

With over 6+ years of experience in both the 4-wheeler and 2-wheeler domains, I've specialized in cutting-edge technologies such as Advanced Driver Assistance Systems (ADAS), e-Powertrain, High Voltage Battery Management Systems (BMS) and VCU. I have played a key role in developing HiL architectures, building tools that simplify everyday workflows and designing automated test scenarios for complex system-level validations.

Work experience

Senior Automation Engineer	Ultraviolette Automotive	July 2025 – Present
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Currently working in the Embedded Team

- Designed and deployed an automated **HIL validation framework** using Robot Framework and Python for HV BMS eliminating Vector license dependency and reducing manual validation effort by **95%**.
- Authored **200+** HV BMS test cases covering cell balancing, protection logic, and safety-critical requirements. This helped in identifying critical **20+** functional defects at pre-integration.
- Developed **Python-based simulator APIs** using hardware schematics and datasheets to validate different BMS scenarios. Automated programmable power supply control through Python scripting, enabling **100%** automated end-to-end HV BMS validation.
- Built a PySide6 based system-level test UI, reduced debugging turnaround time by **80%** and supported **cross-team issue resolution**.
- Strengthened **EOL software** to be used for **50+** HV BMS and CMB boards validation per day by refining requirements, restructuring test logic, enhancing backend execution, and implementing flashing capability.
- Developed an HV BMS Pack Configurator tool after researching **low-cost CAN interfaces**, automated barcode scanning, and integrating **AWS** (authentication and S3 bucket). Eliminated manual configuration errors in the factory across **6+ bike models**.

Diagnostics & Automation	Mercedes-Benz R&D	December'22 – June'25
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Worked with the V&V Team on IDC6, an advanced L2+ and L2++ ADAS technology

- Analyzed **630+** requirements and developed **350+** test cases (CAPL, OTX), improving test coverage by **5x**.
- Conducted ECU/HIL testing for **25+** releases, raising **30+** critical bug reports with a high acceptance rate.
- Independently **led** CyberHIL and Camera Calibration for Driving and Parking, including HIL setup and test sequencing.
- Led the **CDD Authoring** team, managing **DID's, RID's, DTC** updates based on the UDS services for IDC(Gen6) ECU Base Software.
- Developed **front-end GUI** and critical **backend components** supporting **10+** operations for SCN and parallel IDC6 teams.
- Implemented Python scripts for artifact comparison and validation using Pandas and NumPy, achieving a **12x** performance boost with zero-defect delivery.
- Contributed to **CI/CD** pipelines for concurrent automated file generation and CDD artifact verification.

Senior Software Engineer	KPIT Technologies Ltd	November'19 – December'22
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Worked with MicroFuzzy-KPIT for client BMW in CCU Verification and Validation Team.

- Authored **100+** test cases and implemented CAPL scripts in CANoe for system validation across **6** carlines.
- Automated test execution, reducing manual effort by **60%** and **optimizing flashing process** with Trace32, E-Sys, and INCA through Python Scripts.
- Handled Smoke, Functional, and Regression testing across 6 major topics, including **Diagnostics, DTCs, NVM, Power Management, Security and Flashing**.
- **Managed** 4+ parallel releases with on-time delivery, zero-defect artifacts, and a CSAT score of **4.92**.

Education

Tamil Nadu, IN

VIT, Vellore

- B.Tech in Electrical and Electronics Engineering, July 2019. CPI: **8.6** (on scale of 10).

Kolkata, IN

Kendriya Vidyalaya

- XII standard (CBSE Board) in PCM + Computer Science. Grade: **92%**
- X standard (CBSE Board). CPI:**10** (on scale of 10).

Skills

Programming:

- Python, CAPL, Embedded C, C

Communication protocols:

- CAN, CANFD, Ethernet DoIP, UART, I2C, SPI

Tools:

- CANdela Studio, CANoe, Monaco DTS9, OTX Studio, Lauterbach,
- vTESTstudio, MATLAB, Keil, GIT, SVN, STARC, DOORS, JIRA

Python Frameworks:

- Pandas, Numpy, PyVisa, PySerial, Selenium, PyQt5, PySide6, Tkinter, Python-can, boto3, win32com

Testing Frameworks:

- Robot Framework, PyTest

Others:

- UDS (ISO 14229), OBD (SAE J1979), FuSa, VT Systems, Variant Coding, HIL Testing
- Flashing Automation, Battery Management System, VCU, CDD Authoring, ODX
- Jenkins, AWS, CI/CD Pipeline, Black Box Testing, Traceability

Achievements and Certifications

- **ISTQB®** - International Software Testing Qualifications Board Certified (Issued Sep, 2021)
- **High Flyers and KROWN Awards (5× Recipient)** – KPIT Technologies
- **Process Innovation Award** – Mercedes-Benz Research and Development India, for automation of concurrent CDD artifact generation and validation.
- **UV Spark Award** – Ultraviolette Automotive, for outstanding technical contributions within a span of a few months.
- **Course Certifications:**
 - Complete Python Pro 
 - PyQt5 
 - AUTOSAR Diagnostics (UDS, On-Board Diagnostics) 
 - Adaptive AUTOSAR 
 - Embedded Systems Bare-Metal Programming (STM32) 

Interests

Technical blogging

- Write in-depth technical articles on Automotive Communication Protocols, Embedded Systems and Automation Frameworks.

Open-Source Projects

- Developed **CANableView** and **CANSerialGateway** which was later adopted across 5 departments, delivering significant cost savings over commercial solutions.