Neerad Ahire

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Education

Pune Vidyarthi Griha's College of Engineering and Technology (PVG COET) Pune, Maharashtra
B.E. in Electronics and Telecommunication — GPA: 8.76/10 *Nov 2022 – Present*

Experience

Cadence Design Systems Pune
SWE Intern *Jan. 2025 – Mar 2025*

- Developed **pseudocode** for **UCIe Link Training and Status Machine (LTSM)** reducing driver development time by 20%.
- Built logic for **core LTSM states** (initialization, retraining, recovery) per UCIe standards.
- Wrote a **transition guide** for firmware developers, minimizing logic errors by 25%.

Projects

Spendly – AI-Powered Subscription & Budget Tracker
Tech: *Python, FastAPI, PostgreSQL, SQLAlchemy, Docker, APScheduler, SMTP, Groq LLM*

- Engineered a production-grade **subscription and budget management backend** with secure user authentication (JWT) and modular API design.
- Developed an integrated **AI-powered cost summarizer** using Groq's Llama 3 model to generate personalized financial insights and overspending analysis.
- Implemented **automated email reminders** for upcoming renewals via **APScheduler** and Gmail SMTP.
- Containerized the entire system using **Docker Compose** (backend + PostgreSQL) and configured environment-driven deployment via **.env**.
- Enhanced performance with **ORM optimization**, rate limiting, and secure CORS policies for scalable deployment on Render Cloud.

Car Price Prediction API
Tech: *Python, FastAPI, scikit-learn, Docker, Redis*

- Developed a **machine learning–powered API** using FastAPI to predict car resale prices based on dynamic vehicle attributes.
- Built a complete **ETL and model training pipeline** with data preprocessing, feature encoding, and Random Forest regression.
- Integrated **Redis caching** for faster inference and containerized the service with **Docker** for seamless deployment.
- Implemented environment-based configuration using **.env** variables and deployed the API on Render Cloud.

Custom Unix Shell
Tech: *C++, POSIX API, GNU Readline*

- Developed a fully functional **POSIX-compliant shell** in C++ supporting **20+ built-in commands**, I/O redirection, **pipelining**, and command execution using `fork()`, `execvp()`, and `dup2()`.
- Implemented an advanced **tokenizer and parser** capable of handling nested quotes, escape sequences, and command substitution for accurate command interpretation.
- Integrated support for **stdout/stderr redirection** (`>`, `>>`, `2>`), and pipeline chaining across multiple processes using UNIX file descriptors.
- Ensured **memory safety** and stability through proper resource deallocation and error handling for all system calls.
- Added persistent **command history management** and **auto-completion** using GNU Readline to enhance interactivity and usability.

Achievements

- **Semifinalist, ACES Hackathon** among top student teams.
- **Campus Ambassador, KPIT:** Organized hackathon awareness campaigns.
- **1669** rating on Leetcode and 2 star on codechef.

Skills

- **Programming & Embedded:** C++, Python, Embedded C, Arduino UNO, ARM Cortex (LPC2148)
- **Systems & Tools:** Git, Docker, FastAPI, Redis, TensorFlow, Keras, NumPy, Pandas, VS Code