

# BENJAMIN MILLER

(925) 270-9677 | bem002@ucsd.edu | CA - Bay Area  
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++**), Embedded Programming (**C**, **ARM Assembly**, **Microcontrollers**, **Microprocessors**), Software Engineering (**JavaScript**), Components and Design Techniques for Digital Systems (**Verilog**, **Register Transfer Logic - RTL**), Computer Organization and Systems Programming (**C**, **ARM Assembly**, **Computer Architecture**), Object Oriented Design (**Java**)

## SKILLS

- Programming Languages: **C**, **C++**, **Python**, **ARM Assembly**, **SystemVerilog**, **Java**, **JavaScript**
- Machine Learning: **NumPy**, **PyTorch**, **Pandas**, **Computer Vision**
- Other: **Linux**, **Git Version Control**, **Bash**, **CI/CD**, **Agile/Scrum**, **Virtual Machines**

## EXPERIENCE

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

- Designed and implemented **C++ firmware** for hard drives in an **Agile** development environment, validated through comprehensive unit and integration testing.
- Improved hard drive firmware **reliability** and **infrastructure** via developing and testing **embedded C++** features, validated through higher code quality.
- Developed internal tool for accelerating integration testing via a **Python** microservice and full stack application, as seen by successful end to end demonstrations.

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

- Led software development for themed attraction production software on **microcontrollers** and **microprocessors** (**Python**, **C**, **C++**), enabling embedded systems to operate and enhance themed attraction operations that were attended by guests campuswide.
- Organized and represented UCSD in national **engineering competitions**, driving successful **interdisciplinary design** through team leadership and cross-functional collaboration.

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

- Created useful automations using **Python** in **Linux** environment resulting in a 70% decrease on average in manual labor required for workflows, such as content updates across the center's project sites.
- 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.

**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

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

- Deployed a real-time **computer vision** model on a **Raspberry Pi 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 **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 an **embedded C** audio-to-motion pipeline to synchronize voice actor speech with robotic mouth movements, resulting in a lifelike performance.