Iris Ma

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Work Experience

Software Engineer Internship *June 2023 – Sep 2023*
Corteva Agriscience Johnston, IA

- Led a team of 7 individuals in the successful development of a web application focused on image analysis and data inspection, harnessing a tech stack comprising Angular, .NET, Entity Framework, Azure cloud services, CVAT, YOLO, and Flask.
- Designed, implemented, and optimized the application to handle extensive image analysis, leading to a 90% enhancement in data collection efficiency. Additionally, effectively addressed ergonomic injury risks associated with manual measurement.
- Pioneered the creation of an Azure-based trigger function, providing real-time monitoring of newly uploaded images to the database. This innovation enabled users to seamlessly upload an unlimited number of images without any waiting periods, concurrently reducing development resource requirements.
- Constructed and deployed a robust microservice utilizing Python and Flask serving as a host for a YOLO machine learning model for object detection with over 80% accuracy. By integrating API to access raw images stored in Azure Blob Storage, realizing efficient data communication and analysis capability at minimum database cost.

Professional Experience

Research Assistant *Sep 2022 – Present*
University of California, Irvine Irvine, CA

- Developed Python scripts for data collection and preprocessing, extracting a substantial dataset of over 10,000 GitHub commit messages. Achieved a 80% enhancement in data quality through thorough cleaning and formatting.
- Spearheaded the creation of a Large Language Model-powered AI assistant aimed at providing comprehensive support to students undertaking entry level software engineering classes, using Python, LangChain, Streamlit, OpenAI API, and advanced text embedding techniques. LangChain was used to optimize the AI assistant's language processing capabilities, while Streamlit was employed to enhance the user interface and facilitate a user-friendly experience.
- Innovated by creating a Visual Studio Code (VS Code) extension, offering direct access to OpenAI's GPT model for streamlined debugging within the local Integrated Development Environment (IDE). Users can effortlessly interact with the model using a simple shortcut, resulting in time savings and heightened productivity during software development tasks.

Undergraduate Research Assistant *May 2021 – May 2022*
Laboratory for Software Design, Iowa State University Ames, IA

- Enhanced compiler to compile with latest language features from Java 9 to 15, optimizing its performance and capabilities.
- Conducted in-depth research on adoption rates and impacts of new Java language features in open-source projects hosted on GitHub. Utilized Python and Excel for data collection, processing, and analysis.

Tutor *Aug 2020 – Dec 2021*
Iowa State University Ames, IA

- Mentored students throughout 3 semesters, providing comprehensive guidance and support in core computer science courses, including: *Introduction to the Design and Analysis of Algorithms*, *Introduction to Data Structures*, *Object-Oriented Programming*

Education

University of California, Irvine *June 2026*
Ph.D. of Software Engineering Irvine, CA

Iowa State University *May 2022*
B.S. in Computer Science, Agronomy Ames, IA

Skills

Languages & Frameworks: Java, Python, C#, JavaScript, C, C++, CSS, HTML, SQL, React, Angular, .Net, Entity, Flask, LangChain, YOLO, Node.js, Express.js, PyTorch, Tensorflow, REST

Services & Tools: Azure, AWS, Git, JIRA, LaTex, OpenAI API, CVAT, Azure Blob Storage, Azure Trigger Function, PrimeNG, Postman, Agile, LLMs, CI/CD