Vedant Modi

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Education

Tufts University Aug. 2022 – May 2026
GPA 3.85, BS Computer Science, BS Mathematics *Somerville, MA*
Relevant Coursework: Algorithms, Network security, Machine structure, Assembly programming Data structures, Multivariable calculus, Linear algebra

Experience

Tufts University, Department of Computer Science May 2023 – Present
Course Assistant for Data Structures *Somerville, MA*

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

Tufts JumboCode Sept. 2023 – May. 2024
Full Stack Developer *Somerville, MA*

- Developed an app helping the Emerald Necklace Conservancy inform visitors about the organization's parks through an interactive, animated full-stack web app.
- Connected information with MongoDB database protected with HTTPAuth for admin to maintain and update page information.
- Created and documented React components for team to reuse in building a cohesive user interface across all pages.

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 Tufts 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, Python, Makefile, Bash* Oct. 2023 – Feb. 2024

- Authored a program that reads/writes binary files representing flight itineraries
- 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* 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

Skills and Interests

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, Maplibre, LeafletJS, OpenStreetMap, qGIS)
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
Travel: Hiking mountains, traveling to novel destinations, searching for amazing flight deals
Standards: Expert in recalling IATA airport codes, ISO country codes, and timezones
Woodworking: Prowess using power tools like a saw (miter, table, band) and drill