

JOSHUA KO

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EDUCATION

San José State University

San Jose, CA

B.S. Computer Science

Expected Graduation: Dec 2026

- Relevant Coursework: Intro to Programming, Intro to Data Structures, Intro to Computer Systems, Data Structures and Algorithms
- Fall 2024: Object-Oriented Design, Computer Architecture

EXPERIENCE

Software Engineering Fellow

July 2024 – Sep. 2024

Headstarter AI

- Built and deployed **5+ AI apps** using **ReactJS, NextJS, Firebase, OpenAI, AWS, Pinecone**, and **StripeAPI**
- Developed projects from **design to deployment** with engineering fellows

Software Engineering Intern

June 2024 – Aug. 2024

San Jose State University - Software & Computer Engineering Society

- Optimized **video caching** for **Dockerized streaming server** in **Python**, implementing preemptive cache downsizing to prevent cache overflow and ensure efficient cache management before streaming to **RTMP media server**
- Added custom **Prometheus metrics** to monitor **API data rate, cache performance**, and **HTTP requests** for remote streaming server; utilized **PromQL** for metric queries and added **Grafana panels** for **real-time data visualization**
- Refactored **Express.js endpoint** to secure print requests, implemented **server-side validation** to enforce print limits and update print count, centralized print request logic to backend, preventing **unauthorized access**
- Designed and implemented comprehensive **unit tests** for the updated API endpoint using **Mocha, Chai**, and **Sinon**

Undergraduate Research Assistant

Jun 2024 – Aug. 2024

San José State University - Dr. Robert Chun

- Mentoring high school students in research projects on potentials of a **multimodal College Major Assessment Chatbot** using **OpenAI API's chat completion models** compared to traditional questionnaire interest profilers

Undergraduate Research Assistant

Sep. 2023 – May 2024

San José State University - Project Engineering Success Program

- Participated in a collaborative research project investigating current application and limitations of **AR/VR/XR technology** in university education through the **Meta Quest 3**

PROJECTS

Pantry Tracker | *Next.js, React, TypeScript, Firebase*

- Deployed a **full-stack web application** on Vercel using Next.js, React, and Firebase, implementing **user authentication** and **real-time pantry inventory management** with **CRUD operations**
- Implemented **recipe generation feature** using **OpenRouter API** with **Meta's LLaMa 3.1 model**, to prompt engineer recipe suggestions based on selected ingredients, enhancing the app's utility.
- Designed and implemented **responsive UI** using **Material-UI** components, featuring **search functionality** and **data export options** (CSV/PDF), resulting in a user-friendly interface accessible across devices.

Novel Reader | *Python, Flask, SQLite, JavaScript*

- Developed a **web application** for reading light novels without ads, using **Flask** for the backend and **SQLite** for the database
- Implemented **user authentication** using **Google OAuth** to provide personalized features for library management and display preferences (light/dark mode, font adjustments)
- Utilized **Selenium WebDrivers** to extract simplified novel content from websites using Firefox's internal reader viewer, and optimized chapter navigation for users by **preloading adjacent chapter content asynchronously**

SKILLS

Languages: Python, Java, JavaScript, TypeScript, MIPS Assembly

Frameworks: React.js, Node.js, Express.js, Next.js, Bootstrap, Flask, FastAPI

Developer Tools: Git, Docker, SQLite, Prometheus, Grafana, Selenium, Firebase, Vercel