Arjan Reyes

California Polytechnic State University - SLO
Bachelor of Science in Aerospace Engineering, June 2028
Minor in Physics and Minor in Astronomy

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Research

Additive Manufacturing Research Group — Spring 2025 - Present

- Operate and maintain procedures for both a SLM 125 and an EOS m290, assisted in numerous successful print cycles.
- Designing a SS316L regeneratively cooled liquid rocket engine optimized for metal PBF fabrication, leveraging on-campus SLM access to enable rapid hardware iteration over traditional predictive-only design approaches.

Poly Electric Propulsion & Plasma Research — Fall 2025 - Present

- Founder/leader of an undergrad research group, coordinating +10 peers to restore four dysfunctional thrusters (MIXI, PPT, RF), design a custom Hall-effect thruster, improve vacuum and DAQ facilities, and, of course, study plasma.
- Led a testing campaign on a hollow cathode to verify that it was not poisoned, starting with in atmosphere analysis before running the heater under vacuum and implementing the keeper to get plasma to strike.
- Utilize magnetic (FEMM) and plasma dynamic modelling (VSTRAP) software to guide development of in-house HET.
- Leading investigation into the potential application of RF thruster as air-breathing cathode via tests with N2, CO2, He.

Engineering Experience/ Projects

Cal Poly Machine Shops | Shop Technician — Summer 2025 – Present

- Provide training in milling, turning, metalworking, composites fabrication, and welding, certifying 172 students to date.
- Guide peers in safe machine operation, process optimization, project ideas, ensuring best manufacturing practices.

Cal Poly Space Systems

Project Manager – Liquid Launch Vehicle — Summer 2025 - Present

- Leading a team of 19 engineers to design, manufacture, and launch a pump-fed bi-prop rocket of the club's engine 'Stratum', based on performance characterized by previous test engineering.
- Overseeing Ground Support Equipment, designing fluid system, con-ops, and procedures for filling N2O and GN2.
- Performed preliminary design of recovery, structures, and fluids—plumbing, pump integration, tank sizing.

Design Engineer – 1000 lbf Validation Engine — Fall 2025

- Utilized CEA and MATLAB to design a 1000lbf N2O-IPA engine for test stand validation. Determined O/F ratio, $\dot{m}$, and injector & chamber geometry, overseeing the completion of manufacturing within one quarter.
- Conducted 4 cold flows and 1 hot fire attempt, following rigorously safe procedures to determine propellant timings.

Test Engineer – Barske Impeller Pump and 300 lbf Engine Characterization — Fall 2024 – Present

- Use a custom pump test stand to evaluate the efficiency of different pump designs (first geared, currently Barske impeller) over a range of flow rates, yielding a pump curve used to optimize the design for the launch vehicle model.
- Conducted 10 hot fire tests and numerous cold flows, including data collection, documentation, and thorough troubleshooting to evaluate performance of the 300 lbf engine and the 12-element unlike-doublet injector I designed.

Cal Poly CubeSat Laboratory | Systems Engineer — Fall 2025 – Present

- Maintain procedures, licensing, and requirements for a mission centered on experimentation with a deployable additively manufactured radiator with oscillating heat pipes.
- Designing a 0.5 N green monopropellant thruster, focusing on calculations for chamber, nozzle, and catalyst bed.
- Advise and oversee manufacturing across the lab, leveraging shop technician position to maintain pace and deadlines.

Technical Skills

Engineering Software: SolidWorks, MATLAB, Python, Open Rocket, CEARUN, RPA, Netfabb, WarpX, VSTRAP-HET
Manufacturing: Metal PBF (SLM125, EOSm290), WireEDM, Mill, Lathe, Weld, Composites

Relevant Courses:

Plasma Applications in Aero, Linear Analysis I&II, Numerical Analysis, Thermodynamics, Classical Mechanics II