Sarim Aleem

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Education

University of Texas at Austin — Austin, TX
Bachelor of Science in Computer Science, Minor in Arabic — *Aug. 2020 – Dec 2023*

Experience

Software Development Intern — May 2023 – Aug 2023
Adobe — *San Jose, CA*

- Developed real-time model management system for parameter efficient fine-tuning models
- Coded asynchronous FastAPI webserver to accept train and predict requests
- Integrated PostgreSQL to store fine-tune metadata and Azure blob storage to store binary
- Benchmarked and graphed various caching strategies for efficient storage and retrieval of fine-tune layers including: Redis, Azure, Shared Memory Buffer
- Containerized application using Docker deployed Kubernetes

Software Development Intern — Jun 2022 – Aug 2022
Fujitsu Network Communications — *Dallas, TX*

- Developed web client in Java Spring to migrate network element data to CPS database from MongoDB
- Created CPS database schema to store NETCONF/RESTCONF data in YANG
- Configured network bridge in Docker files to enable cross-communication between 15+ microservices
- Migrated southbound interface from direct drivers to a software defined network controller
- Wrote bash scripts to automate container deployment and test REST endpoints

Teaching Assistant — Aug 2022 – Dec 2022
University of Texas at Austin — *Austin, TX*

- Taught students Python basics

Research Intern — Jan 2021 – Aug 2021
Baylor College of Medicine — *Houston, TX*

- Built computer vision model in C++ to analyze mice pupil dilation size, 50x fasterthan deep learning model
- Programmed Tkinter GUI to edit audio files based on signal patterns and spectrogram
- Developed Python library to analyze and visualize pupil dilation of mice using Pandas and Matplotlib

Projects

Fluid Simulator | *C++, OpenGL*

- CPU implementation of 2D fluid simulator for incompressible fluids
- Visualized velocity fields by creating real time vector field diagram

Multithreaded Ray tracer | *C++*

- Implemented multithreaded raytracer in C++ that uses phong illumination model
- Accelerated Ray tracer with K-d Trees

Neural Network Transformer | *Python, PyTorch*

- Implemented transfomer encoder from scratch using pytorch
- Measured performance of transformer by creating perplexity

Distributed Key-Value Store with Load Balancing | *Java, Distributed Systems*

- Created linearizable key value store with replicates data with fault tolerance using paxos
- Load balanced key/value workloads using sharded paxos replica groups

PintOS Operating System | *C, Concurrency, Operating Systems*

- Implemented operating system with thread priority scheduling, system calls, virtual memory, and an EXT file system
- Debugged race conditions, deadlocks, memory errors, and other bugs using GDB

Multiplayer Gomoku with AI | *Javascript, Express, Web Sockets*

- Created a multiplayer website with communication through websockets
- Implemented single player mode with AI using minimax with alpha beta pruning

Technical Skills

Languages: Java, Typescript/Javascript, C, C++, Python, Bash, SQL, HTML/CSS
Technology: MongoDB, Postgres, Docker, Kubernetes, Spring
Libraries: SQLAlchemy, Numpy, PyTorch

Activities

Texas Wrestling: Competed in wrestling tournaments
Central Texas Model UN: Helped organize Model UN conference for high schoolers
Advancing UT Technology: Team leader for social media website to connect UT students