Abubukker Chaudhary

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Education

University of Toronto Graduating May 2025

Bachelor of Applied Science - Computer Engineering, Dean's Honour List *cGPA: 3.83/4.00*

Experience

Software Engineer Intern Jun 2024 - Aug 2024

Capital One *Richmond, VA*

- Built a full stack self-service tool in **React.js and Golang** to facilitate the creation of production readiness policies
- Spearheaded the backend API development, leveraging concurrency through **Goroutines** to achieve high throughput
- Developed a chatbot using LLMs and LangChain to **translate natural language into SQL queries** for Snowflake

Software Engineer Jan 2024 - May 2024

OrbitAI *San Francisco, CA*

- Led the migration from basic VPS hosting to **Kubernetes and Helm on Azure AKS**. Involved implementing sharding, load balancing, CI/CD, and heavy-duty GPU pipelines for low latency inference of our ML systems
- Developed a **0 to 1 scalable notifications pipeline** using a Redis pub/sub microservice that acts as a message queue. Supports email, text, and dashboard notification channels sent via SSE
- Engineered an in-house, **scalable WebRTC video conferencing system** using Elixir. Achieved ultra-low bandwidth costs and latency time using a homegrown CDN

Software Engineering Intern May 2023 – Sep 2023

A.I. Insurance Inc (YC W19) *San Francisco, CA*

- Migrated **React.js** + **Node.js** core app architecture to a Next.js + TypeScript monorepo; resulting in over **1.3 million lines of code refactored**, reduced network latency and 50% reduction in production crashes
- Engineered a scalable and efficient real-time notification system capable of supporting **10,000+ concurrent connections**, by leveraging WebSockets and a Redis pub/sub message queue for data synchronization
- Enhanced regulatory compliance with **30% faster audits** via high-performance policy tracing and logging

Software Engineering Intern May 2022 – May 2024

ENCORE Lab *Toronto, ON*

- Implementing features using Angular and TypeScript to create a open source collaborative learning environment supported by co-design with educational practitioners at UC Berkeley
- Improved our CI/CD workflow pipeline to increase repository code quality and automate development workflow **improving code-base health by 50%**
- Migrated WebSockets protocol from Firebase to utilize socket.io and Node.js to facilitate real-time collaborative learning, **reducing socket latency by an average of 20%**
- Accepted **return offer** from as a **part-time employee**; continued open-source project development

Projects

Lord Monitors

- Developed and deployed real-time alert monitors on Solana and Ethereum blockchains, enabling traders to receive timely notifications and perform on-chain analysis, scaling to **10,000+ users and generating $15k MRR**
- Engineered a **distributed system with concurrency** in Node.js, optimizing for minimal latency and throughput

Geographical Information System

- Developed a high-performance GIS software application using **C++** and GTK, implementing advanced path-finding algorithms such as A*, Dijkstra's algorithm, and optimized solutions for the Traveling Salesman Problem
- Leveraged multithreaded programming techniques to enhance software performance, resulting in an amortized refresh rate of 30 fps and leveraged simulated annealing to **produce shortest paths in $\leq$ 1 second**

Distributed Fault Tolerant Key-Value Store

- Built Python-based Dockerized distributed key-value store with quorum replication, gossiping strategy
- Preserves causal relations for consistent results, ensuring fault tolerance, scalability, and efficient data management.

Technical Skills

Languages: Python, C/C++, Java, TypeScript, Golang, Elixir, SQL, MATLAB, HTML5, CSS, Bash
Technologies: Kubernetes, Docker, AWS, Terraform, Angular, React, Nest.js, Node.js, Django, PostgreSQL, Git, Linux
Concepts: Distributed Systems, Software Engineering, Web Frameworks, Databases, Full stack, Frontend, Backend, Cloud Computing, Parallel Programming, Virtual Memory, Multithreading, REST API, Data Structures, Operating Systems