Zander Barajas

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Education

San Diego State University — San Diego, CA
Bachelor of Science in Computer Science. 4.0 GPA, 3.55 Cumulative — *Aug. 2024 – 2026*

San Diego Mesa College — San Diego, CA
Associate's Degree for Transfer in Computer Science. Graduated with honors — *Sept. 2021 – May 2024*

Projects

Powerlifting Meet Calculator | *C/C++, CMake, ImGui, Vulkan, Google Test, Git* — September 2024 – Present

- Developed a cross-platform Powerlifting Meet Calculator with data sorting, JSON import/export, lifter management, and score calculations
- Built a smooth and responsive graphical user interface utilizing ImGui with Vulkan for rendering
- Implemented asynchronous task handling and thread management to offload intensive operations from the UI
- Designed a custom multithreaded sorting method that led to performance gains upwards of 750% for large datasets
- Configured a robust build system using CMake to facilitate dependency management and enable testing
- Deployed a GitHub workflow to automate building and testing on multiple platforms

Drone 2D Obstacle Avoidance | *Python, Gymnasium, PyGame, Stable-Baselines3, PPO* — March 2025 – Present

- Worked together in a group of four to build a custom 2D Gymnasium environment with PyGame for drone pathfinding and obstacle avoidance
- Trained PPO agent using Stable-Baselines3 with VecNormalize, Monitor, and evaluation callbacks
- Fine-tuned reward system with distance rewards, ring bonuses, flip penalties, and stuck detectors
- Implemented modular scripts for training, evaluation, checkpointing, and TensorBoard logging
- Achieved up to 72% goal success rate across randomized layouts after 500k training steps

Max Floating Point | *Assembly, C, MPLAB X, Git* — Nov 2023 – Nov 2023

- Implemented an ARM Assembly program that takes two IEEE 754 floating point inputs from C code
- Unpacks every bit and returns the larger of the floating point values according to the standard
- Code written, debugged, and programmed to a SAM E51 CURIOSITY NANO through MPLAB X IDE
- Connected to the Arm Cortex-M4 board through Tera Term and evaluated all test cases

Personal Website | *HTML, CSS, Bootstrap, Git* — May 2023 – Present

- Created my own website through HTML and CSS, utilizing the Bootstrap framework
- Made commits through Git and deployed through GitHub Pages
- Implemented a custom CSS stylesheet through the Sass preprocessor
- Features multiple functional pages and a Responsive Web Design

Technical Skills

Concepts: Data Structures, Algorithms, Object-Oriented Programming, Concurrent Programming, Computer Architecture, Embedded Systems, Reinforcement Learning, Problem Solving, Website Design, Video & Audio Encoding
Languages/Frameworks: C/C++, Python, Java, Assembly, JavaScript, HTML/CSS, Sass, Bootstrap
Developer Tools: Git, Docker, VS Code, Visual Studio, PyCharm, CLion, IntelliJ, Eclipse, Linux, Windows
Libraries: PyTorch, NumPy, Gymnasium, Stable-Baselines3, Matplotlib, VapourSynth, Unittest, Beautiful Soup, ImGui, Google Test, Boost

Experience

Technology Support Specialist/PC Technician — May. 2023 – August. 2024
Envision Engineering Inc — *San Diego, CA*

- Built and provided multiple computers to excel in named software like AutoCAD and ETABS
- Set up and maintained a network server using a Synology NAS device for more accessible project sharing
- Routinely updated programs and hardware, providing support when difficulties arose with current installations

Courtesy Clerk — June 2022 – January 2023
Gelson's Markets — *San Diego, CA*

- Developed social skills and learned how to communicate with management
- Built customer service skills and attended to the needs of customers