JESUS F. SANCHEZ

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EDUCATION

University of Southern California (USC) May 2026
Master of Science, Astronautical Engineering
- **Area of concentration:** Spacecraft Propulsion
- **Coursework:** Combustion, Spacecraft System Design, Compressible Gas Dynamics (Spr 2025), Space Launch Vehicle Design (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 an electro-mechanical subsystem 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 build 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

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

Analysis of Combustion Reactions, *Team Lead* January 2023 - May 2023
- Led a team of 4 engineering students to develop a MATLAB script to determine the chemical equilibrium composition of simultaneous reactions using numerical methods
- Utilized Chemical Equilibrium with Applications (CEA) tool to calculate the chemical composition of complex mixtures

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