

# PAVAN KUMAR U

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## Experience

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### KPIT Technologies Pvt. Ltd

November 2021 – Present

Connected Vehicle Engineer, Verification & Validation

Bangalore, Karnataka

- Delivered end-to-end Verification & Validation across **Instrument Cluster, infotainment, and virtualization** projects for global OEM clients, including **Volkswagen Group (CARIAD SE) and Stellantis International**, ensuring high-quality and reliable software releases.
- Engineered and automated 500+ test cases across HIL/SIL environments using **ECU-TEST, dSPACE ControlDesk, and Vector CANoe**, enhancing regression efficiency and enabling early defect detection.
- Architected and implemented **CI/CD automation** pipelines using **Python and GitHub Actions**, enabling fully automated validation across smoke, sanity, and nightly test cycles.
- Enabled early-stage ECU validation by implementing **SIL testing using dSPACE VEOS**, reducing dependency on physical HIL benches and accelerating development timelines.
- Performed CAN/CAN FD communication and UDS diagnostic validation, identifying and resolving 50+ critical defects with detailed root-cause analysis.
- Maintained end-to-end requirements traceability using **IBM DOORS** and **Codebeamer**, ensuring compliance with ASPICE standards and Agile processes.

## Technical Skills

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**Programming Languages:** Python, C, CAPL

**Automotive Protocols:** CAN, CAN FD, LIN, UDS (ISO 14229), CANTP, Automotive Ethernet

**Validation Tools:** ECU-TEST (TraceTronic), Vector CANoe, CANalyzer, dSPACE ControlDesk

**Test Environments:** SIL, HIL Test Bench, AUTOSAR Classic, Android Automotive (Goldfish / Cuttlefish)

**Automotive Domains:** Infotainment (IVI), Instrument Cluster, ADAS, BCM

**Automation & CI/CD:** GitHub Actions, Python (Robot / ENNA Framework), CI Pipelines, GCP, JFrog Artifactory, ADB

**Requirements & ALM:** IBM DOORS / DNG, Code Beamer, IBM RQM, Confluence, Swagger

**Defect & Project Tools:** JIRA, IBM RTC, Looker Studio, RADAR Dashboards, Firestore, AWS VEW

**Standards & Processes:** ASPICE, V-Cycle, MISRA C, Agile / SCRUM

## Projects

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### Client: CARIAD SE (Volkswagen Group)

July 2025 – Present

Verification & Validation Engineer — CI/CD IVI Automation

- Architected end-to-end **CI/CD test automation pipeline** for IVI software validation using **GitHub Actions and Python (ENNA framework) on Goldfish/Cuttlefish Android** Automotive emulators, eliminating manual regression across Smoke, Sanity, Nightly, and Official build cycles.
- Designed and developed automated test cases for **Infotainment and Navigation** system use-cases using the **ENNA framework**, supporting functional and system-level validation across Dev and Beta environments.
- Automated ECU communication, system behaviour, and infotainment use-case verification for **HCP3 and ICC ECUs**, ensuring consistent test coverage and early defect detection across release stages.
- Established bench connectivity via **PLATIN** and integrated test execution results with **RADAR dashboards** via Looker Studio, enabling real-time KPI monitoring and release-gate quality reporting for stakeholders

### Client: Stellantis International

July 2023 – June 2025

Verification & Validation Engineer — R2PX Instrument Cluster (HIL)

- Performed end-to-end HIL validation of **Instrument Panel Cluster** ECU covering CAN/CAN FD communication, UDS diagnostics, system alerts (Telltale, Warnings, Chime, Gauges), and display logic on a live HIL test bench.
- Analysed Vehicle Function (VF) documents, requirement specifications in **IBM DOORS** to derive traceable, requirement-mapped test cases for cluster features.
- Designed, developed, reviewed, and executed **500+ manual and automated** test cases using **IBM RQM** and **ECU-TEST TOOL**, achieving comprehensive coverage across communication protocols, display logic, and diagnostic services.
- Performed component-level ECU validation using **Vector CANoe** and **CANalyzer** to verify CAN/CAN FD protocol behaviour and ECU communication integrity.
- Executed subsystem-level testing using **dSPACE ControlDesk** for HIL system calibration and validation, ensuring accurate signal stimulation and response verification.
- Reported 50+ critical defects via IBM RTC with full root-cause analysis and requirements traceability in IBM DOORS; coordinated resolution with development teams within Agile sprint cycles.

**Client: Stellantis International**

May 2022 – June 2023

*Verification & Validation Engineer — VVPL Virtualization*

- Led virtualization activities for Level 0 and Level 1 integration, deploying and configuring client applications on top of QEMU-based virtual environments to simulate target ECU behaviour.
- Built and configured x86, x86-64, and ARM-based virtual target environments using **QEMU and UNITYAPP** application stack, enabling platform-independent ECU software validation.
- Designed and implemented a WebSocket communication layer to validate inter-process and inter-component communication within the QEMU virtualized environment, ensuring functional integrity of integrated client applications.
- Automated SIL test case execution using **ECU-TEST tool**, enabling repeatable and scalable virtual validation of ECU software across regression and sanity test cycles

**Client: KPIT Technologies Pvt. Ltd. — MW Development Project**

November 2021 – April 2022

*Trainee — AUTOSAR Classic*

- Configured IPCOM and IPCABS AUTOSAR Classic modules from design specifications, ensuring full alignment with project requirements and system architecture definitions.
- Executed unit testing and component testing to verify functional correctness of each module, achieving 100% requirements coverage at module level.
- Enforced MISRA C compliance through systematic static analysis checks, eliminating safety-critical coding violations prior to software integration.
- Established and maintained full V-cycle requirements traceability for IPCOM and IPCABS modules from design through implementation to test closure, achieving zero untraced requirements at sign-off.
- Executed generation tool testing to validate outputs from the AUTOSAR code generation process, ensuring correctness of generated artefacts before integration

**Education**

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**Newton's Institute of Engineering, JNTU-Kakinada***Bachelor of Technology in Electronics and Communication | GPA: 7.04***Licenses & Certifications**

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- **Implementing Software Architecture of a Large-Scale System**  
*Udemy • Issued July 2023 • Credential ID: UC-cb0fa285-546b-434f-bda7-47164269b119*