SUDULI KUMAR BALABANTARAY

AUTOMOTIVE HIL / ECU VALIDATION | TEST AUTOMATION | ADAS

Bengaluru, India | +91 9500097614 | suduli.office@gmail.com | Online Resume

PROFESSIONAL PROFILE

Automotive embedded software validation and test lead with 9+ years of experience in HIL/SIL, ECU bench integration, ADAS system testing and automation. Hands-on with Vector CANoe/CAPL, camera/radar simulation, Gherkin-to-CAPL workflows using Python, UDS diagnostics with Corvos, ECU flashing/recovery, dSPACE VEOS and ECU-TEST. Experienced in requirements-based validation, failsafe testing, regression execution, debugging and code coverage across Jaguar Land Rover, Stellantis and ADAS programs.

CORE TECHNICAL SKILLS

HIL / bench & simulation: Vector-based HIL, ECU bench setup, CANcase XL, JTAG, JIG/harness, power supply, CANoe, dSPACE VEOS, ECU-TEST

Automation & scripting: Python, CAPL, Embedded C, Gherkin/BDD, step definitions, vTESTstudio, VectorCAST, Kiara

Diagnostics & networks: UDS (ISO 14229), DTC/Zero-DTC validation, Corvos, Trace32, ECU flashing, CAN, XCP; SOME/IP familiarity

Tools & configuration: CANoe DBCs, environment variables, simulation panels, CANalyzer, CANdb/CANdela; Jira Xray, GitLab, IBM RQM, DOORS NG, Confluence

Validation & standards: ADAS failsafe, camera/radar simulation, EOL/USM, smoke/system/integration/HIL/SIL, MC/DC; AUTOSAR and ISO 26262 familiarity

AI-assisted engineering: Amazon Kiro IDE, AI-DLC and prompt engineering training; AI-assisted test development workflows

PROFESSIONAL EXPERIENCE

KPIT Technologies Ltd. — Nov 2023 – Present

Test Lead | Bengaluru, India

Jaguar Land Rover (JLR), UK | Current assignment

- Execute ECU functional and regression validation in Vector-based HIL environments using CANoe and CAPL, including manual test verification and failure analysis.
- Automate Gherkin test scenarios through Python-based parsing and reusable step-definition (SD) files to generate CAPL test scripts for execution in CANoe.
- Create and maintain missing SD files and CAPL functionality to support test coverage and resolve automation execution issues.
- Perform UDS diagnostic testing and ECU software flashing using Corvos; use Lauterbach Trace32 for bootloader recovery and application software version restoration when needed.
- Run overnight automated regression suites through Kiara and manage test cases, execution IDs and results in Jira Xray.
- Version-control CAPL and step-definition assets in GitLab; use Jira and Confluence for test and engineering coordination.
- Completed training in AI-DLC and prompt engineering; explored Amazon Kiro IDE with Jira, Confluence and GitLab integrations for AI-assisted Gherkin test automation.

Stellantis | Previous assignment

- Led system-level validation for steering wheel controls, horn, crash detection and related body-control features using dSPACE VEOS and ECU-TEST.
- Managed requirements-to-test traceability with IBM RQM and DOORS Next Generation, achieving 95% requirement traceability.
- Reduced manual test effort by 40% through ECU-TEST automation; developed reusable XAM signal mapping files that reduced setup time by 30%.
- Supported integration, defect triage and resolution of 30+ issues across critical vehicle functions, working with software and validation teams.

HL Klemove India Pvt Ltd (Halla Group) — Feb 2022 – Nov 2023

Specialist Embedded Test Engineer | Bengaluru, India

- Prepared and verified DCU-20 ECU test benches using CANcase XL interfaces, variable power supplies, JTAG/Trace32, JIG fixtures, CAN harnesses and DB9/120-ohm CAN termination; checked requirements, DBC, diagnostic and software inputs before testing.
- Developed CANoe simulations for camera and radar inputs by integrating DBC files, configuring environment variables, implementing CAPL logic and linking control/monitoring panels for signal-level testing.
- Established and maintained a Zero-DTC ADAS validation environment; checked ECU startup, sensor/network communication, diagnostic status, fault-triggering CAN signals and required recovery conditions.
- Analyzed vehicle-variant requirements and designed ADAS failsafe test cases; automated execution in vTESTstudio/CANoe with configurable voltage, vehicle speed, variant coding and sensor blockage scenarios.
- Verified camera/radar blockage fault detection, timing and recovery through UDS DTC status changes (0x89 active and 0x08 history), signal states and requirement-based acceptance criteria.
- Executed smoke, End-of-Line (EOL), failsafe and Update Software Management (USM) testing; performed Trace32-assisted ECU flashing/debugging and published reviewed execution reports in Jira.
- Served as project point of contact during an onsite assignment at Korea head office, coordinating test evidence, issues and engineering discussions with stakeholders.

Mando Softtech India Pvt Ltd (Halla Group) — Mar 2020 – Feb 2022

Senior Embedded Test Engineer | Bengaluru, India

- Designed unit and integration tests for automotive radar/ADAS software, including adaptive cruise control systems, using VectorCAST.
- Built automated regression workflows, reporting a 60% reduction in testing effort and 98% MC/DC structural coverage for radar programs.
- Performed requirement reviews, defect analysis, work allocation and peer reviews; mentored junior engineers in coverage-driven unit testing.

Binsoft Techno Solutions — Sep 2017 – Feb 2020

Test Engineer | Bengaluru, India

- Implemented VectorCAST unit tests for embedded automotive software; analyzed statement, branch and MC/DC coverage.
- Maintained defect records and collaborated with developers to investigate and resolve software issues.

SELECTED PERSONAL PROJECT

UDS Simulator — Built a web-based UDS diagnostic simulator and learning platform using AI-assisted development and REST APIs. udssimulator.com

EDUCATION

B.E. in Aeronautical Engineering | The Aeronautical Society of India

AWARDS & RECOGNITION

Best Project Awards (LRR25, MRR30); Spotlight Awards (HL Mando, HL Klemove); Breakthrough Achievement Award; A+ Grade Recognition.