HIMANK DAVE

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Education

University of Waterloo — Waterloo, CA
Bachelor of Mathematics, Honours (Co-op) — *2022 - Present*

- Major: Computational Mathematics
- Coursework: Functional Programming, Object-Oriented Programming, Data Structures and Algorithms, Computer Systems and Architecture, Linear Algebra I, Linear Algebra II, Nonlinear Optimization

Experience

Software Developer Intern, Core — May 2024 - Aug 2024
Cactus Creatives — *Remote*

- Developed a pipeline to scrape, clean, and model hierarchical data with APIs built using **Flask**, supporting interactive visualizations via **React** and **D3.js**.
- Built a self-hosted uptime monitoring tool using **Node.js**, **Axios** for web & database monitoring, **Redis** for data storage, and **Socket.IO** for real-time websocket communication, with VPS deployment via **Docker**.
- Designed multiple CI/CD pipelines using **Github Actions** to automate unit and integration testing with **Jest** and **Cypress**, deployment, and monitoring processes for the uptime monitoring tool.
- Engineered a domain-specific chatbot with **85% accuracy**, leveraging a PDF-trained algorithm, custom model trainer, and **OpenAI's NLP API** for multilingual responses.

Python Developer Intern — May 2023 - Aug 2023
Cactus Creatives — *Ahmedabad, IN*

- Developed and maintained full-stack CMS in **HTMX** and **Django**, displaying real-time metrics.
- Implemented a Python script to parse and migrate over 25k+ records from **MySQL** to **PostgreSQL** databases.
- Analyzed large product usage datasets through **linear/logistic regression** and **outlier detection**, leading to over **25%** client savings.

Projects

Trivivo | *HTML5/CSS3, Django, MySQL, REST Framework, AWS*

- Built frontend using HTML5/CSS3/**jQuery**, backend with **Django** and **MySQL**, while offering **RESTful API** for admin operations and deployed to **AWS EC2** instance.
- Crafted interactive admin dashboard with real-time metrics, CRUD operations and detailed logs, optimizing game management by **45%**.

Chess (CS246 Final Project) | *C++, CMake, XQuartz*

- Built a **C++ chess engine** following agile **SDLC** using Big 5 for piece management, and UML for class management.
- Utilized **STL** and the Observer pattern to enhance game features, state tracking, and checkmate conditions.
- Innovated versatile three-way and four-way chess variants, along with human vs computer version improving game ratings.
- Developed **test-suites** & GUI in Linux environment using **CMake** & **XWindows** to facilitate development.

SpectraSVD | *NumPy, OpenCV, Pillow, Streamlit*

- Wrote image compression algorithm using **low-rank approximation** with **25%+** size reduction.
- Employed **OpenCV** and **Pillow** for generating videos of image compression algorithm.
- Deployed an interactive webapp using **Streamlit**, allowing users to observe its impact on image quality and compression rate in real time.

RedWish | *Firebase, GCP, HTML5/CSS3, JavaScript*

- Developed a full-stack health app to democratize blood donation and transfusion accessibility.
- Built frontend with HTML5, CSS3, Bootstrap, and jQuery, and backend with Firebase.
- Utilized **DialogFlow API** to craft a chatbot for customers, enhancing user engagement.

Technical Skills

Languages: Python3, JavaScript(ES6), C, C++20, Golang, HTML5, CSS3, SQL
Frameworks: Django, Flask, React, Node.js, Axios, Socket.IO, TailwindCSS, D3.js, Jest, Cypress, pytest
Libraries: Pandas, Matplotlib, Plotly, NumPy, OpenCV
Tools: Git, Linux, Bash, Powershell, Docker, Postman, GCP, AWS