

Tanuj Jain

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Technical Skills & Abilities

Programming Languages: C/C++, Python, JavaScript, SQL, Assembly, HTML, CSS

Frameworks and Tools: Node.JS, React.JS, Django, GraphQL, GIT, Docker, Postman, GDB, Linux

Cloud Computing: AWS (EC2, S3, DynamoDB, Route)

Professional Experience

School of Computing and Augmented Intelligence - ASU | *Research Assistant* | Tempe, Arizona **May '23 – Aug '23**

Tech Stack: C++, Assembly Language, Linux, QEMU, GDB, Angr

- Engineered "Unilog: A framework for unified system-level logging". This project aims to streamline system-level logging processes and enhance provenance analysis for improved efficiency and accuracy.
- Investigated and conducted comprehensive research on existing **system logging techniques** and **provenance analysis methods**.
- Integrated various system logging and provenance analysis approaches into a cohesive and unified framework.

GlaxoSmithKline (GSK) | *Software Engineer Intern* | Mumbai, India **Jan '22 – May '22**

Tech Stack: AWS, Node.JS, React.JS, MongoDB, Rest API

- Established an end-to-end anti-counterfeit and supply chain management system using AWS infrastructure and **Rest API**.
- Instrumented **agile software development** lifecycle and orchestrated **CI/CD** pipelines, reducing manual intervention by **60%**
- Worked on a web-based application that extracted data from **10,000** soft copies of bills in **4-5 seconds** using technologies like **image processing** and **OCR** and saved it in an Excel sheet.

Newbee Works Pvt. Ltd. | *Full Stack Web Developer Intern* | Kerala, India **Jan '21 – Jun '21**

Tech Stack: AWS, S3, DynamoDB, Node.JS, React.JS, Rest API

- Pioneered the development of a job portal catering specifically to industry newcomers, empowering companies to post job openings and enabling job seekers to apply and directly contact employers.
- Leveraged **AWS** services, including user authentication, data storage using **S3 bucket**, and database utilization with **AWS DynamoDB**, resulting in a robust system, ensuring data integrity and seamless scalability.
- Engineered a responsive and scalable frontend using **React.JS** and seamlessly integrated it with the **AWS** backend through **Rest API**, facilitating smooth communication between the frontend and backend components of the application.

Projects

riscv-xv6 | *MSCS Advanced OS Course Project* | **Tech Stack:** C++, Assembly, GDB, QEMU

- Mastered concepts of physical memory protection, process memory management, memory virtualization, locks, semaphores, scheduling, context switching, device drivers, and DMA.
- Created a custom bootloader for the **riscv-xv6 kernel** and introduced additional features to the OS like on-demand paging increasing the RAM by **50%** for a process using page faults, over-subscription of heap pages by implementing page swapping techniques, and multi-thread scheduling.

Multilingual Speech Translation | *Senior Year Project* | **Tech Stack:** PyAudio, TensorFlow, Flask, React.JS

- Implemented an Automatic Speech Recognition (ASR) model using **LSTM-CNN** Architecture, achieving **90%** validation accuracy.
- Trained two Text-to-Text Machine Translation (MT) models – one with LSTM and another with Bidirectional LSTM and Attention Layer – yielding **75%** and **95%** validation accuracies, respectively.

Secura Drive | *An Encrypted Cloud Storage* | **Tech Stack:** Django, Cryptography, MongoDB, Zlib, React.JS

- Engineered a secure encrypted file storage system on the cloud, leveraging **Django Rest Framework** and **MongoDB**.
- Implemented **AES-128** encryption and compressed files to **80%** of the original size, ensuring files are protected and efficiently stored in the cloud.
- Designed a polished and responsive frontend using **React.JS** to access all the functionalities of the cloud storage.

Education

Arizona State University, Tempe, AZ | *Master of Science in Computer Science* | **CGPA: 3.8/4**

Aug '22 – May '24

Courses: Software Security, Advanced Operating Systems, Database Management System Implementation.

Somaiya University, Mumbai, India | *B. Tech in Computer Engineering* | **CGPA: 3.9/4**

Aug '18 – May '22

Courses: Computer Organization and Architecture, Analysis of Algorithms, Data Structures, Object-Oriented Programming.