Mingchao Zhang

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EDUCATION

Brown University   Aug 2022 - May 2024
M.S. in Computer Science, GPA: 4.0

University of Illinois at Urbana-Champaign   Aug 2016 - May 2020
B.S. in Mathematics and Computer Science with Highest Honors, GPA: 3.83

Relevant Coursework: Data Structures, Algorithms, Computer Systems, Database Management Systems, Computer Networks, Privacy-Conscious Systems, Web Programming, Machine Learning

WORK EXPERIENCE

Amazon Web Services, *Software Engineer Intern, Data Ingestion*   Seattle, WA | June 2023 – Aug 2023
- Developed a robust test program in **Python** to ensure the data integrity of a data ingestion service
- Designed a scalable and low-cost architecture with Amazon **S3**, **Athena** and Hydra containers capable of processing terabytes of incoming data while keeping the test cost under 5% of the data ingestion service operational cost.

Bloomberg, *Software Engineer, Derivatives Data Integration*   NYC, NY | July 2020 – Aug. 2022
- Designed and implemented a highly-distributed derivatives data platform using **C++**, comprising **microservices** that provided a standardized interface across all derivatives teams, handling millions of daily market data queries
- Applied optimal graph algorithms within the microservices, enabling quick access to various market data types and reducing the processing loads from $O(n^2)$ to efficient linear complexity $O(n)$
- Onboarded multiple internal teams, integrating our data platform seamlessly into their workflows, significantly amplifying incoming data volume and enhancing cross-team collaboration
- Developed a distributed system for resource prediction and optimization of a customer support service with 1000+ agents, by leveraging **Spark**, **Kafka**, and cloud computing technologies, which achieved a 30% reduction in operational costs

Cohesity, *Software Engineer Intern, Core Infrastructure*   San Jose, CA | June 2019 – Aug. 2019
- Developed a **Python** tool that can accurately measure the performance of different document indices in retrieving relevant text documents stored on the Data Cloud
- Implemented a **Java** plugin for the indexing engine in **Elasticsearch** source code to enable customized document ranking
- Reduced index storage size of indices by 45% by integrating the optimal indexing schema into a production application

PROJECTS

Hourglass | *Chrome Extension, React, IndexedDB*
- Created a Chrome web extension that promotes effective time management and awareness of users' browsing habits. Users receive timely reminders about their social media usage and frequently visited websites
- Utilized IndexedDB, a local browser database, to eliminate connections to remote servers and to ensure 100% data privacy

3D Portfolio Website| *Three.js, React Three Fiber, Blender*
- Created a 3D model of my living room in Blender and manually baked object textures to achieve optimal texture resolution
- Utilized React Three Fiber to seamlessly import and integrate 3D models, enhancing user experience with smooth and dynamic navigation animations.
- Integrated a 3D avatar and sliding window for personal projects to showcase my unique design style on the website

RFC Compliant TCP & IP Protocols | *Go*
- Constructed a virtual link layer interface using UDP sockets and built network and transport layers on top of the interface
- Implemented essential TCP features, such as the sliding window protocol, slow start mechanism, ordering, and retransmission, to reliably handle data transmission, even in the presence of lossy nodes

SKILLS

Programming Languages: Python, C/C++, Javascript, Go, Java, SQL, HTML/CSS
Tools & Frameworks: AWS Cloud Development Kit, React, Three.js, Blender, Elasticsearch, NumPy, Git, Docker