# Vivek Gupta

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## Summary

Software Engineer with a strong background in embedded systems and Classic AUTOSAR diagnostics, contributing to high-impact projects like the Stellantis STLA Brain. Experienced in cross-functional collaboration and delivering optimized solutions using tools like CANoe and Trace32. Skilled in scripting and diagnostic analysis, aiming to leverage technical expertise to drive innovative software solutions.

## Education

**IIIT Naya Raipur Raipur, Chhattisgarh** **2017 - 2021**
*B.Tech, Electronics and Communication Engineering (ECE)*

## Experience

**KPIT Technologies Ltd.** **Nov 2021 - Present**
*Senior Software Engineer - AUTOSAR Diagnostics* *Bengaluru, Karnataka*

- Developed and maintained DCM and DEM modules across multiple ECUs for the Stellantis STLA Brain project, ensuring robust diagnostic capabilities
- Integrated and configured NVM and FEE stack as per application and platform layer interaction requirements, enhancing system reliability and performance
- Designed and tested DTC handling and fault logging using DEM across diagnostic services, improving fault detection and resolution efficiency
- Test Automation: Scripted over 100+ CAPL test cases for validating UDS services, DIDs, RIDs, and OBD functionality via CANoe.
- Conducted trace analysis and issue resolution using CANoe, Trace32, and Vector tools, leading to improved system stability and performance
- Integrated Candela Diagnostic Description (CDD) files into the diagnostic stack and customized service behavior, enhancing diagnostic accuracy
- Service-Oriented Diagnostics: Developed custom diagnostic services with enhanced response handling and session-based security controls.
- Requirements Mapping & ARXML: Mapped requirements from OEM specifications to ARXML parameters ensuring traceability and compliance.
- Mentorship & Process Improvement: Mentored 3+ junior engineers; proposed test strategy changes that reduced diagnostic test cycle time by 20%.
- CAPL Library Reusability: Created reusable CAPL function libraries for test case automation, improving maintainability and coverage.
- Handled ECU extract files and interpreted ARXML content to support seamless configuration, improving diagnostic validation processes

## Projects

### Inverted Pendulum on Moving Cart (Mini Project)

- Built a real-time PID-controlled feedback system using Arduino to balance an inverted pendulum on a moving base.

### Electronic Nose (Major Project)

- Designed a pattern-recognition-based gas sensing system to classify odor samples and detect spoilage in food items.

### PDF Q&A App (Personal Project)

- Developed a Python-based tool to extract and auto-answer Q&A from PDFs using OCR and AI models, optimized for math-heavy content.

## Achievements

- **Vector Certified Embedded Associate (CEA)** | Certified by Vector Informatik in Nov 2022 for AUTOSAR fundamentals and diagnostics expertise.
- **Breakthrough Achievement Award - KPIT** | Awarded in Feb 2023 for delivering high-impact modules in the STLA Brain diagnostic domain.
- **Distinguished Contributor & Learning Champion** | Recognized in Sep 2023 and Mar 2024 for consistent contributions in quality delivery and mentorship.

## Skills

- **AUTOSAR:** Classic AUTOSAR (DCM, DEM, NVM, FEE), Service Layer, CDD
- **Languages:** C, Embedded C, CAPL, Python
- **Toolchain:** CANoe, DaVinci Configurator/Developer, Trace32, Rhapsody, GIT, Jira
- **Testing & Debugging:** CAPL scripting, CAN trace analysis, Fault simulation, Diagnostic validation
- **Standards & Protocols:** UDS (ISO 14229), CAN
- **Certifications:** Vector CEA (2022), Docker Essentials, Automotive Cybersecurity (2024)

## Languages

- Hindi (Native proficiency)
- English (Professional working proficiency)