Arsh Patel

LinkedIn Github Portfolio

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Experience

ZF Livonia, MI

Software Engineer *Jan. 2023 - Present*

- **Ford Braking Development**: Led the communication module development for Ford's braking software, ensuring compliance with safety standards. Designed and implemented an internal web tool using Next.js that consolidates three separate external tools into a single interface. The tool makes API calls to each external system to simulate and manage message updates, improving production efficiency by 33%.
- **Automated Regression Testing**: Developed a Python script to automatically generate regression test scripts based on vehicle message inputs, eliminating manual script creation. Enhanced testing efficiency by 50 percent and completely eliminated regression errors through automated validation.
- **AUTOSAR Migration**: Refactored existing C code to comply with AUTOSAR standards for vehicles manufactured in 2026 and beyond. Implemented the AUTOSAR RTE framework, reducing manual effort in modifying signal and message implementations by 40 percent. Conducted extensive debugging and validation using Vector CANoe.
- **Auto-generated Code Files**: Created a VBA-powered Excel tool to automate the generation of C header and source files. This streamlined the update process, reducing manual effort by 90 percent and minimizing human errors in configuration file modifications.

ZF Farmington Hills, MI

Software Engineering Co-Op *Jan. 2022 - Sep. 2022*

May. 2021 - Sep. 2021

- **Automated Testing Pipeline**: Designed a CI/CD pipeline using Jenkins and Python to run automated integration tests overnight in a virtual ECU testing environment. The system identified breaking changes in daily Git commits, improving test coverage and reducing debugging time.
- **Automated Code Reviews**: Developed a Python-based GUI that interfaced with PTC Windchill, Jenkins, and Git, allowing engineers to streamline code review submissions and automatically verify compliance with coding standards before approval.
- **Factory ECU Reflashing Script**: Led an investigation into the ECU reflashing process at a factory in Marshall, Illinois, and spearheaded the development of a GUI that reduced reflashing time per ECU by 3 seconds and decreased prior step errors by 95 percent.
- **Management and Workload VBA Scripts**: Built an Excel VBA automation tool to dynamically generate burndown charts, integrating real-time sprint data from PTC Windchill. Enhanced project management visibility and sprint tracking.

Education

University of Michigan College of Engineering Ann Arbor, MI

Bachelors of Science in Computer Science Engineering *Sep. 2019 — Dec. 2022*

Projects

FlexspotFF: Contributed to an open-source NFL-focused website by developing interactive minigames using React and TypeScript. Implemented an API-driven system to automate real-time NFL game spread data imports, reducing manual effort. Developed a Cypress-based end-to-end testing suite to improve site reliability and streamline UI testing.

Schedule I Mods: Developed multiple quality-of-life and gameplay-enhancing mods in CSharp for the video game Schedule I, each receiving over 2,000 downloads and contributing to a more engaging and user-friendly player experience.

Technical Skills

Languages: C, TypeScript, Javascript, C++, Python, CSharp, R, Verilog

Databases and Query Languages: PostgreSQL, MySQL, MongoDB, GraphQL, Prisma ORM

Frameworks and Tools: React, Next.js, Flask, Cypress, Jira, Polyspace, Vector Tools

Cloud and DevOps: AWS, Jenkins, Docker