

# BENJAMIN MILLER

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## 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 scholarship awarded to UC undergraduates)

**Relevant Coursework:** Advanced Data Structures and Algorithms (**C++**), Software Engineering (**JavaScript, HTML, CSS**), Embedded Programming (**C, ARM Assembly**), Components and Design Techniques for Digital Systems (**Verilog**), Algorithm Design and Analysis, Software Tools and Techniques (**Linux, Shell Scripts**), Object Oriented Design (**Java**)

## SKILLS

- Programming Languages: **C/C++, Python, ARM Assembly, System Verilog, MATLAB, Java, JavaScript, TypeScript**
- Hardware: **ESP 32, Raspberry Pi, sensors (e.g., accelerometers, gyroscopes), motors, camera modules, power supply units, register transfer logic (RTL), and communication modules**
- Machine Learning: **PyTorch, NumPy, Computer Vision, Pandas**
- Operating Systems: **Linux, macOS, Windows**
- Other: **Git Version Control, Bash, CI/CD, Scrum/Agile, Virtual Machines, MongoDB**

## EXPERIENCE

**Software Engineering Intern - Firmware, Western Digital** Sep. 2025 - Present

- Currently working on C++ firmware, building Python test tools, and diving into real time operating system (RTOS) level code that ships in enterprise-class hard disk drives (HDDs).

**Software Engineering Lead & VP, Themed Entertainment Association at UCSD** June. 2024 - Present

- Accomplished leadership of the organization's software development initiatives via Agile methodologies and collaborative sprints, as reflected by successful deployment of software based projects at on campus events and on-time project milestones.
- Organized and represented UCSD in national engineering team competitions, as evidenced by successful participation in events requiring interdisciplinary design and engineering skills, by coordinating team efforts and ensuring effective collaboration.

**Software Developer Intern, Center for Applied Internet Data Analysis** Apr. 2025 - August 2025

- Enhanced website usability by modifying and developing JavaScript and Python scripts, as demonstrated by streamlined content management and maintenance workflows, while using Git for version control in a large-scale team environment.
- Worked on the development and maintenance of a website receiving 2,000+ unique daily visitors by leveraging JavaScript and other web development tools, as shown by consistent site reliability.

**Resident Advisor, COSMOS UCSD** July 2024 - Aug. 2024

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

## PROJECTS

**Machine Learning Computer Vision Gesture Detection in Python** May 2025 - Present

- Accomplished responsive gesture-controlled actuation on a Raspberry Pi AI camera, as measured by precise motor movement in response to gestures, by training and deploying customized machine learning models for real-time gesture detection in Python.

**Multi-threaded File Compressor in C++** August 2025

- Created a multithreaded file compression application, as measured by improved compression time, by optimizing thread management and synchronization.

**Interactive Robotic Figure in C/C++** Dec. 2024

- Implemented real-time voice-controlled motor actuation to simulate lifelike robotic mouth movements via optimized audio processing on a Raspberry Pi in C, as validated by precise synchronization between audio input and servo motion.