

Gia Ancone

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Education

Stanford University - GPA: 4.0, Junior

B.S. Computer Science (AI Concentration), Math Minor

Involvement - 2026 VPUE Major Grant, 2025 CURIS Fellow, 2024 SURP, Stanford Student Space Initiative (Detailed Below), BASES Frosh Battalion

Stanford, CA

September 2023 - June 2027

Newport Harbor High School - GPA: 4.7333

Achievements

ACT Score - 36/36 on first and only sitting

Valedictorian - 550 person class

National Merit Scholarship Finalist

AP Scholar with Distinction - 5/5 on all 12 AP Exams Taken

United States Presidential Scholars Program Candidate

Daughters of the American Revolution Good Citizen Award

Newport Beach, CA

August 2019 - June 2023

Involvement - GirlsWhoCode Club President, drove membership growth 533%; National Honor Society Co-President; Assistance League Newport Mesa Chairman, Grade-Level Advisor (Appointed); Robotics Club Engineer, finalist in NMUSD Vex Robotics Competition

Experience and Research

Stanford NeuroAI Lab

2025 Stanford CURIS Fellow, Published World Model and Computer Vision Research

Stanford, CA

Summer 2025, Winter 2026

- New approach to object segmentation: Contributed to the development of SpelkeNet ([Project](#)), a world model that learns object boundaries and motion-based affordances from raw video inputs. Designed evaluation experiments on SpelkeBench, a motion-grounded benchmark for testing object segmentation and affordance discovery in visual world models.
- Material property understanding: Helped design algorithms to model object geometry and material behavior within low-dimensional latent spaces. Helped implement the PCA- and strain-based analysis pipeline for predicting/describing material and articulation properties from generated flow fields. Also worked on GPU parallelization. Our second paper, "Physical Object Understanding with a Physically Controllable World Model" was just accepted by CVPR 2026.
- New project involves implementing robotics knowledge into our multimodal world model.

Machine Learning Tutorial: Unsupervised & Probabilistic Machine Learning, Focus on Generative Models

Oxford University, Magdalen College Visiting Student

Oxford, UK

Fall 2025

- An intensive one-on-one tutorial combining foundational mathematical theory with practical implementation of probabilistic and unsupervised machine learning, focusing on deep generative models. Topics of study include Diffusion Models, VAEs, Normalizing flows, etc.

Kavli Institute for Particle Astrophysics and Cosmology

Student Researcher

Stanford, CA

June 2024 - Present

- Bright central galaxy detection research, working within the XOC: X-ray Astronomy and Observational Cosmology research group of KIPAC, associated with Stanford University and SLAC National Accelerator Laboratory.
- Designed an algorithm that identifies unusually bright and star-forming cluster central galaxies from photometric catalogs, conducted extensive feature extraction, dataset curation. Properly recognizing star-forming bright central galaxies offers the opportunity to study galaxy clusters in gravitational equilibrium, which are useful cosmological tools for studies of dark matter and universe formation. First author on upcoming paper.

Stanford Student Space Initiative (Stanford SSI)

Fountain Hopper Rocket Controls Team Co-Lead and Software Engineer

Stanford, CA

September 2023 - March 2025

- Working to coordinate and execute team goals, which currently include developing launch simulation, facilitating cross checks of dynamics calculations, and sourcing linear actuators with enough strength, speed, and precision to gimbal the engine.
- Designed and programmed the first draft of control code for calculating the rocket's real-time, in-flight moment of inertia. This program continuously calculates/updates this metric, dependent on current fuel status, and which is crucial for effective control algorithms, determining torque requirements, and ensuring precise control of actuators, thereby maintaining the rocket's orientation and stability during flight.
- Our team is dedicated to the success of SSI's first self-landing rocket, whose control systems will maneuver the rocket mid-air using active control systems.

Celestial Body Classification Research

High School Student Researcher, overseen by PhD candidates at UC Santa Barbara

Santa Barbara, CA

Summer 2022

- I conceived my team's research topic and wrote proposal, "A Study to Optimize Machine Learning Approaches to the Classification of Celestial Bodies" combining my passion for CS with astrophysics; recruited & collaborated with 2 peers
- Trained 3 ML models (NN, Random Forest, k-NN) to classify stars, galaxies, and quasars (accretion disks surrounding supermassive black holes) with 98% accuracy using photometric data, with supervised learning and extensive hyperparameter optimization
- Wrote research paper and presented 18+ minute Capstone Seminar lecture with Q&A for 200+ student researchers, PhD candidates, and professors

UC Berkeley Pre-College Scholars

CS61A "Structure and Interpretation of Computer Programs" (completed in 11th grade)

Berkeley, CA

Summer 2021

- Grade of A (97%) in CS 61A, first required course for UC Berkeley EECS and CS Majors, compared to the consistent, historical class average of B+

Skills and Certifications

- University of Washington's "Machine Learning Foundations: A Case Study Approach" - Grade Received: 98.72%, Udacity's Introduction to Python
- Programming Languages (in order of familiarity) - Python, C++, C, Java (Certified), JavaScript (Certified), HTML/CSS, SQL, Scheme