Youzhi Liang

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EDUCATION

Duke University   Durham, NC
Master of Computer Science | GPA:3.9/4.0   *Aug. 2021 – May. 2023*
- **Coursework:** Distributed System, Database Systems, iOS Mobile APP Development, Algorithm, NLP

Shanghai JiaoTong University   Shanghai, China
Bachelor of Electrical Engineering   *Sept. 2016 - Jun. 2021*

EXPERIENCE

Software Development   Mar. 2024 – Present
Cronwell Inc.   *Remote*
- **Backend and Frontend Development**: Developed a comprehensive Pipeline Tag Parser Application utilizing a **Python + Flask backend** and **Vite + React + JS frontend**. The application processes and parses pipeline tags from both image files and text inputs, improving the efficiency of reading and understanding pipeline drawings used in chemical plants. Implemented **RESTful API** endpoints in **Flask**, integrated **Flask-CORS** for cross-origin requests, and designed a responsive UI using **React** and **CSS**.
- **AI and Prompt Engineering**: Applied **prompt engineering techniques**, including **few-shot learning**, and utilized the **OpenAI API** for automatic tag parsing. This significantly enhanced the system's ability to handle diverse and complex tag formats, raising efficiency of reading pipe line drawings in chemical plant operations.
- **Deployment and Testing**: Leveraged **Axios** for frontend-backend communication and conducted thorough unit testing to ensure functionality and accuracy. Successfully deployed the application using **Docker**, achieving seamless integration and scalability. Improved processing efficiency and user experience through advanced algorithms and **AI integration**.

Software development Internship   Jun. 2022 – Sept. 2022
MetaBrainz Foundation Inc.   *Remote*
- Enhanced the music recommendation website by managing the relational database using **PostgreSQL**, optimizing data retrieval and storage process, resulting in a reduction in load times.
- Implemented a **React-based** frontend UI using **Typescript** and developed the API endpoints using **Python** and **Flask** to enable HTML pages to fetch and set user preferences, fostering a personalized browsing experience, and increasing user retention. Expanded metadata fields to capture more detailed music track information to enhance the accuracy of music recommendation.

PROJECTS

Production Storage Systems   Feb. 2022 – Apr. 2022
- Implemented an **Exactly Once RPC protocol** on top of an asynchronous network using **Java**, ensuring the server executed each client command exactly once, even in an unreliable network.
- Enabled fault-tolerant services by adding **primary/backup replication**. Developed a **view service** to maintain service availability during network partitions.
- Implemented the **multi-instance Paxos algorithm** to guarantee linearizability of client commands. Employed **log compaction** mechanisms to prevent memory exhaustion, enhancing system reliability and efficiency.

Shuttle Tracking iOS Mobile App Development   Feb. 2022 – Apr. 2022
- Developed a dynamic, user-centric mobile application using **Swift** with a robust data listener that periodically queries real-time vehicle tracking information via a **RESTful API**, providing users with up-to-the-minute data.
- Leveraged advanced iOS technologies, including the **CoreLocation framework** and **MapKit framework**, to implement features such as displaying user location, routes, moving vehicles, and stops, enhancing the overall user experience.

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (Postgres), JavaScript, HTML/CSS, Scala, Swift,
Frameworks: React, Node.js, Flask, Django
Developer Tools: Git, Docker, Google Cloud Platform, Spark, Colab, AWS, Pytorch, MongoDB, Kubernetes