Ju Shi

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EDUCATION

University of Michigan
Ann Arbor, MI

Bachelor of Science in Computer Science, GPA: 3.1 — *Aug 2020 – Apr 2023*

Relevant Coursework: Data Structures and Algorithms, Computer Architecture, Theory of Computation, Game Design and Development, Software Engineering, Operating Systems, Web Systems, Introduction to Computer Security

New York City College of Technology
Brooklyn, NY

Associate of Science in Computer Science, GPA: 3.9 — *Aug 2018 - May 2020*

- SEEK Program, Search for Education, Elevation, and Knowledge   Aug 2018 - May 2020
- Dean's List   Aug 2018 - May 2020

TECHNICAL SKILLS

Languages & Frameworks: C/C++/C#, Python, R, SQL, HTML/CSS/JavaScript, Unity, ReactJS, Flask

Skills: OOP, Distributed Systems, Multi-Threading, TCP/UDP, MapReduce - Hadoop, Pipelining, REST API

Tools: Vim, git, github, bash, LaTeX, Docker, Ghirda, Wireshark, Linux, Microsoft Office, Jira, Amazon Web Services

PROJECTS

MapReduce - (Python3, Multi-Threading/Thread Pools, Distributed System)
Mar. 2023

- Implemented a MapReduce framework that executes MapReduce programs with distributed processing on a cluster of computers to learn distributed systems, fault tolerance, OS-provided concurrency facilities, and networking
- To minimize latency, we implemented a manager thread responsible for overseeing a pool of worker threads. This manager thread assigns mapping and reducing tasks to the workers, enabling them to finish tasks concurrently.
- Manager and workers communicate via TCP and UDP messages such that crucial data is handled by TCP messages, while UDP messages are dispatched from the worker to the manager, signaling the worker's activity.

Instagram - Clone (HTML5, Javascript, Python3, SQLite, React, AJAX, Flask, REST API)
Feb. 2023

- Built a clone of Instagram that incorporates both server-side and client-side dynamic pages and a REST API.
- Utilizes ReactJS and AJAX calls to the REST API for client-side dynamic pages.
- Created a simple shell script that mass inserts data into the SQLite database in order to simulate users.
- Implemented pagination in the REST API to allow for dynamic infinite scrolling.
- Deployed website using Amazon Web Services (AWS) EC2 Ubuntu instance.

Network File Server (C++, Multi-Threading, Distributed System)
Nov. 2022

- To understand file-systems, socket programming, client-server systems, and security protocols, we implemented a multi-threaded, secure network file server, that allows clients to interact with it via network messages.
- Incorporates threads for concurrency between clients. A thread is created per client that connects to the server.
- Utilizes hand-over-hand locking to prevent data hazards between files.

Thread Library (C++, Multi-Threading, Kernel, RAII)
Oct. 2022

- Re-implemented a Thread library, in C++, with a 4 class interface, cpu, mutex, cv, and thread, to understand how threads and monitors are implemented on uni-processor and multi-processor systems.
- To ensure atomicity, we manipulated interrupts and implemented a timer-based interrupt system, that generates interrupts periodically and is managed by an RAII abstraction.

WORK EXPERIENCE

Costco, Pittsfield Township
Ann Arbor, MI

Front End Assistant — *Sept 2021 – Apr 2023*

- Member Service, Cashier Assistant, Cart Pushing, Pressure Washing, Zamboni Driving, Stocking Merchandise, Store Organization/Maintenance, and Handling Various Machines.

Child Center of New York, Corona Arts & Sciences Academy
Queens, NY

Volunteer, Part-Time — *June 2019 – Aug 2019*

- Collecting, organizing, and inputting student data onto CCNY's online database.
- Assisting teachers and tutoring students in various subjects to ensure children's educational development.
- Organized and sorted files while maintaining an orderly office environment.