

Joshua Zhang

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EDUCATION

University of Washington

June 2026

GPA: 3.98, B.S. in Computer Science

Seattle, WA

Relevant Coursework: Data Structures & Algorithms, Linear Algebra, Data Science, Low Level Systems

EXPERIENCE

Art of Problem Solving

June 2024 - Current

Software Engineering Intern

San Diego, CA

- Developed an online placement exam using **React**, enhancing accessibility to AoPS Academy courses for more than **20,000** students across 12 campuses.
- Synchronized data on the new Academy site to the old PHP site using a **REST API** written in Fastify.
- Improved loading speed of placement exam site by **34%** by pruning unnecessary API calls and caching data.

Advanced Robotics at UW

Sept 2023 - Current

Controls Software Engineer

Seattle, WA

- Refactored Sentry robot code in **C++**, implementing substantial enhancements for improved functionality.
- Maintains Taproot, an open-source framework for Robomaster robots used by most teams within the US.
- Won **1st** place out of 20 teams in the RoboMaster competition inside North America 2024.

Department of Homeland Security

June 2023 - Aug. 2023

Software Engineering Intern

Washington D.C.

- Conducted a study on the accuracy of fetching information from texts using a Large Language Model (LLM).
- Improved the accuracy of LLMs in answering prompts by **30%** by connecting a **ChromaDB** Vector Database to the LLM through **LangChain**.
- Created the baseline framework in **Python** for future information retrieval research within the DHS.

Red Cheetah Foundation

Jan 2023 - June 2023

Computer Science Tutor

Cupertino, CA

- Taught a class of 15 middle school students web development skills involving **HTML**, **CSS**, and **Javascript**.
- Developed an engaging curriculum that guided students in building and hosting a final portfolio website.

Fweefwop Cybersecurity

May 2021 - June 2022

Web Developer

Cupertino, CA

- Hosted a cybersecurity competition with **600+** participants from **28** countries, and **40,000+** submissions.
- Set up **Docker Containers**, giving each individual problem its own secure environment.

Identifying NEOs with NASA WISE

June 2021 - March 2022

ML Researcher

Cupertino, CA

- Used **Tensorflow** to identify 40+ Near Earth Objects in NASA's WISE database via image subtraction.
- Identified synthetic NEOs with **96%** accuracy and real NEOs with **91%** accuracy.

PROJECTS

Spotify Recommender | Python, Flask, Scikit-learn, NextJS, React, Typescript, Tailwind

- Used Cosine, Euclidean, and Manhattan distance formulas to generate vector embeddings for 12,000 songs.
- Built a frontend using **React**, giving users a graphical visualization of songs and their recommendations.
- Used Microsoft Azure to spin up a container and host the website.

WildEye AI | Flask, Tensorflow, NextJS, React, Typescript, Tailwind

- Trained a model based on **Tensorflow** Inception_V3 capable of identifying 90 different animal species from photographs with an 86% test accuracy.

TECHNICAL SKILLS

Languages: Typescript, Javascript, Python, Java, C++, SQL, HTML/CSS, Bash

Frameworks: React, Next, Tailwind, Tensorflow, PyTorch

Developer Tools: Git, Microsoft Azure, Google Firebase

Libraries: Pandas, NumPy, Matplotlib, Strapi, Storybook, Jest

Awards: USAPhO Top 400 (2021, 2022), National Cyber Scholar (2022, 2023)