-optimized UI.
- **Quality:** Introduced automated testing and CI/CD, verified diagnostic content on HIL and SIL rigs, and supported vehicle testing on site in the UK.

C# · .NET · C++ · Qt · SQL · ODX/PDX · OTX · MVVM · HIL/SIL · Scrum

Senior Research Engineer
Mar 2015 – Oct 2016

Hyundai Mobis India Pvt. Ltd. · Hyderabad, India

Owned the calibration, monitoring, diagnostic and flashing tool suite for braking and suspension ECUs.

3 parallel development tracks supported **30%** faster testing timelines **R&D → EOL** tools used across the full lifecycle

- **Communication:** Built C# tools for ECU communication over CAN, KWP2000 and UDS on a CAN-based, OSI-layered stack.
- **Flashing:** Designed bootloader and flashing tools for Hex, Mot and SRE files across bootloader, RAM and EEPROM.
- **Diagnostics:** Delivered a Calibrate-Monitor-Diagnose tool for an air-suspension system with guided DTC resolution.
- **Lifecycle:** Tools adopted from R&D through validation to End-of-Line production.

C# · CAN · KWP2000 · UDS · Bootloader · UML

Software Engineer
Mar 2012 – Feb 2015

Think Embedded Pvt. Ltd. · Hyderabad, India

Built diagnostic and embedded development tools from the ground up in a fast-moving startup.

- **Diagnostic tools:** Developed and launched TPMS and CAN bus analyzer tools in C++ and C# with signal-level visualization and trace logging.

- **Desktop apps:** Built native Windows applications in C++ with Qt and wxWidgets, linking the UI to device communication and data processing.
- **Toolchain:** Engineered a cross-compiler IDE for AVR and ARM on the GCC toolchain, including lexer, build and flashing modules.
- **Calibration:** Created calibration and monitoring utilities for TPMS and brake ECU variants with MISRA-compliant script generation.

C · C++ · C# · Qt · wxWidgets · GCC · CAN · TPMS

SELECTED PROJECTS

- **Measurement Class Library (CLD)** (Valeo): Object-oriented MATLAB platform unifying all measurement data formats.
- **xD_MapCreator & SIC Toolchain** (Valeo): MATLAB toolchain from test setup to multidimensional maps and reports.
- **AMD2Matlab – HPC Measurement Processing** (Valeo): Moves measurement-data analysis to the HPC cluster: hours down to minutes.
- **CRETA Export Engine Modernization** (Valeo): Legacy monolith rebuilt as an event-driven REST platform in C#/.NET.
- **CaRuMa – Calibration Rule Management** (Valeo): .NET platform that checks calibration data against engineering rules.
- **AI-Powered Maturity Dashboard** (Valeo): Machine-learning forecasts of remaining engineering effort.
- **System Architecture Comparison Tool** (Valeo): Generative-AI tool that flags architecture inconsistencies early.
- **Multi-Brand Aftermarket Diagnostic Toolchain** (Continental): Shared OEM diagnostic data platform for many products, led as Module Lead.
- **ECS C-M-D Tool & Generic Bootloader** (Hyundai Mobis): Calibration, diagnostics and flashing tools for air-suspension ECUs.

SKILLS

Languages	C#, .NET, Python, MATLAB, C / C++, Embedded C++, VBA, SQL
Architecture & Design	Software Architecture (iSAQB), AI Systems Architecture, OOD / SOLID, Design Patterns, REST APIs / OpenAPI, Event-driven Architecture, Dependency Injection, UML / SysML
Frameworks & Libraries	WPF / MVVM, Entity Framework, Qt, MATLAB App Designer, Simulink, Streamlit, Plotly, NumPy / Pandas, Scikit-Learn, Gradio
Data & High-Performance Computing	ETL Pipelines, Data Engineering, HPC Clusters (JGen), ASAM MDF / MF4, HDF5, Parquet, MS SQL, Neo4j / Cypher, Data Visualization, Measurement Data Analysis
Automotive & Diagnostics	CAN / CAN FD, UDS, KWP2000, OBD-II, ODX / PDX, OTX, ECU Flashing & Bootloaders, Calibration (A2L, AVL CRETA), Vector CANoe / CAPL, CANape, EOL Testing, SPI / I2C
Testing & Quality	Test Automation (ISTQB CTAL-TAE), TDD / NUnit, BDD / Gherkin, HIL / SIL, Verification & Validation, AI & ML Testing, NI TestStand, Defect Management
AI & LLM Workflows	Claude Code, Claude Skills, GitHub Copilot, Gemini CLI, AI-Assisted Development, Generative AI, Prompt Engineering, RAG Pipelines, LangChain / LangGraph, LLM Fine-Tuning (LoRA / PEFT), PyTorch, Gemini API / Vertex AI, Machine Learning
DevOps, Cloud & Tools	Git, SVN, Jenkins, CI/CD, AWS, Google Cloud Platform, JIRA, Confluence, Polarion ALM, Enterprise Architect, Visual Studio, IAR Workbench

CERTIFICATIONS

- **CPSA Advanced Level – SWARC4AI** iSAQB · Jul 2026
- **Certified Professional for Software Architecture** iSAQB · Jul 2025
- **Certified Tester – AI Testing (CT-AI) v2.0** ISTQB · Jul 2026
- **Test Automation Engineering (CTAL-TAE) v2.0** ISTQB · May 2026
- **Certified Tester – Testing with Generative AI (CT-GenAI)** ISTQB · May 2026
- **Certified Tester Foundation Level (CTFL)** ISTQB · Jan 2018
- **AWS Certified Cloud Practitioner** Jun 2026
- **PCAP – Certified Associate Python Programmer** Jun 2026
- **PCEP – Certified Entry-Level Python Programmer** Jun 2026
- **Exam 483: Programming in C#** Microsoft · May 2019
- **MTA: Software Development Fundamentals** Microsoft · Feb 2019
- **Professional Scrum Product Owner™ I (PSPO I)** Scrum.org · Jul 2026
- **Certified Professional for Requirements Engineering** IREB · Aug 2019
- **German B1** 2024

EDUCATION

Master's Degree, Power Electronics and Embedded Systems
Vellore Institute of Technology · July 2016 - November 2018 · Vellore, India

Bachelor's Degree, Computer Science and Engineering
Biju Patnaik University of Technology, Odisha · 2007 - 2011 · Odisha, India