# Alex Gulko

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## EDUCATION

**The Ohio State University** Expected graduation: 2026
Bachelor of Science — Computer Science and Engineering in Artificial Intelligence **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, Google Cloud Platform, Git
**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