Zijun Huang

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EDUCATION

University of Southern California   Los Angeles, CA
Master of Science - Eletrical Engineering.   *Aug. 2023 – May 2025*

South China University of Technology   Guangzhou, China
Bachelor of Engineering - Information Engineering.   *Sep. 2019 – June 2023*

EXPERIENCE

Huawei Technologies Co., Ltd   June 2024 – Sep 2024
Software Engineer Intern   *Suzhou,China*

- Collaborated with teammates to build an AI-based Network Control Engine (NCE) system, integrating **AI Agents** and large language models (**LLMs**) to achieve intelligent, automated network operations management.
- Designed and developed **Restful api** using **Spring Boot** to enable users to query, validating, retrieve device logs with CRUD operation on **MySQL**; optimized api response time with pagination and implemented **batch** request and **asynchronous** calls to optimize API interactions, reducing average response time from 0.92s to 0.23s.
- Developed Restful api using Spring Boot for model integration with authentication, using a selection process: small model 5-out-of-N followed by large model final 1-out-of-5.
- Implemented a **Kafka**-based messaging system for task distribution across microservices sending to Kafka topics, utilizing callback functions for handling success and failure scenarios, reduced 30% operational time.
- Developed a **distributed locking** mechanism to ensure safe and synchronized task execution in a **multi-threaded** environment, preventing concurrent execution and maintaining data consistency across the system.

PROJECTS

Twitch+ | *Full-Stack Personalized Twitch Resource Recommendation Engine*   *Sep 2023 – Dec 2023*

- Developed the front-end with **React**, **Redux** and **Next.js**. Using **Axios** to fetch data asynchronously; Exposed real-time event logs with **SSE** and create 2 customized Hooks; Enabled SSR and solved the CORS problem.
- Designed and created data schemas with ER diagrams for user and metadata. Set up MySQL data in **AWS** cloud using **RDS** Service; Integrated **Caffeine Cache** for personalized recommendations and video metadata caching
- Designed and implemented **RESTful APIs**, mapping HTTP methods for efficient and reusable routes, with CRUD actions on **MySQL** using **SpringBoot**.
- Implemented user authentication and authorization with **Spring Security** OAuth and **JWT** in Java.
- Containerized the web app with **Docker** and deployed the web app to **AWS ECR** and **App Runner**

AZAZ Video | *Microservices distributed audio and video web application*   *Nov 2022 – Mar 2023*

- Using **kubeadm**, set up a **Kubernetes** cluster with 2 PCs; Configure **Yamls** for 6 containers to create 8 types of k8s resources. Developed a search functionality with **Elasticsearch** using inverted index structures.
- Built **RESTful APIs** in 6 web services with **TypeScript**, **Express** and **Node.js**; Specify communications with **NATS** by customizing 6 types of events. **Ingress-Nginx** was utilized for traffic routing and load balancing.
- Developed database services with **MyBatis**, MySQL and used **Redis** as memory cache. Adopted **Druid** to integrate data sources and created a reliable data service capable of withstanding up to 10000 QPS under 1 hour.
- Constructed **MongoDB** databases and created data models with **Mongoose** and data validation to prevent errors; optimized the data retrieval with indexing and connection pool.

Next AI | *AI Agent for PDF Document Queries*   *May 2023 – Aug 2023*

- Implemented RESTful APIs using **Node.js** and **Express** supporting functionalities such as PDF file uploads, user query submissions, and response retrieval, ensuring efficient data handling and processing; Utilized the **Axios** to manage HTTP requests
- Implemented a server for handling PDF uploads and user queries, leveraging **Langchain** for document processing and response generation, and integrating **React** Speech Recognition and Speak-TTS libraries to enable voice interaction.

Z-web | *Cloud and React based Social Network*   *Jun 2021 – Aug 2021*

- Developed a scalable social network web application with CORS support utilizing **React** and **Go**, deployed on **Google App Engine (GAE)**.

- Utilized **Elasticsearch** as user generated content data storage and keyword-based searches through inverted indexes, while integrating Google Cloud Storage (GCS) for user-uploaded media files and storing corresponding links as metadata in Elasticsearch.

NFT browser | *NFT Price Visualization Platform* *Sep 2022 – Nov 2022*
- Built an NFT dashboard to search and view and analyze NFT assets. Leveraged Antd UI Component Library to boost client-side development
- Leveraged Moralis NFT API to fetch NFT relevant data (price, name, description, etc). Built NFT trade/price chart UI with Recharts

TECHNICAL SKILLS

Languages: Java, Python, C/C++, Golang, JavaScript, Groovy, TypeScript, Kotlin, SQL, HTML/CSS, Shell Script
Frameworks: Spring Boot, Spring MVC, Spring Cloud, Express.js, Node.js, React.js, Langchain, Pytorch, Mybatis
Technology/Tools: Git, Docker, Linus, Google Cloud Platform, MongoDB, MySQL, Redis, Kafka, RocketMQ, Swagger, Kubernetes, jQuery, AWS, Elasticsearch