

Samuel Hernandez

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EDUCATION

Bachelor of Science in Computer Engineering

September 2022 - June 2026

University of California, San Diego, CA

- Coursework: Operating Systems, Computer Networks, Software Engineering, Working with Large Code Bases
- Two Time Recipient Provost Honors - 3.5 GPA & Above
 - 2023 Spring, Fall Quarter

EXPERIENCE

UC San Diego CSE Department

March 2024 - September 2024, March 2025 - Present

CSE Tutor | Courses: CSE 15L, CSE 8A, CSE 29

Head Tutor – CSE 29 | C, Bash, GDB, Valgrind, Make, Unix

- Led an additional 2-hour lab section and provided hands-on support for student groups.
- Refined grading scripts and improved automation for evaluating programming assignments and labs.

Lead Tutor – CSE 8A | Python, GitHub Pages, PrairieLearn

- Managed grading allocation, held supplemental office hours, and maintained the course website.
- Collaborated with TAs to finalize discussion slides and weekly instructional materials.

General Tutoring Responsibilities

- Guided 4 groups of 8–10 students in weekly 2-hour labs for various courses.
- Contributed to the development of new teaching material and lab content.
- Graded 120+ assignments with detailed feedback and answered over 150+ student questions online.

ESB.AI Lab

January 2024 - October 2024

Research Assistant | Raspberry Pi, Bash, Python, Git, Soldering

- Optimized hardware for remote data collection systems, including soldering, camera testing, and power consumption management.
- Implemented bash scripting for automated time lapse photography and video recording, enhancing efficiency in data acquisition.
- Contributed in the labeling of relevant data collected that are crucial for the training of object detection models.
- Assisted in presenting project results and secured a \$50,000 CA CARES Grant from UC San Diego's OIC for advancing climate adaptation technologies, highlighting the system's effectiveness in invasive species detection.

PROJECTS

Custom Memory Allocator | C

- Designed and implemented a dynamic memory allocator in C to replicate the functionality of **malloc** and **free**.
- Developed a shared library (**libvm.so**) implementing **vmalloc** and **vmfree**, using best-fit allocation, block splitting, and coalescing of free memory blocks.
- Leveraged pointer arithmetic, bitwise operations, and block headers/footers to manage a simulated heap.

Interactive Dictionary | C

- Developed an interactive dictionary command-line tool using C, with a focus on linked lists and dynamic memory allocation.
- Implemented core functionalities such as loading, inserting, removing, and displaying dictionary entries.
- Integrated memory management practices, leveraging valgrind for debugging and ensuring memory safety.

Variable Value Tracking in IDLE | Python, Tkinter, unittest, Git, GitHub Actions

- Designed and implemented a feature in Python's IDLE to display variable values post-execution, with clickable highlighting in the editor.
- Collaborated in a team of four using **agile** workflows, branching strategies, and GitHub for issue tracking and pull requests.
- Wrote unit tests with **unittest** and documented design decisions through structured design docs and team presentations.

SKILLS AND AFFILIATIONS

- Languages: Java, Python, C/C++, ARM Assembly, Bash, Go, OpenCL
- Tools & Technologies: Git, Vim, GDB, Gradescope, PrairieLearn/Test, GitHub Pages
- Affiliations: IEEE Member – Participate in workshops, seminars, and team projects