



# PSP

## PURDUE SPACE PROGRAM

### Sponsorship Packet

Sep 2024



# 9 Teams - 500 Members

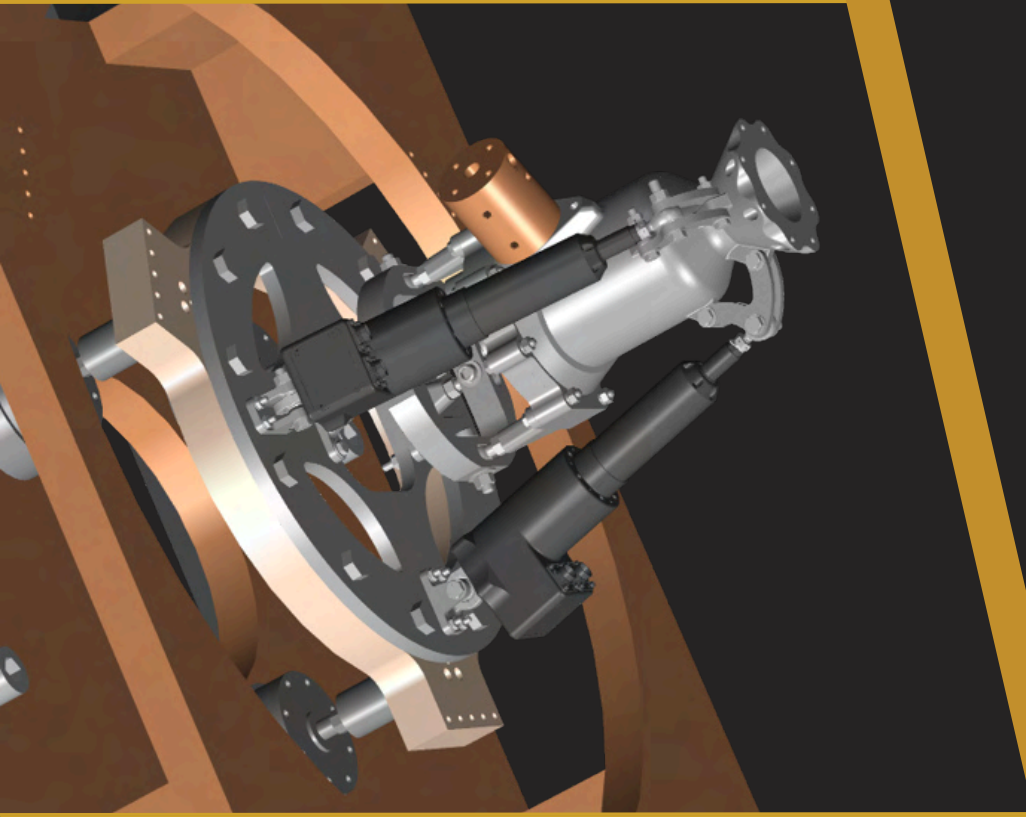
## 1 PSP





# Active Controls

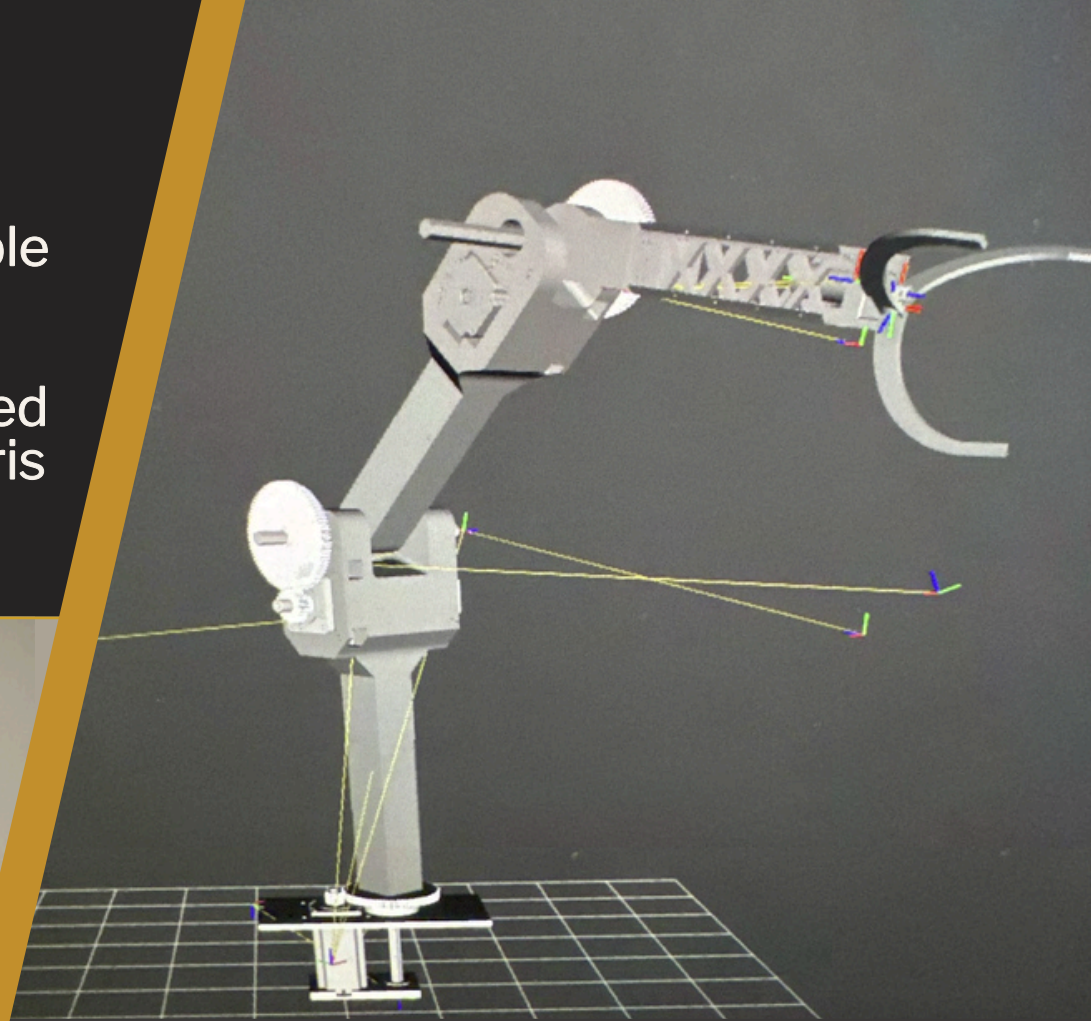
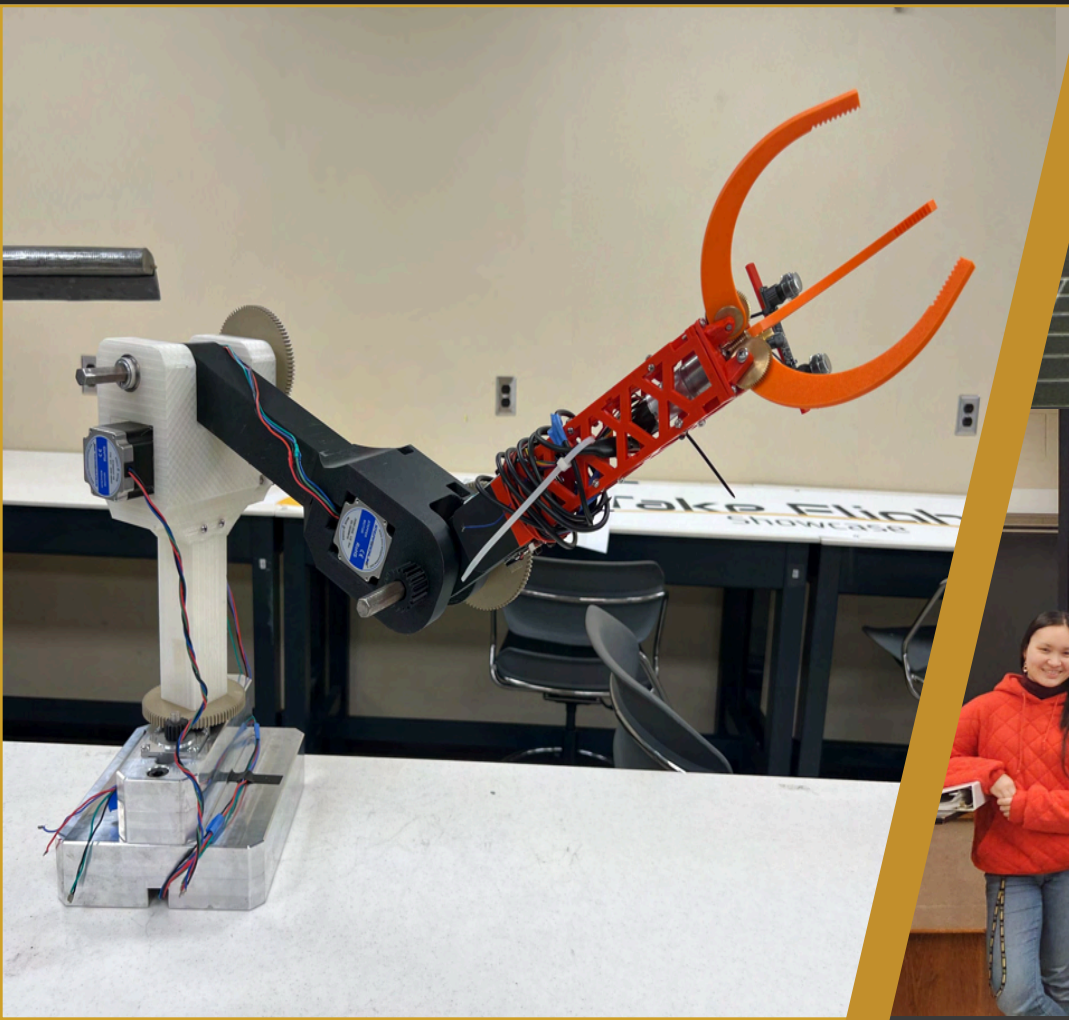
PSP-AC is competing in the Collegiate Propulsive Lander Challenge, with the end goal of flying an actively controlled liquid rocket lander. AC is currently working on two projects towards that goal, a EDF powered avionics test bed, ASTRA, and a 550 lb force regeneratively cooled engine, Tadpole





