Benjamin Miller

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LinkedIn | GitHub | Portfolio Website

EDUCATION

Computer Science B.S. - University of California, San Diego (UCSD) Sept. 2023 – June 2027
GPA: 3.8/4.0, Jacobs School of Engineering, UC San Diego Scholar's Society
Regent Scholar (Merit-based, top 1.5% of class)

Relevant Coursework: Advanced Data Structures and Algorithms (**C++**), Software Engineering (**JavaScript, Web Development**), Embedded Programming (**C, ARM Assembly**), Algorithm Design and Analysis, Software Tools and Techniques (**Linux, Shell Scripts**), Object Oriented Design (**Java**)

SKILLS

- Programming Languages: **Python, C, C++, Java, JavaScript, TypeScript, SQL**
- App/Web Development: **Flask**, **React**, **Node.js**, **CSS**, **HTML, Tailwind, REST APIs, Vite, Express**
- Machine Learning: **NumPy, PyTorch, Pandas, Computer Vision**
- Tools & Frameworks: **MongoDB, Git Version Control, CI/CD, Agile/Scrum, Bash**
- Operating Systems: **Linux**, **macOS**, **Windows**

EXPERIENCE

Software Engineering Intern Sept. 2025 - Present
Western Digital *Irvine, CA*

- Developed internal tool for accelerating integration testing via a **Python microservice** and full stack application (**Flask**, **SQLite, Javascript**), as seen by successful end to end demonstrations to management.
- Designed and implemented **C++ APIs** for hard drives in an **Agile** development environment, validated through comprehensive unit and integration testing.
- Expanded and improved the **unit testing** suite resulting in increased overall **QA validation** quality of the **CI/CD pipeline** and higher quality code.

Software Engineering Lead & VP Jun. 2024 - Present
Themed Entertainment Association at UCSD *La Jolla, CA*

- Led software development including launching the association's website (**JavaScript, CI/CD**) and themed attraction production software (**Python**, **C, C++**), enabling reliable themed attraction operations.
- Organized and represented UCSD in national engineering competitions, driving successful **interdisciplinary design** through team leadership and cross-functional collaboration.

Software Development Intern Apr. 2025 - Aug. 2025
Center for Applied Internet Data Analysis *San Diego, CA*

- Enhanced maintainability and usability using **JavaScript** and **Python**, as demonstrated by successful contributions to the websites' codebase using **Git** for version control in large-scale site environments.
- Created useful automations using **Python** in a **Linux** environment resulting in a 75% decrease on average in manual labor required for workflows such as content updates across the center's project sites.

Resident Advisor at COSMOS Jul. 2024 - Aug. 2024
Jacobs School of Engineering *La Jolla, CA*

- Provided mentorship for the Video Game Programming and AI Design group, as demonstrated by meaningful interactions and personalized advice to empower future engineers.

PROJECTS

Gesture Enabled Storytellying (G.E.S.T.) May 2025 - Present
Python, AI/ML, Computer Vision, COCO Keypoints Dataset **Project Page** | **Github**

- Deployed a real-time **computer vision** system on an **AI Accelerator Camera** by tuning inferencing in **Python** to enable low-latency, responsive gesture-control for an interactive storytelling installation on campus.

Multi-threaded File Compressor Application Aug. 2025
C++, Multi-Threading, MakeFile **Github**

- Created a high speed compressor in **C++** as measured by a 70% improvement in compression time over a traditional single-threaded approach, by optimizing thread management and synchronization of a **thread pool**.

Taro The Talking Bird - Interactive Robotic Figure Dec. 2024
C/C++, Linux, Advanced Linux Sound Architecture (ALSA), Raspberry Pi **Demo video** | **Project Page** | **Github**

- Accomplished real-time audio-to-motion translation for a robotic figure, as measured by 100+ live conversation demos and **16K+ social media views**, by developing a **C** audio-to-motion pipeline to synchronize voice actor speech with robotic mouth movements, resulting in a lifelike performance.