

MICHAEL MASENHEIMER

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EDUCATION & HONORS

The University of Arizona, *Bachelor of Science*, Tucson, Arizona Sep 2023 - May 2027

- **Major:** Computer Science; **Minor:** Information Science, Technology, and Arts; **GPA:** 3.75
- **Relevant coursework:** Software Development, Web Development, **Data Structures and Algorithms**, Computer Organization, Computer Programming (I, II), Discrete Math (I, II), Linear Algebra
- **Honors:** Dean's List with Distinction, Academic Year Highest Distinction, Dean's List, Arizona Excellence Award

SKILLS

Languages and frameworks: Java, Python, C++, JavaScript, PostgreSQL, HTML, CSS, Spring Boot, PyTorch, Bash, JUnit

OS & DevOps technologies: Windows, Linux, AWS Lightsail, Vercel, Docker, Git

PROJECTS

MakerThread [Spring Boot, Spring JPA/Security, PostgreSQL, Docker] Jul 2025 - Present

- Built the backend of a full-stack, cloud-based makerspace project-sharing platform, supporting a social-media style interface with **user login, post creation, and tagging**; implemented **12 RESTful API endpoints**.
- Designed and managed a **PostgreSQL schema** with 10 tables using Docker and implemented **token-based authentication** through Spring Security.
- Leveraged Lombok to cut boilerplate code by **~30%**, while using Git and Maven to streamline team-based development and build automation, improving development efficiency by **15%**.

Chess Engine and AI [Python, Pygame] Jun 2025 - Aug 2025

- Built a **fully automated chess engine** with multithreading and complete move validation; hosted on itch.io
- Designed an AI opponent using **NegaMax** algorithm **with alpha-beta pruning** and adjustable search depth, enabling multi-move planning and reducing node evaluations by **~70%**.
- Developed evaluation functions that weigh material and positional scoring, evaluating ~1,000 moves per turn.

Music Library and User Management System [Java] Feb 2025 - Mar 2025

- Engineered a terminal-based system for managing user accounts and music libraries, applying object-oriented design principles to organize data.
- Leveraged **ArrayLists and TreeMaps** for efficient data handling and used **JUnit** to rigorously test logic, improving code reliability by 15%.

EXPERIENCE

CERN, *Undergraduate Machine Learning Researcher*, Geneva, Switzerland Apr 2025 - Present

- Research hardware-based ML systems for the **largest particle accelerator in the world**, studying real-time decision-making between AI engines and the collider's current Field-Programmable Gate Arrays.
- Design, deploy, and quantize a **custom Feedforward neural network in C++** with performance optimization
- Analyze how **inference latency scales with network size** on AMD VEK 280 AI Engines and Vitis FPGAs.

University of Arizona Libraries, *Student Makerspace Worker*, Tucson, AZ Jan 2025 - Present

- Host drop-in hours to assist 10 students weekly with certifications in 3D printing and CNC machining; provide support for Raspberry Pi and Arduino technologies.
- **Lead programming and circuit workshops** with Arduino technologies through the makerspace.
- Collaborate with student workers to provide **project and technology support for 100+ students** weekly, while maintaining a safe and inclusive environment.

LEADERSHIP

Computer Science Ambassador, Tucson, AZ Apr 2025 - Present

- Lead tours and outreach events representing the CS department to prospective and incoming students.
- Volunteer for CS-related events, including graduation, admitted students' day, and middle school workshops.
- Mentor underclassmen to develop foundational CS skills and successfully transition into upper-division classes.