Grace Xiao

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Education

University of California, San Diego — La Jolla, CA
BS in Mechanical Engineering w/ Specialization in Controls and Robotics, ***4.0 GPA*** — *Sept. 2024 – May 2027*

Experience

Undergraduate Robotics Researcher — Sept 2025 – Present
Multi-Agent Robotics Lab, UC San Diego — *La Jolla, CA*
- Implemented Robust Model Predictive Control (MPC) algorithms for multi-agent coordination and dynamic obstacle avoidance
- Simulated autonomous TurtleBot navigation using ROS2 Humble and Gazebo
- Conducted physical experiments on OptiTrack for validation and hardware integration

Undergraduate Research Assistant — April 2025 – Present
Nano Bioelectrics (NBE) Lab, UC San Diego — *La Jolla, CA*
- Designed and rendered CAD models of multi-layer flexible wearable biosensors using Fusion 360 and AutoCAD
- Modeled anatomical environments (e.g., skin layers, finger topology) for fabrication-ready CAD schematics

Lead Controls Engineer - Liquid Bi-propellant Rocket Riptide — Dec. 2024 – Present
SEDS at UCSD — *La Jolla, CA*
- Led the controls team in the design and implementation of the rocket control system, including hardware and software integration
- Developed inverse kinematics based Thrust Vector Control system using multithreaded Python/C++
- Modeled gimbaled engine in CAD and actuated via CAN bus
- Conducted computational fluid dynamics simulations in ANSYS Fluent and OpenFOAM to model air flow around rocket

Artificial Intelligence Engineering Intern — April 2023 – Aug. 2024
AI Venture Startup — *Fremont, CA*
- Developed an AI chatbot for student queries using LangChain, OpenAI APIs, and NLP techniques
- Engineered backend with Python and trained using school-specific datasets for high-relevance output
- Deployed responsive company website using HTML, CSS, and JavaScript

Leadership

Instructional Assistant — Aug. 2025 – Sept. 2025
MAE 8 Tutor — *La Jolla, CA*
- Hosted 1:1 sessions to improve student performance in MATLAB programming for data analysis, algorithm development, and simulation
- Conducted daily technical lab sessions and coordinated teaching goals through weekly meetings with the instructional team
- Proctored exams and provided real-time debugging of student code

Events and Outreach Officer — Nov. 2024 – June 2025
Envision Makerspace — *La Jolla, CA*
- Led hands-on workshops on 3D printing, laser cutting, and other fabrication tools with 20+ attendees
- Assisted students in learning and increased access to makerspace resources

Student Assistant for Educational Content Management — July 2025 – Present
Jacobs School of Engineering — *La Jolla, CA*
- Collaborated with instructors and engineering faculty to develop and refine educational content focused on problem solving and engineering concepts
- Analyzed student feedback and restructured complex STEM curriculum into modular formats for digital deployment across the San Diego region

Publications

Evaluating the effectiveness of machine learning models for detecting AI-generated art, Journal of Emerging Investigators (JEI), 2024