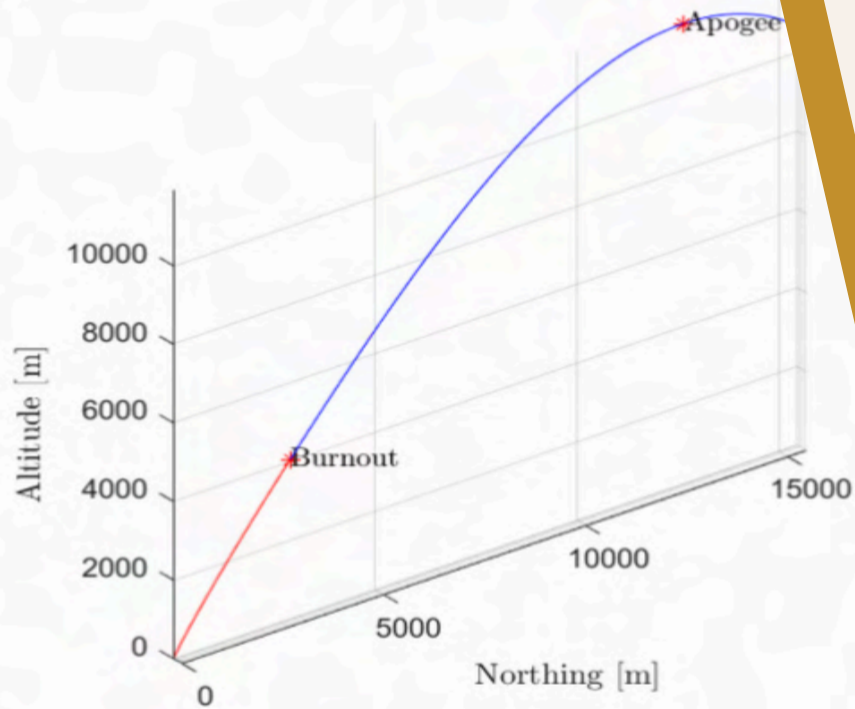
# Astrobotics

PSP-AB has the goal of developing autonomous robotic systems that enable students to impact space exploration. Astrobotics' current project is developing an machine learning powered robotic grabber to attach to space debris and enable its deorbit





