

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, Operating Systems, Computer Networks, Databases, Web Programming, Machine Learning

WORK EXPERIENCE

Amazon Web Services, Software Engineer Intern, Data Ingestion

Seattle, WA | June 2023 – Present

- Developing a robust test program in **Python** to ensure data integrity in the transformation phase of Data Ingestion Service
- Collaborating with cross-functional teams to identify and address potential scalability and compatibility issues, ensuring the program's resilience and reliability under heavy loads of incoming data
- Implementing efficient data processing algorithms capable of processing terabytes of incoming data, providing real-time feedback on data transformation integrity

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 optimized graph algorithms within the microservices, enabling fast and flexible access to various market data types while reducing the processing loads from $O(n^2)$ to efficient linear complexity $O(n)$
- 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 accurately measures the performance of different indices, generated by various text summarization techniques, in retrieving relevant text documents stored on the Data Cloud
- Implemented a **Java** plugin for the indexing engine in **Elasticsearch**, enabling customized document ranking through user-defined mappings from indices to documents
- 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 browsing habits. Users receive timely reminders about their social media usage and frequently visited websites
- Utilized IndexedDB, a local database, to achieve seamless backend functionality, eliminating the requirement for constant connections to remote servers, which ensures reduced latency and increased user control over their data
- Enhanced privacy control by implementing personalized browsing with blacklists, enabling users to block specific websites for tracking and tailoring their browsing experience to individual preferences

RFC Compliant TCP & IP Protocols | Go

- Constructed a virtual link layer interface using UDP sockets and built network and application layers on top of the interface
- Implemented essential TCP features, such as a sliding window protocol, slow start mechanism, ordering, and retransmission, to effectively handle data transmission, even in the presence of lossy nodes

SKILLS

Programming Languages: Python, C/C++, Go, Java, SQL, HTML/CSS/Javascript, Ocaml

Tools & Frameworks: Git, Docker, Elasticsearch, React, NumPy, AWS Cloud Development Kit