

VINAYAK NAIK

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Professional Summary

ADAS & HIL Validation Engineer with **2+ years** of experience in automotive **ECU validation** for safety-critical driver assistance systems. Strong foundation in **ADAS architecture**, **HIL testing**, and **automotive diagnostics**, with hands-on experience using Vector **CANoe**, **CANape**, and Python programming in real-time simulation environments. Proven ability to perform requirement-based testing, regression validation, and defect analysis while supporting OEM/Tier-1 software development and release cycles.

Core Competencies: ADAS ECU Validation | HIL Simulation | Requirement-Based Testing | Diagnostic Communication | CAN/UDS Analysis | Test Automation Support

Skills

Programming & Automation: Python (Test Automation, Data Analysis, Report Generation), SQL

ADAS / HIL Validation: HIL Testing, ECU Validation, Test Case Design, Test Execution, Regression Testing.

Automotive Tools & Protocols: Vector CANoe, CANape, CAN, LIN, Ethernet, UDS Diagnostics, DTC Analysis.

Hardware & Debugging Tools: VT Systems, RAMSCOPE, Trace32 Debugger, ADAS ECU (5th Gen), DDT Tools.

Professional Experience

Tata Consultancy Services (TCS), Nagpur

Nov 2023 – Present

HIL Validation Engineer - ADAS

Tools Used: CANoe, CANape, Excel

- Performed **HIL validation of ADAS ECUs** by simulating real-world driving scenarios to verify **ACC, AEB, and LKA functionalities**.
- Designed and executed **automated HIL test cases** using **Vector CANoe**, ensuring accurate **pass/fail judgment logic**.
- Conducted **requirement-based testing** and **regression testing** to support software release cycles.
- Analyzed **CAN and UDS logs** using **Trace32 and DDT tools** to identify communication faults and diagnostic issues.
- Supported **defect analysis, root cause investigation, and issue tracking** in collaboration with cross-functional teams.

Technical Projects

Expense Tracker System | Python, MySQL, FastAPI

- Developed a web-based system to record, update, and validate daily expenses.
- Designed backend APIs using **FastAPI** with structured data validation.
- Implemented **data consistency checks**, logging, and error handling.
- Developed analytical dashboards to visualize trends using Python.

Automated Job Data Analysis Workflow | n8n, Google Gemini (LLM)

- Automated job data ingestion and processing using **API-based workflows**.
- Extracted and validated **ATS keywords** using LLM-based logic.
- Structured output data to support **job relevance and prioritization analysis**.

Awards & Certifications

- Python: Beginner to Advanced for Data Professionals from Codebasics (2025) – Completed practical case studies in Python.
- On the Spot Award, TCS (2025) – Recognized for outstanding contribution to ADAS/HIL validation project.

Education

Sahyadri College of Engineering and Management Mangalore

Graduated: 2023

B.E. - Electronics & Communication Engineering

CGPA: 8.9 / 10

Languages

English | Kannada | Hindi