Vedant Modi

+1 (832) 963-0248 | vedant@vedantmodi.com | vedantmodi.com | github.com/thevedantmodi | linkedin.com/in/thevedantmodi

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: Distributed systems, Machine learning, Algorithms, Machine structure, Data structures, Statistics/Probability theory, Operating systems, Modeling, Abstract algebra, Programming language theory, Compilers, Embedded systems, Network security, Linguistics

SKILLS

Programming Languages: C/C++, Python, TypeScript, Golang, 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 & Asynchronous Programming, Network 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

File Copy | *C, C++, Bash*　　　　　　　　　　　　　　　　　　　　September 2025 – October 2025
- Developed a fault-tolerant network file transfer application, as measured by error-free transfer on unreliable systems, by designing a packet-level protocol over UDP that handles retranmissions, timeouts, and disk-write errors.
- Ensured protocol reliability by stress-testing 10+ GB directory transfers under packet duplication, drops, reordering, and artificial delay, as well as simulated disk-level faults like slow or failed block reads/writes.
- Improved protocol tunability by implementing a modular class hierarchy that reduced code duplication and enabled precise control of client-server packet handling.

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

Photos by Vedant Modi | *TypeScript/JavaScript, Node.js, Python, React*　　　　　　　　November 2025
- Automated the ETL process for large photos by building a Python ingestion engine within a CI/CD pipeline. Successfully extracting GPS coordinates and metadata from **over 500 photos**.
- Maximized system availability and minimized latency by decoupling static asset storage to a global content delivery network, ensuring short load times for high-resolution media.
- Developed a responsive map visualization using React that enables dynamic filtering of the photo dataset by year and geographic coordinates.

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.

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