

Jenny Ailene Ruiz

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EXPERIENCE

*NASA Langley Advanced Materials and Processing Branch, **Composite Materials Research Intern***

Sep 2025 - Dec 2025

Sustainable Manufacturing of Aircraft (SUMAC); researched the use of natural fibers and bio-based thermoplastic resins for composites targeted towards advanced air mobility. Utilized TGA and DSC, XRD to measure the thermal properties of bio-based resins and analyzed their chemical properties. Conducted SEM, Optical Microscopy, Raman microscopy, FTIR, and tensile & micro tensile testing on natural fibers. Characterize the vibration-damping capabilities of natural fibers, bio-sourced thermoplastics, and their composites through Rheometer/ Dynamic Mechanical Analysis (DMA).

*Tehrani Group Jacobs School of Engineering, **Automated Fiber Placement Research***

Sep 2024 - Present

Collaborate on projects involving advanced composite structures, focusing on multifunctional composites, materials science, and mechanics. Operate the KUKA automated fiber placement (AFP) robot to refine LM PAEK and other thermoplastic composite layup processes. Conduct C-scans, short-beam shear (SBS) testing, and microscopy to optimize AFP process parameters. Contribute to research on high-performance thermoplastic composites, emphasizing sustainable aerospace applications and structural engineering methodologies.

*NASA Langley Aeronautics Systems Analysis Branch, **Structural Engineering Intern***

Jun 2024 - Aug 2024

My role consisted of the exploration of structural analysis methods for weight estimation at the conceptual design level. I developed a python code which integrated finite element methods to conduct structural analysis. I used software such as OpenVSP and OpenAeroStruct to develop codes and run trade studies on different types of aircraft. I worked under the Aeronautics Concepts Incubator to develop RapCDE which is a Rapid Conceptual Design Environment for the next generation of NASA electric general aviation aircraft. This project specifically focused on improving Regional Air Mobility.

*Society of Civil and Structural Engineers (SCSE), **Design & Fabrication, Steel Bridge***

Feb 2022 - 2023

Worked on designing, fabricating, and constructing a scaled model bridge that stays competitive in weight, stiffness, and construction speed. Help design on Solidworks, test on FEM and SAP 2000. Used chop-saw, angle-grinder, and learned how to weld tig and mig. Competed in Student Steel Bridge Nationals at Virginia Tech University. Won 8th place out of 40 schools across Northern America.

*University of California, San Diego, **Grader***

Sep 2023 - Dec 2023

In this role, I assisted in grading for Structural Analysis 1 and Aerospace Structures 2 classes, providing invaluable support to students by explaining complex concepts and assisting with problem-solving. I facilitated office hours and conducted review sessions. I also provided one-on-one assistance to students struggling with specific topics, fostering a conducive learning environment.

*University of California, San Diego, **Student Manager***

Feb 2021 - Jun 2025

In my role as a student manager, I manage the daily operations of the campus gyms, ensuring their smooth functioning and a high level of member satisfaction. I lead a dedicated team, overseeing their tasks, conducting regular training sessions, and fostering a positive work environment. I also work as the Hiring Lead for Recreation. I actively participate in the recruitment, selection, and training of new staff members, ensuring that the team is composed of skilled and motivated individuals.

*University of California, San Diego, **Resident Advisor***

Aug 2023 - Sep 2025

As a Resident Advisor, I serve as a resource and support system for residential students, promoting a positive and inclusive living environment. I facilitate community-building activities, address resident concerns, and enforce university policies within the housing community. Through my role, I have developed strong interpersonal and conflict resolution skills, contributing to the overall well-being and satisfaction of the residents under my care.

EDUCATION

University of California, San Diego

*M.S. • **Aerospace Structures Engineering***

GPA: 3.83

University of California, San Diego

B.S. • Aerospace Structures Engineering

Major GPA: 3.89

SKILLS

MATLAB • Python • AutoCAD • SAP2000 • SolidWorks CAD • Abaqus FEA • Industrial Laser cutting • 3D printing • Welding • Composite manufacturing

HONORS & AWARDS

Provost Honors

1st place at Pacific Southwest Symposium (PSWS)

8th place at Student Steel Bridge Nationals