­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 GroupMay 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 TechnologiesFeb 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](https://github.com/vgandhi13/UMassConnect)) **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](https://github.com/vgandhi13/XV6-Riscv-CFS)) **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](https://github.com/vgandhi13/Extension-of-Memory-Allocator---Binary-Buddy-Allocator))  **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](https://vgandhi13.github.io/The-Simon-Game/)) **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.