

Alex Gulko

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EDUCATION

The Ohio State University

Bachelor of Science — Computer Science and Engineering in Artificial Intelligence

Expected graduation: 2026

GPA: 3.80

SKILLS

Programming languages: C++, C, Python, x86 assembly, JavaScript, TypeScript, C#, Java, MATLAB

Scientific computing: PyTorch, CUDA, Jupyter, Pillow, OpenCV, NumPy

Embedded: VHDL, Linux, FPGA

Web development (full-stack) and Cloud: Node.js, Vue.js, Svelte, Django, AWS, Git, CircleCI, GitHub Actions

Other: .NET, Android SDK, Agile, Jira, SolidWorks

EXPERIENCE

The Ohio State University — Research Assistant in Visualization and Machine learning Sep 2022 - Present

- Invented a novel lossy data compressor, improving compression ration by 68% compared to the baseline
- Compressed 4D scientific data using Kolmogorov-Arnold Network representation and deep learning-based methods
- Conducted experiments on supercomputers with MPI, SLURM, and CUDA

American Electric Power — Technology Intern, Automated Testing and DevOps May 2023 - Aug 2023

- Developed an automated code quality analysis tool, expediting code reviews from multiple days to 300 milliseconds
- Tasked to improve codebase quality, developed a web dashboard to generate and review code quality reports with annotated code snippets through a progressive web app (Svelte, Vite, Node.js, TypeScript)
- Built a GitHub Actions pipeline to assess code on commits and pull requests and present the quality reports

Hyland Software — Software Developer Shadow May 2022 - Jul 2022

- Wrote a backend for an online store in C# and .NET with SQLite database
- Tested code using pipelines (CircleCI) and performed Static Analysis
- Practiced test-driven development and design patterns

Sigma — Founder, CEO Dec 2019 - Sep 2020

- Developed a Decentralized Smart Home System to bring an affordable alternative to the market
- Showcased project at the California Science and Technology Fair and to the Sputnik ATX startup accelerator CEO
- Led the development of a minimum viable product in a team of 5 people

ENGINEERING PROJECTS

Uncountable — Team Lead, Software Engineer — 1st place at HackOHI/O out of 200+ teams Oct 2023

- Used a custom fine-tuned YOLOv8 model to track items forgotten by surgeons in patients during surgeries
- Developed a cross-platform Electron.js app to provide a real-time list of all medical tools in the patient's body
- Built an architecture with multi-threading, Python child process, and WebSocket API for high performance

Grape I/O — Web Engineer — 1st place at HackAI Feb 2023

- Developed a machine-learning model to predict wine quality from chemical parameters in a team
- Web scraped a database of 200 wines with chemical properties
- Created an online dashboard (Vue.js) for wine quality prediction and a model playground

Collision — Team Lead, Full-stack Engineer — 4th place at HackOHI/O out of 220 teams Oct 2022

- Developed a full-stack application that integrates with Google Calendar and pulls data for multiple people to find a time slot within given constraints when everyone is available (Google OAuth 2.0 API, Vue.js, Node.js, Express.js)
- Assisted teammates in areas outside of their direct area of expertise, redistributed tasks, and rapidly reassessed the backlog when one of the teammates dropped out of the competition

LEADERSHIP AND VOLUNTEERING

Software Engineering Club — Founder, President

Sep 2023 - Present

- Started and led a student organization with over 400 members to promote relevant skills to OSU students
- Taught workshops in full-stack web development, cloud computing, and Python, helping students enrich their skills
- Supervised development of a peer mentorship service with Student Government to support undergraduate research