Vedant Modi

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Education

Tufts University Aug. 2022 – May 2026

GPA 3.85, BS Computer Science, BS Mathematics *Somerville, MA*

Significant Coursework: Algorithms, Network security, Machine structure, Assembly programming

Data structures, Multivariable calculus, Linear algebra, Mathematical proofs, Climate science, Political cinema

Experience

Tufts University, Department of Computer Science May 2023 – Present

Course Assistant for Data Structures *Somerville, MA*

- Contribute to course infrastructure—autograding software, unit tests, organizing TA grading, and project solutions
- Host office hours aiding students in course assignments and explaining lecture topics
- Deliver comprehensive lectures about topics and reinforce concepts via coding excercises for weekly 30+ student lab
- Grade student assignments by studying submissions for functionality, testing, and course coding standards

Tufts JumboCode September 2023 – Present

Full-Stack Developer *Somerville, MA*

- Develop a full-stack web application app benefiting the Emerald Necklace Conservancy educating visitors on preservation
- Cultivate an interest in Boston's historical parks by creating an engaging product using React, MongoDB, Bun
- Practice team-based coding powered by Git and GitHub collaboration tools

Tufts University, Office of Academic Space Management May 2023 – Present

Receptionist *Somerville, MA*

- Service community via organizing mail and analyzing building usage for largest academic buildings on campus

Relevant Projects

Universal Machine | *C, x86-64 Assembly, Makefile, Bash* Nov. – Dec. 2023

- Created a virtual machine tested with custom-devised unit-testing framework
- Profiled the program by analyzing x86-64 Assembly machine code and `qcachegrind`
- Recreated the venerable HP15-C via Assembly code derived from the Universal Machine's ISA

vfl | *C, Makefile, Python, Bash* Oct. 2023 – Feb. 2024

- Authored a program that reads/writes binary files representing flight itineraries utilizing bitmasking principles
- Wrote a collection of Python modules that aid the compression, like quantizing timezones, or finding the UTC offset of an airport, given its code

World Clock | *JavaScript, HTML, CSS* Jul. – Aug. 2023

- Created a web application showing the time of chosen cities, with a helpful interactive map to aid in visualization
- Designed using Maptiler and OpenStreetMap for map, and modeled UI with Figma
- Published application to personal website with custom autocomplete search bar and tracked development with Git

Encrypted IM | *Python* Jan. 2024

- Implemented a peer-to-peer encrypted instant messenger, as a practice in network programming and encryption

Technical Skills

Programming Languages: C/C++, Python, x86-64 Assembly, JavaScript, TypeScript, HTML/CSS, R, SQL, LaTeX
Frameworks and Environments: React, React Native, Node.js, MongoDB, Bun
Technical Topics: Software testing, object-oriented design, encrypted network programming, machine arithmetic, memory hierarchy (especially cache structures), performance analytics, data structures, algorithms, compilers
Developer Tools: Linux/UNIX terminal, shell scripting, Git/GitHub-assisted development, GCC, Makefile, Figma
JavaScript APIs: Mapping APIs (e.g. MapBox, OpenStreetMap)
Python Modules: pandas, matplotlib, sys, select, socket, tz
Spoken Languages: Proficiency in English, Hindi, Spanish, and French
Media: Droneography, Photoshop, Lightroom, After Effects, Davinci Resolve Studio, Premiere Pro, InDesign, Wordpress