

# Manikandan Radhakrishnan

R&D System Engineer

System and Software engineer with expertise in complete product development lifecycle, from concept, system integration, verification & validation to mass production. Strong background in hardware & software development, test automation and CI/CD processes.

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 Erlangen, Germany

 [manikandanr83.github.io](https://manikandanr83.github.io)



## Experience

**Valeo eAutomotive GmbH, Erlangen, Germany** 04/2021 - Present

**System Integration & Application Tools Developer / Calibration Data Engineer**

- Act as interface between the Software and Vehicle Validation teams, leading the development and maintenance of SW tools for test benches and HIL systems.
- Architect internal toolchains using Vector CANoe/CANalyzer, Python, and C++ for data acquisition, control, and real-time logging—improving test efficiency by 40% while ensuring ASPICE and ISO 26262 compliance.
- Standardize reusable test procedures (e.g., DTC simulation, ignition control, voltage variation, fault injection) from system-level test cases for automated test environments.
- Develop MATLAB-based tools for large-scale data analysis, efficiency mapping, loss calculations, and automated reporting using HPC.
- Automate EV calibration workflows using AVL Creta reducing manual effort by 70% through DevOps-driven automation pipelines.
- Develop End-of-Line production tools for parameter calibration, validation, and ECU flashing for series release.

**Continental Automotive Components Ltd, Bangalore, India**

**Embedded Platform Architect / Software Architect, 10/2016–03/2021**

- Contributed to platform concept and prototyping, including sensor evaluation, hardware architecture, and feasibility analysis. Established a MISRA-compliant embedded development environment with automated builds.
- Led bootloader and low-level driver development (CAN, SPI, I2C, NFC), defining software architecture, task scheduling, and development guidelines while overseeing design, implementation, testing, and code reviews.
- Established and led a new team; defined processes and mentored engineers. Designed scalable Manufacturer Data Import plugins for OEM diagnostic data conversion and integration.
- Analyzed requirements, change requests, performed impact assessments, and provided effort estimations for sprint and release planning. Drove architectural optimizations to improve performance, scalability, and maintainability.
- Successfully delivered diagnostic data for and supported in-vehicle testing and CCB activities to resolve field issues and improve data quality.

**IKA Laboratory, Analytical & Processing Technology, Bangalore, India**

**Industrial Engineer, 05/2011 – 10/2016**

- Involved in the design and development of a universal PCBA test adapter for series testing of all IKA products in the production lines based on manual Ingun test adapters (MA21xx series) and End of Line Test fixtures.
- Established an in-house laboratory in Bangalore for PCBA testing, analysis, and rework, providing technical support to local production teams.
- Successfully developed, installed, maintained, and supported PCBA Test systems and EOL fixtures at supplier sites and IKA production facilities globally.

## Core Competencies

### Software Development

- R&D and Production tools (flashing, Calibration & Measurement, protocol level interface simulation)
- Full-stack solutions for device communication, data processing & system validation

### Embedded Systems

- Strong knowledge of embedded architectures & low-level interfaces (SPI, I2C, UART, USB)
- Debugging with oscilloscopes, logic analyzers & protocol analyzers

### Programming & Test Automation

- Strong knowledge of C , C++(Qt), C#, Python,MATLAB, LabVIEW
- Unit testing (NUnit, PyTest,Robot Framework)
- API Testing (Postman, Swagger)
- Automated system testing (HIL, integration)
- Test frameworks (NI Teststand)

### CI/CD & Development Processes

- Agile development & cross-functional collaboration
- Azure DevOps, Git, Jenkins, automated build & test pipelines

## **Siemens IT Solutions & Services Private Limited, India, 03/2008 – 05/2011**

### **System Integration Test Engineer / Embedded Software Developer**

- Analyzed system and functional requirements for digital Tachograph, infotainment, and aftermarket products, and developed detailed integration test specifications.
- Designed and implemented embedded software, integrated hardware–firmware–software modules, and ensured compliance with ISO 26262 and MISRA standards.
- Performed unit, integration, system, regression, and release validation testing to verify end-to-end functionality.
- Developed LabVIEW-based test tools, protocol simulators, and automated test systems using NI-PXI platforms to support development, integration, and product validation.

## **NATIONAL AEROSPACE LABORATORIES LIMITED, India, 01/2007 – 03/2008**

### **Project Engineer / Project Graduate Trainee**

- Developed instrumentation and data acquisition & control setups for Lab Models of futuristic aerospace applications.
- Designed and implemented electronic systems for actuation and control of shape-memory-alloy (SMA)–based aerospace structures such as rudders and control surfaces.
- Developed automated test rigs to study the characteristics of shape memory alloys.

## **Education**

- Master of Technology – Embedded Systems,*  
**Birla Institute of Technology & Science, Aug 2020 – May 2022**
- Bachelor of Engineering – Electronics & Communication*  
**Anna University, August 2001 – July 2005**

## **Certifications**

- iSAQB® Certified Professional for Software Architecture: Foundation Level
- PCEP [30-02] : Certified Entry-Level Python Programmer
- ISTQB Certified Tester: Foundation Level
- AWS Certified: Cloud Practitioner – Foundation Level
- Microsoft Certified: Azure Fundamentals (AZ-900)
- Microsoft Certified: Programming in C# (Exam 483)
- Microsoft Certified: Developing Mobile Apps (Exam 357)
- Microsoft Certified Solutions Associate: Universal Windows Platform
- Microsoft Technology Associate: Software Development Fundamentals (Exam 98-361)

## **Languages**

- English - C1
- German - B1

## **Personal Details**

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|-------------------|--------------------|
| • Nationality     | Indian             |
| • Visa            | Permanent Resident |
| • Driving License | Class-B-78         |

## **Technical Proficiency**

Programming Languages	C#, C++, C, Python, MATLAB
C++ Technologies	STL (Containers, Algorithms) Templates & Generics Programming
Application Development	Desktop Application Development, Web Apps using RESTful APIs
Measurement & Data Acquisition	Data Acquisition System, Real-Time Data Processing, Signal Processing Basics
Data Analysis & Processing	Data Filtering, Statistical Analysis Data Transformation Buffering Techniques
Architecture & Design	Object-Oriented Design (SOLID), Clean Architecture, Design Patterns
Testing & Quality Assurance	Unit Testing (JUnit, xUnit, MSTest, PyTest), Integration Testing, TDD, Code Reviews
DevOps & CI/CD	Git, Azure DevOps, Jenkins
IDE & Development Tools	Visual Studio, ReSharper
Databases	SQL Server, Entity Framework / EF Core
Operating Systems	Windows, Linux
Communication Protocols	CAN, SPI, I2C, BLE, TCP/IP, Ethernet
Requirements & Issue Tracking	Jira, Azure Boards