Xulong (Justin) Xiao

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Education

Brown University **May 2024 - May 2026**

Master of Science in Computer Sciences

University of Illinois at Urbana-Champaign **May 2021 - May 2023**

Bachelor of Science in Computer and Information Sciences

Coursework: Data Structure and Algorithms, Web Design and Development, Database System and Design, Computer System, Distributed System

Professional Experience

Huawei | Software Engineer **Aug 2023 - Aug 2024**

- Leveraged **Caffeine** and **Redis** with LRU and TTL eviction strategies to implement a multi-layered caching system for product search, effectively lightening the load on the **PostgreSQL** database during high-concurrency scenarios while reducing API latency from **3s** to **240ms**
- Constructed a batch image retrieval system using the **AWS SDK** for **S3**, **Java**, and **Spring Cloud** to manage large volumes of product images. Leveraged the AWS S3 multipart upload API for efficient large file handling, combined with Spring Cloud's asynchronous task execution, enabling the system to handle up to **1000** images per batch
- Implemented **Redis distributed locks** to control updates of tenant-specific permissions in the cache, ensuring data consistency between the cache and the database, resolving the issue of cache breakdown
- Built an order processing service using Java, Spring Boot and Kafka to ensure reliable transmission of order data to downstream systems. Enhanced Kafka throughput to dynamically accommodate spikes in order volume and process over 10,000 orders per minute
- Established an efficient **CI/CD pipeline** for rapid deployment using **GitHub** with **Jenkins** and deployed **Spring Cloud** Services on **EKS** (Elastic **Kubernetes** Service) and **Docker**, expediting the building and deployment process by **80%** compared to manual deployment
- Resolved **70** issues on **UAT** and **Production** environments by leveraging **Apache SkyWalking** and **ELK (Elasticsearch, Logstash and Kibana)** tools to trace and locate errors efficiently, greatly improved the overall reliability of the system

Bashpole Software | Software Engineering Intern **Feb 2023 - May 2023**

- Developed a conversion tracking system using **Google Analytics** and **Tag Manager** to monitor user conversions, engagement, and ROI for **30** nonprofit organizations, boosting advertisement campaign efficiency by a **50%** reduction in data collection time for pivotal advertising metrics
- Built a **Google Apps Script** extension to automate advertising email process, reducing overall email processing time from **60 minutes** to **20 minutes** per day, enhancing efficiency for company's email processing by **66%**

UIUC | Undergraduate Research Assistant **Sep 2022 - Dec 2022**

- Led a team of 5 to develop a drought information platform using **JavaScript, React** and **Node.js**, implemented custom ML models to process real-time drought data and deliver relevant insights to users
- Migrated **2.4 million** tweets to **Firebase** from **MySQL** for efficient data handling. Built a schema-less architecture to automated tweet scraping using **Python** and **Linux Cronjobs**, significantly expediting overall model training procedure for text clustering
- Engineered a real-time data pipeline with **Python Django** and hosted with **AWS EC2**, integrating **BERTopic** and **RoBERTa** models for large-scale data classification and sentiment analysis, utilizing **Tableau Geo-based visualizer** to collect and visualize critical insights to stakeholders
- Achieved **10,000** monthly page views by aiding decision-makers with critical insights, leading to a publication on **AAAI 2024** conference

Project Experience

Distributed Search Engine **Jan 2025 – Current**

- Established a decentralized cluster using **JavaScript**-designed communication protocols, and utilized **RPC** for node request reception, transmission, and multicast. Implemented a fault tolerance system using the **SWIM algorithm**

Amazon Product Representative Slack Bot **April 2024 - June 2024**

- Utilized **110, 000** products from the Amazon Berkeley Objects dataset and performed data cleaning, embedding and storing into vector database
- Enhanced vector search efficiency at large scale using **FAISS**, achieving a **70%** improvement in query performance through the development of **custom indexing** strategies. Leveraged OpenAI API to construct answer chains to address context-handling and real-time generation issues

Skills

- **Languages:** Java, Python, Go (Golang), JavaScript, C, C++, SQL, HTML, CSS
- **Libraries and Frameworks**: React, Node.js, Flake, Spring Boot, Spring Cloud, BERTopic, RoBERTa
- **Tools and Platforms**: MySQL, Firebase, PostgreSQL, Git, Jenkins, JUnit, Google Analytics, Google Apps Script, Tag Manager
- **Technologies**: Redis, Kafka (RabbitMQ), Linux CronJobs, RPC, Nginx, Docker, Kubernetes (k8s), Tableau, AWS (S3, EC2)