

# JESUS F. SANCHEZ

[jesusfsa@usc.edu](mailto:jesusfsa@usc.edu) | [jesusfsanchez.github.io](https://github.com/jesusfsanchez) | Los Angeles, CA | (805) 815-7654

## EDUCATION

### University of Southern California (USC)

May 2026

Master of Science, Astronautical Engineering

- **Area of concentration:** Spacecraft Propulsion
- **Coursework:** Combustion, Spacecraft Design, Compressible Gas Dynamics (Spr 2025), Liquid Rocket Propulsion (Spr 2025)

### California State University, Northridge (CSUN)

August 2024

Bachelor of Science, Mechanical Engineering

GPA: 3.67

- **Coursework:** Rocket Propulsion, Aeropropulsion, Thermodynamics II, Fluid Dynamics

## SKILLS

Ansys Fluent, Siemens NX, MATLAB, Python, OpenFOAM, SOLIDWORKS, GD&T, LabVIEW, Simulink, Teamcenter, Finite Element Analysis (FEA), 3D Printing, Microsoft Office Suite

## WORK EXPERIENCE

### NASA Jet Propulsion Laboratory, *Academic Part-Time Mechanical Engineer*

May 2022 - February 2024

- Led the design of complex electromechanical systems from prototype to flight hardware for Mars' Sample Retrieval Lander (SRL), focusing on design for manufacturability and assembly (DFM & DFA)
- Generated engineering drawings using GD&T through Siemens NX and produced written instructions for build, assemble, and test
- Coordinated closely with technicians and the manufacturing team to support fabrication and troubleshoot hardware assembly issues, resulting in accurate and efficient production of hardware

## ENGINEERING RESEARCH

### **Evaluation of Novel Scalable Swirl-Flame Hydrogen Combustor**, *Undergraduate Researcher*

May 2023 - Present

- Design a novel swirl-flame combustor for gas turbine engines able to operate at high hydrogen dilution levels
- Perform experimental analyses to study flame structures under varying hydrogen dilution levels, resulting in the development of a combustor capable of accommodating up to 60% dilution
- Conduct CFD analysis through Ansys Fluent to model the flow field and combustion reaction

## ENGINEERING PROJECTS

### **Liquid Propulsion Laboratory (LPL)**, *Propulsion Engineer*

September 2024 - Present

- Spearheading the redesign of Mike's Fury Dev-2, a 3 kN Jet-A/LOX regeneratively cooled engine, optimizing for improved performance and efficiency
- Applying NASA's Chemical Equilibrium with Applications (CEA) tool to calculate engine parameters and optimize engine geometry for enhanced combustion

### **ASME Human Powered Vehicle (HPV)**, *Fairing Team Member*

August 2023 - May 2024

- Designed, analyzed (CFD & FEA), and fabricated a low-drag carbon fiber fairing with a drag coefficient of 0.43, improving from the previous team's 0.5
- Coordinated within a multidisciplinary team of 20+ students to ensure system functionality and integration, achieving 3rd place in a national competition
- Presented, verbal and written, Preliminary Design Reviews (PDR) and Critical Design Reviews (CDR) to faculty and industry professionals

### **NASA L'SPACE Mission Concept Academy**, *Deputy Project Manager*

January 2022 - March 2022

- Formulated a mission concept for a lunar rover capable of scientific exploration, evaluated by NASA experts, while leading a 10-member team across engineering, science, and business administration roles
- Conducted trade studies and established mission, vehicle, and subsystem requirements following NASA's project formulation practices

### **NASA MINDS 2022 CubeSat**, *Mechanical Design Sub-Team Member*

September 2021 - May 2022

- Conducted finite element analysis through SOLIDWORKS to optimize the design of a 4-inch cube satellite structure for weight reduction and material selection

### **NASA MINDS 2021 Autonomous Sensor Robot**, *Drivetrain Sub-Team Member*

September 2020 - May 2021

- Designed the drivetrain system and analyzed (FEA) the chassis of an autonomous robot intended for nondestructive testing of space vehicles, enabling it to traverse 90-degree surfaces; achieving 3rd place in a student competition