

Katrina Gerona

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PROFESSIONAL SUMMARY

Mechanical engineering student focused on vehicle systems, manufacturable design, instrumentation, and team leadership.

EDUCATION

University of California, Irvine

B.S. Mechanical Engineering.

Expected March 2029

Pasadena City College

Mechanical Engineering. GPA: 3.56.

Transferred June 2026

SKILLS

Design & Analysis: Siemens NX, SolidWorks, ANSYS (FEA), GD&T

Manufacturing: Mastercam, SolidCAM, CNC machining, 3D printing, laser cutting

Programming: MATLAB, Python, C++, LISP

Other: Technical documentation, proposal writing, design review, project leadership

PROJECTS

Formula Student EV, Caltech Racing

Aug. 2024 – June 2026

Chassis Lead Engineer

- Served as primary chassis engineer for the 2025-2026 car (team of two the prior year); produced Structural Equivalency Sheet documentation to determine competition viability.
- Designed chromoly tube chassis assemblies in SolidWorks, generating CNC-ready files for tube notching and welding fixtures.
- Reviewed chassis-mounted components for manufacturability and interface alignment using GD&T and dimensional constraints.
- Created the initial layout and CAD for the high-voltage enclosure, modeling electrical components and validating fit with laser-cut mockups.
- Refurbished the team's rusted foam-cutting CNC: disassembled it, converted rust to black oxide, and sealed crevices with silicone to keep rain out.

Lunar Seismic Spectrometer System, NASA NPWEE

Sept. 2024 – Dec. 2024

Review Board Chair

- Chaired the review board evaluating 6 team proposals under the Deputy Chief Technologist of NASA's Marshall Space Flight Center.
- Specified the "Thumper," a compact electrohydraulic seismic source for lunar subsurface imaging (under 5 lb, approx. \$3k), with MEMS sensor integration.
- Presented design details to a JPL Microdevices Lab engineer; collaborated with LIGO engineers on vibration isolation concepts.

Lancer Motorsports, Pasadena City College

Jan. 2025 – June 2026

President

- Grew membership from about 50 to 298 and led the club's collaboration with Caltech Racing.
- Founded the 3D printing and laser cutting workshop series and a guest speaker series (3 speakers), running both with no budget through school and department sponsorship.
- Arranged a Japanese American National Museum tour and talk (15-20 attendees) and club visits to SCCA track days at Buttonwillow.

IPAC, Caltech

Jan. 2025 – Apr. 2025

Research on High-Redshift Galaxies

- Utilized Python astrophotometry pipelines (Astropy, SciPy, Matplotlib) to analyze JWST and ALMA observations of high-redshift galaxies.

EXPERIENCE

Physics Lab Assistant

Sept. 2025 – June 2026

Pasadena City College

- Improved three lab demos (speed of light, conservation of angular momentum, Quincke tube); redesigned lens mounts, reducing error from a 26% class average to 1.58% for optics sections of about 30 students.
- Designed a sealed, 3D-printed Quincke tube lid with foam damping to stop audio leakage; now part of an intro physics class demo for about 35 students.
- Repaired recurring E&M circuit failures, a CRT oscilloscope, and a steam generator.

Owner

May 2021 – Present

GuitarCat, Gear and Restorations

- Repair and restore guitar electronics, amplifiers, and vintage audio; manage client coordination and online sales.