

# Alex Gulko

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## EDUCATION

**The Ohio State University** Columbus, Ohio  
Bachelor of Science – Computer Science & Engineering + Artificial Intelligence

Expected graduation: May 2025  
**Major GPA: 4.0**

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## SKILLS AND TECHNOLOGIES

**Programming languages:** C++, C, C#, Python, JavaScript, TypeScript, Java, x86 Assembly, MATLAB  
**Machine learning:** PyTorch, Jupyter, Pillow  
**Web development (full-stack):** HTML, CSS, Node.js, Vue.js, Svelte, Vite, REST API, WebSocket, DNS  
**Cloud:** AWS, Git, CircleCI, GitHub Actions  
**Databases:** MongoDB, SQL, GraphQL  
**Other:** .NET, Linux, Electron.js, Android Studio, Jira, SolidWorks  
**Coursework:** Data Structures, Asymptotic Analysis of Algorithms, Calculus, Linear Algebra, Higher Mathematics

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## EXPERIENCE

- The Ohio State University – Researcher in Machine Learning and Visualization** Sep 2022 – Present
- Developed algorithms for data compression using Implicit Neural Representations with Adaptive Multi-Head splitting
  - Tested my code on Argonne National Laboratory ThetaGPU Supercomputer
- American Electric Power – Technology Intern, DevOps** May 2023 – Aug 2023
- Developed an automated code quality analysis tool from scratch for a proprietary scripting language, expediting code reviews at AEP from multiple days to 300 milliseconds (Node.js, TypeScript)
  - Developed a 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 through the GitHub UI or a downloadable PDF (Node.js, TypeScript, Puppeteer)
  - Wrote scripts for automated testing of an outage restoration and distribution grid optimization software suite ADMS using Eggplant Functional & DAI testing systems
- Hyland Software – Software Developer Shadow** May 2022
- Shadowed a Software Engineer with 7+ years of experience
  - Wrote a backend for an online store in .NET with SQLite database connection
  - Tested code using pipelines (CircleCI) and performed Static Analysis
  - Practiced test-driven development and design patterns
  - Learned the latest industry practices in .NET and C#
- Sigma – Founder, CEO** Dec 2019 – Sep 2020
- Developed a concept of a Decentralized Smart Home System to bring an affordable alternative to the market
  - Showcased project at the California Science and Technology Fair (March 2020)
  - Presented to Sputnik ATX startup accelerator CEO
  - Led the development of a minimum viable product in a team of 5 people

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## ENGINEERING PROJECTS

- Uncountable – Team Lead, Software Engineer – 1<sup>st</sup> place at Hack OHI/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 – 1<sup>st</sup> 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 – 4<sup>th</sup> place at Hack OHI/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

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## LEADERSHIP EXPERIENCE AND VOLUNTEERING

- Software Engineering Club – Founder, President** Sep 2023 – Present
- Started a student organization with 4 officers and 150+ members
  - Organized interactive workshops in full-stack web development, cloud computing, and Python
  - Creating an accelerator for student projects that provides free cloud computing resources, mentorship, and domain names
- Science Olympiad – Event Supervisor, Test Writer** Jan 2023 – Present
- Developed exams for Cybersecurity and WiFi Lab (E&M Physics, Radio transmission)
  - Supervised events at Invitational and State Tournaments