Varun Ritesh Gandhi

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EDUCATION

University of Massachusetts Amherst

Bachelor of Science in Computer Science and Mathematics, Minor in Business (GPA: 3.90)   **2021 – Dec 2024**

Distinctions: Dean's List Honors, Chancellor's Award Scholarship ($56,000)

Coursework: Software Engineering, Data Structures, Algorithms, Machine Learning, Programming Methodologies, Operating Systems, Artificial Intelligence, Abstract Algebra, Computer Networks, Intro. Computer Organization and Architecture

SKILLS

Languages: Python, JavaScript, SQL, Java, C/C++, HTML, CSS, Rust, TypeScript, Bash

Frameworks and Libraries: React.js, Node.js, Flask, Bootstrap, Django, jQuery, Express.js, Mongoose, Pandas, NumPy

Cloud and Tools: AWS [EC2, EBS, S3, Lambda], Docker, Git, Rest API, MongoDB, MySQL, Unix/Linux, Agile, CI/CD, Terraform

Certifications: The Complete Web Development Bootcamp (Udemy), Software Engineering Virtual Experience (JP Morgan)

EXPERIENCE

Software Engineering Intern   Adani Group   May 2023 – Aug 2023

- Automated identification of idle resources in Adani's Google cloud infrastructure by developing **python scripts** leveraging **Google cloud APIs**, achieving **cost reductions of 35%.** Architected a **MySQL DB** to store the data retrieved from the API calls.
- Spearheaded development of a full stack dashboard using **React.js** and **Django REST framework** to visualize and analyze the collected data, utilizing **Axios** for frontend API calls and **Django token authentication** for secure backend API authentication.
- **Created** and deployed MySQL and Django **containers** on a **virtual machine**, enabling communication via a **Docker** network.

Software Engineering Apprentice   Duck Creek Technologies   Feb 2023 – May 2023

- **Developed** a **time tracking platform** for **internal use of 1900+ employees** from ground up in an agile team of 9 developers under the guidance of a Sr. SWE at Duck Creek for academic credit as a part of the software engineering course at UMass.
- Constructed the client-side in **React.js**, implementing methods for large-scale UI components that consumed served **JSON**.
- Programmed server-side logic of portal using **Node.js, Express.js, and Mongoose**, and stored employee data in **MongoDB**.

PROJECTS

UMassConnect – Social Media Website (Link)   **React.js, Redux, Node.js, Express.js, MongoDB, HTML/CSS, MUI**

- **Developed** a **full stack CRUD application** for prospective **use of 9,000+ students**, providing a centralized platform for curating and delivering highly relevant content related to UMass students' academic pursuits, campus events, clubs, and interests.
- Guaranteed secure communication and access by integrating **RESTful APIs** authenticating **JWT tokens** sent on each API call.

Extended XV6 Operating System Kernel (Link)   **C, C++, X86 Assembly, Makefile, Unix/Linux, Rust**

- **Contributed** to the **open-source** Unix based **XV6 OS kernel** by replacing the "Round Robin" process scheduler with the CFS scheduler, enhancing process prioritization and fairness aiming to reduce average process wait times by more than 25%.
- Concurrently, designing a course project for the Operating Systems course at UMass tasking hundreds of students with transitioning the XV6 OS kernel's process scheduler from "Round Robin" to the Multilevel Feedback Queue (MLFQ).

Binary Buddy Memory Allocator (Link)   **C, C++, Makefile, Unix/Linux**

- **Created** a **memory allocator** for **Unix-like operating systems** from scratch which made the use of recursive binary splitting and coalescing to achieve a memory **allocation efficiency** improvement of **approx. 25%** as compared to traditional methods.
- Designed a Binary Tree ADT and implemented recursive **Depth First Search algorithms** to locate available memory nodes.
- Improved build processes by incorporating a Makefile for automated compilation and testing, reducing deploy time by 5%.

The Simon Game (Link)   **HTML, CSS, JavaScript, jQuery, DOM**

- **Developed** a **single player memory game** requiring players to accurately recall and select next color that flashes on screen.

LEADERSHIP & EXTRACURRICULAR

Manning CICS – Undergrad Teaching Assistant – Grade Assignments for the Operating Systems course and hold office hours.

Microsoft – Tech Resilience Program Participant – Paired with two engineers at Microsoft in a 6-week mentorship program.

UMass Residential Life – Peer Mentor – Build inclusive environment for freshmen, aiding academic transition to college.