Tingjun Liu

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# Summary

Seeking **Software Engineer Intern starting from 2024 Summer**: Experienced in full-stack, web, and game development using tools like **React**, **Spring Boot**, **Flask**, and languages such as **Java**, **C++**, **Python, PHP**, **JavaScript**. Knowledgeable in machine learning with **TensorFlow/PyTorch** and models like **CNN**, **RNN**, **Transformer**. Proficient with **LangChain** and **GPT API** applications.

# Education

**Washington University in St. Louis** August 2022 - May 2026

Bachelor of Science in Computer Science  **GPA 4.0/4.0**

# Technical Skills:

**Languages:** Java, C++, Python, PHP, JavaScript, C# **Frameworks and Libraries**: React, Spring Boot, Flask, Django, Node.js, Express

**Databases**: MongoDB, MySQL, Milvus  **Machine Learning Models:** CNN, RNN, Transformer

**Tools and Platforms**: Git, TensorFlow, PyTorch, GPT API, Docker, AWS, LangChain

# Working Experience:

**Student Life Newspaper (Team management, WordPress, Google Suite)**  April 2024 - Now

*Senior Web Editor*

* **Web Team Management**: Oversee the web team, using WordPress and Google Suite to enhance site functionality and team collaboration.
* **Website Overhaul**: Redesign parts of the website, improve UI/UX with current web technologies like CSS3 and HTML5, and implement interactive features to boost user engagement.
* **Staff Training & Development**: Train new staff members on web content management and prepare them for future roles, including Senior Web Editor positions, using comprehensive WordPress and SEO practices.

**Cogno (Flask, Docker, Milvus, AWS, React, MongoDB, Product Design)**  July 2023 - Now

*Lead Software Developer*

* **WeChat Bot Development**: Created a bot using the **Milvus** database and **Langchain** to respond to user messages, including documents, audio, and images.
* **E-commerce Platform**: Using **React, Flask**, and **MongoDB** to design and implement an E-commerce Platform, providing AI seller and assistant during shopping. Currently providing customer service for **30+** e-commerce sellers.
* **Framework & API Development**: Created an encapsulation framework with **Flask, GPT Cache, OpenAI API**, ensuring separation of business operations from core logic. Migrated the previous Cogno business logic to new framework.

**DHC Software Co., Ltd (Django, React, LLM)** May 2023 - July 2023

*Software Development Intern in Financial Big Data Technology Department*

* **Platform Creation**: Developed a user credit assessment and anti-money laundering platform using **React,** used by three banks to judge user creditworthiness and potential money laundering suspicions based on transaction records.
* **Backend Development & Designing**: Designed and established the backend, using Django to handle frontend requests and interactions with the LLM API. Implemented GPTCache to reduce API call costs by 30%. The API has had over **50,000 calls**.
* **Model Training**: Employed **P-tuning** to train **ChatGLM-6B**, allowing it to perform credit assessments based on bank data.

# Project Experience:

**WashU Internal Students’ products and Services Trading Platform (Java, Spring Boot, React, Scrum, Redis, Kafka, AWS)** July 2023 – Oct 2023

* Orchestrated the architecture and development of a high-performance trading platform for WashU, scaling to **serve over 3,000 students and faculty**. Leveraged **Java** and **Spring Boot** for creating resilient backend services and **React** for a responsive frontend, ensuring an engaging user interface.
* Innovated by integrating **Redis** for efficient caching mechanisms and **Kafka** for reliable messaging and event streaming, enhancing platform scalability and user experience.
* Introduced **GPT API** to provide intelligent product insights and personalized recommendation engines, driving significant improvements in user interaction and satisfaction.
* Led a cross-functional team of seven using Scrum methodologies, employing **AWS** for cloud infrastructure, ensuring robustness, scalability, and continuous **integration/continuous deployment (CI/CD)** practices with **Git** for version control.
* Implemented a continuous feedback loop with **stakeholders**, utilizing analytics and user feedback to iteratively refine platform features, focusing on **performance optimization, security enhancements**, and ensuring alignment with evolving user needs.

**Bill Split: Team Expense Manager (MongoDB, Express, React, Docker)** Mar 2023 – June 2023

* Developed a sophisticated team expense management application using **React** for the frontend to deliver an intuitive user interface, and **Node.js/Express** for a high-performance backend, ensuring smooth and efficient operation.
* Applied graph theory algorithms to simplify financial transactions among team members, enhancing the user experience by reducing complexity in settling expenses.
* Utilized Docker for deployment to maintain consistent environments across development, testing, and production stages. Adopted Git for source code management, fostering collaborative development and efficient version control.

**Fandian: A Chinese recipe sharing, recommendation, and fridge management website. (Vue.js, Spring boot, Java, MySQL)** Nov 2023 - Now

* Led the development of a comprehensive food-centric platform, utilizing **Vue.js** for a dynamic and engaging frontend, coupled with **Spring Boot** for a robust, scalable backend architecture.
* Employed Collaborative Filtering algorithms within an **Elasticsearch** environment to offer personalized recipe and grocery shopping recommendations, significantly enhancing user convenience by tailoring suggestions to their preferences and inventory levels.
* Constructed a secure **MySQL** database, meticulously engineered to protect sensitive user data while enabling efficient recipe and user information management. Integrated advanced search capabilities with Elasticsearch to facilitate quick, relevant recipe discovery.

# Honors and Awards

* Antoinette Frances Dames Award (27 among 1200+ undergraduate students) April 2024
* Distinction Rank (Top 5%) in 2021 AMC 12A Dec 2021
* 1st Place in Gold Division (out of 723 participants) of the USACO Contest Jan 2020
* Top 2% of 148,880 students, National Olympiad in Informatics in Province (NOIP) May 2019