Vedant Modi

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Education

Tufts University August 2022 – May 2026

GPA 3.69, BS Computer Science, BS Mathematics, Dean's List (Fall 2022, Spring 2024, Spring 2025) *Somerville, MA*

Relevant Coursework: Machine learning, Algorithms, Machine structure, Data structures, Statistics/Probability theory, Distributed systems Operating systems, Modeling, Abstract algebra, Programming language theory, Network security, Assembly programming, Linguistics theory

Skills

Programming Languages: C/C++, Python, TypeScript, React, Rust, x86-64 Assembly, Standard ML, OCaml
Tools, Technologies & Concepts: Node.js, Docker, CI/CD, AWS, MongoDB, PostgreSQL, Scikit-learn, NumPy/Pandas/Matplotlib, TensorFlow/Keras, PyTorch, Tailwind, Figma, HTML, Unit/Integration Testing, Functional & Concurrent Programming, Hyperparameter Tuning
Relevant Certifications: AWS Certified Cloud Practitioner

Relevant Experience

Software Engineering Intern – Markets Technology, Commercial & Investment Banking June 2025 – August 2025

J.P. Morgan Chase & Co. *New York, NY*

- Built end-to-end and deployed production monitoring application for high touch bond trading platform, enabling performance analytics across **5 critical data enrichment services** for over **100,000+ trades per day** and improving trade execution in global markets. Flagged **20% of requests** suffering extreme latency in key service, driving target optimizations that significantly improved trade execution workflow.
- Expanded scope of product ownership by iterating on features and incorporating feedback from stakeholders in **5+ widespread locations**. Enhanced the application to provide actionable metrics for **99% of requests**, iterated on live troubleshooting features, and ultimately achieved **100% alignment with the product vision**.
- Demonstrated product proficiency and faciliated product improvements by delivering a live presentation of the application to **teams across 20+ locations**, including senior executives and key stakeholders, resulting in actionable feedback, effectively showcasing the tool's utility, and providing technical points of improvement for line of business.
- Brought application from concept to completion **within 10 weeks** using the firm SDLC; managing feature development, testing, stakeholder approval, and critical business periods such as code freezes. Enabled future work within the SDLC by creating a maintainable and well-documented codebase.
- Prototyped an AI-powered travel recommendation tool later adopted by firm, leveraging an agentic RAG workflow to give detailed user suggestions and promotional feedback. Recognized among **the top 5 teams** in New York City offices for effective presentation and innovative product.
- Proactively expanded domain knowledge within **2 weeks** by attending learning sessions, organizing regular coffee chats with experienced developers and management, and studying technical documentation to accelerate project progress.

Teaching Fellow for Machine Structure & Assembly Programming January 2025 – Present

Tufts University, Department of Computer Science *Somerville, MA*

- Improved **200+ students'** ability to engineer large-scale, low-level programs by encouraging rigorous testing, building modular architecture, creating powerful data abstractions, writing strong documentation, and harnessing standard libraries.
- Elevated students' experience by reviewing **100+ program design submissions**; ensured constructive grading comments to help students create effective implementations.
- Probed students on implementation choices and debugging solutions in **2000+ interactions** during personal office hours.
- Enriched **100+ students'** developer soft skills (i.e. pair programming, product ownership) by introducing one-on-one code reviews.
- Improved student comprehension by leading review session for **100+ students** covering key course content and exam preparation.
- Introduced new concepts to **30+ students** weekly by delivering comprehensive lectures and visualizing course concepts.

Relevant Projects

Universal Machine | *C, x86-64 Assembly, Bash* November 2023 – December 2023

- Created a Turing Complete virtual machine using **object-oriented programming principles**, separating functionality like I/O, machine arithmetic, logic, and memory; tested components with custom-devised unit-testing framework
- Optimized the program by analyzing x86-64 Assembly instructions and `qcachegrind` and minimized expensive operations such as dereferencing or allocation through reuse of memory; verified performance gains via benchmarking against **1,000,000,000+ instruction** binaries
- Recreated the venerable HP15-C via Assembly instructions derived from the Universal Machine's ISA

Globetrotter | *TypeScript/JavaScript, Node.js, Python, React, PostgresSQL* July 2024 – Present

- Created an animated, interactive travel sharing product by modeling, planning, and writing a full stack web application
- Designed a modern, lively frontend with a responsive map, menu, and user statistics page using React, Tailwind CSS, and APIs from Mapbox and deck.gl
- Unified user interface by **modeling 50 components** in Figma before development
- Displayed **over 40,000 airports** on map client using RESTful APIs to communicate between frontend and backend
- Enhanced airports data by synthesizing **20+ large-scale, open-source datasets** using CRUD applications developed in Python
- Hosted backend server by managing a PostgresSQL database within a Docker container on an AWS EC2 instance

Reading Level Classification | *Python, Jupyter Notebook, Scikit-learn* March 2025

- Demonstrated robust understanding of supervised learning workflow (preprocessing, training, performance evaluation) by building robust models (MLPClassifier, LogisticRegression) to classify text by reading level.

Movie Recommendations | *Python, Jupyter Notebook, Scikit-learn* April 2025

- Established clear understanding of unsupervised learning workflow (initialization, training, tuning, evaluation) and utilty of various accuracy metrics by building various latent factor models to recommend movies from Movielens100k database to users.

Extracurricular Activities

Spoken Languages: Proficiency in English, Hindi, Urdu, Spanish, and French
Media: Droneography, Photoshop, Lightroom, After Effects, Davinci Resolve Studio, Premiere Pro, InDesign, Wordpress