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 in **C** for Ford's braking software, ensuring compliance with safety standards. Designed and implemented an internal web tool using **React** and **TypeScript** that consolidated 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%** and completely eliminated regression errors through automated validation.
- **AUTOSAR Migration**: Refactored existing **C** code to adhere to the AUTOSAR RTE framework for vehicles manufactured in 2026 and beyond, **reducing manual effort for modifying signal and message implementations by 40%**. 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 simplified the update process, **reducing manual effort and human errors by 90%**.

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 by 50%**.
- **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, **reducing the time needed per code review by 20%**.
- **Factory ECU Reflashing Script**: Led an investigation into the ECU reflashing process at a factory in Marshall, Illinois, and spearheaded the development of a **Python**-based GUI that reduced reflashing time per ECU by 3 seconds and **decreased prior step errors by 95%**.

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 with hundreds of daily users 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 by 100%**. Developed a **Cypress**-based end-to-end testing suite to improve site reliability and streamline UI testing.

Sleeper Roster Tracker: Built a **Next.js** web app that displays player acquisition methods for fantasy football leagues using the **Sleeper API**. Enabled users to easily track how players were added to rosters. Deployed on **Vercel** and used thousands of times by fantasy football enthusiasts.

Schedule I Mods: Developed multiple quality-of-life and gameplay-enhancing mods in **C#** for the video game Schedule I, each receiving **over 3,000 downloads** and contributing to a more engaging and user-friendly player experience.

Technical Skills

Languages: C, TypeScript, Javascript, C++, Python, C#, 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, Vercel