Trajectory: Zero Wind Stream

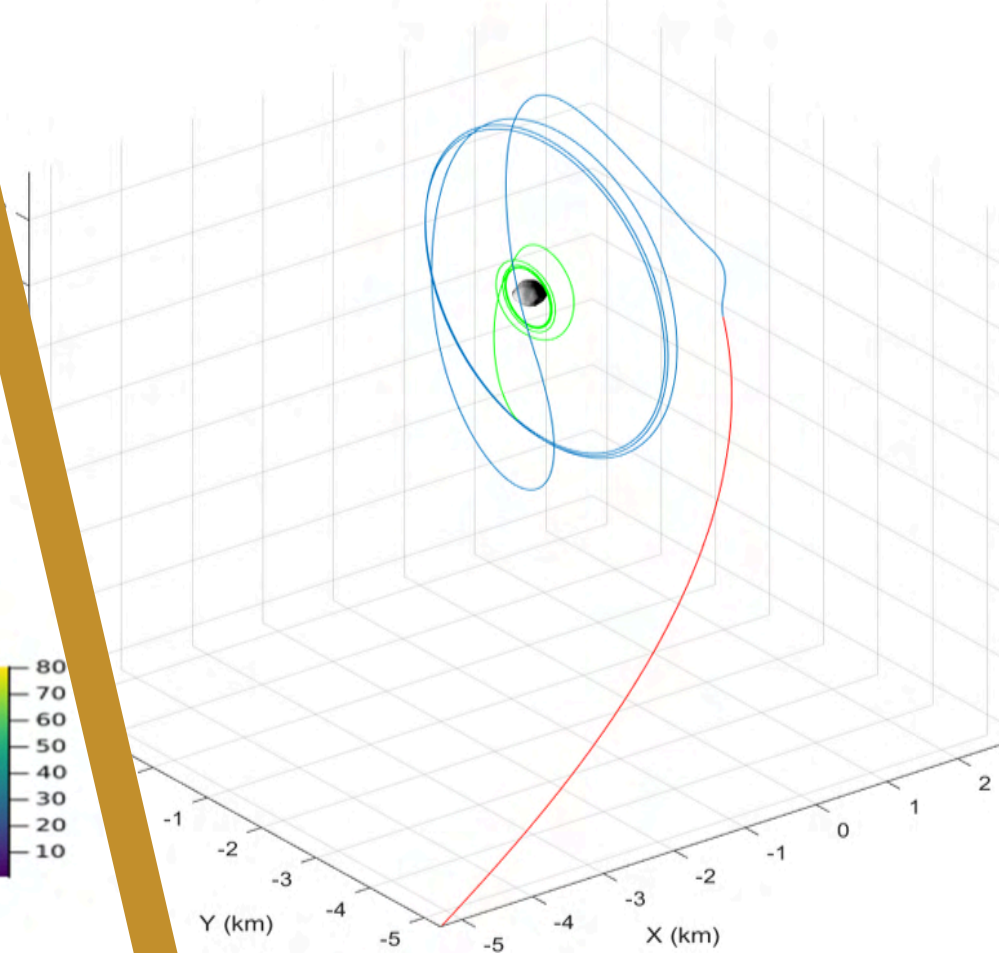


# Astrodynamics

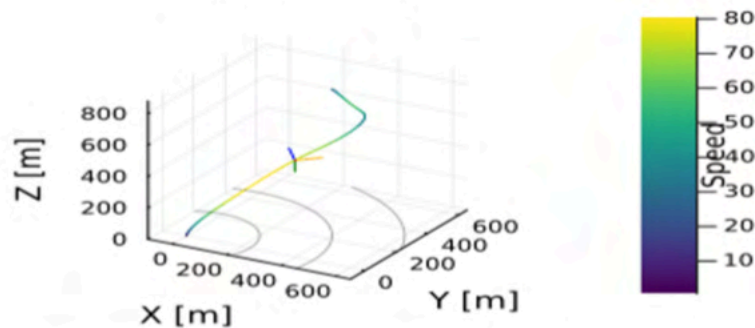
PSP-ASA has the mission of simulating the motion of and interactions of objects in space for practical applications. PSP-ASA is working on three projects:

1. A 6-Degree of Freedom simulator for hypersonic flight for PSP's High Altitude team, an Optimal control system for PSP Active Control's Lander, and a n-body simulation of an orbit around Bennu to study the feasibility of asteroid mining

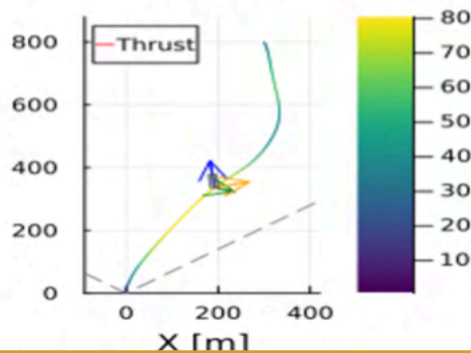
Spacecraft Trajectory around Bennu



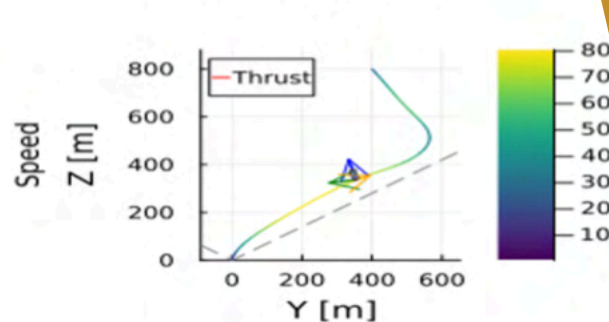
Trajectory



XZ Projection



YZ Projection



# High Altitude

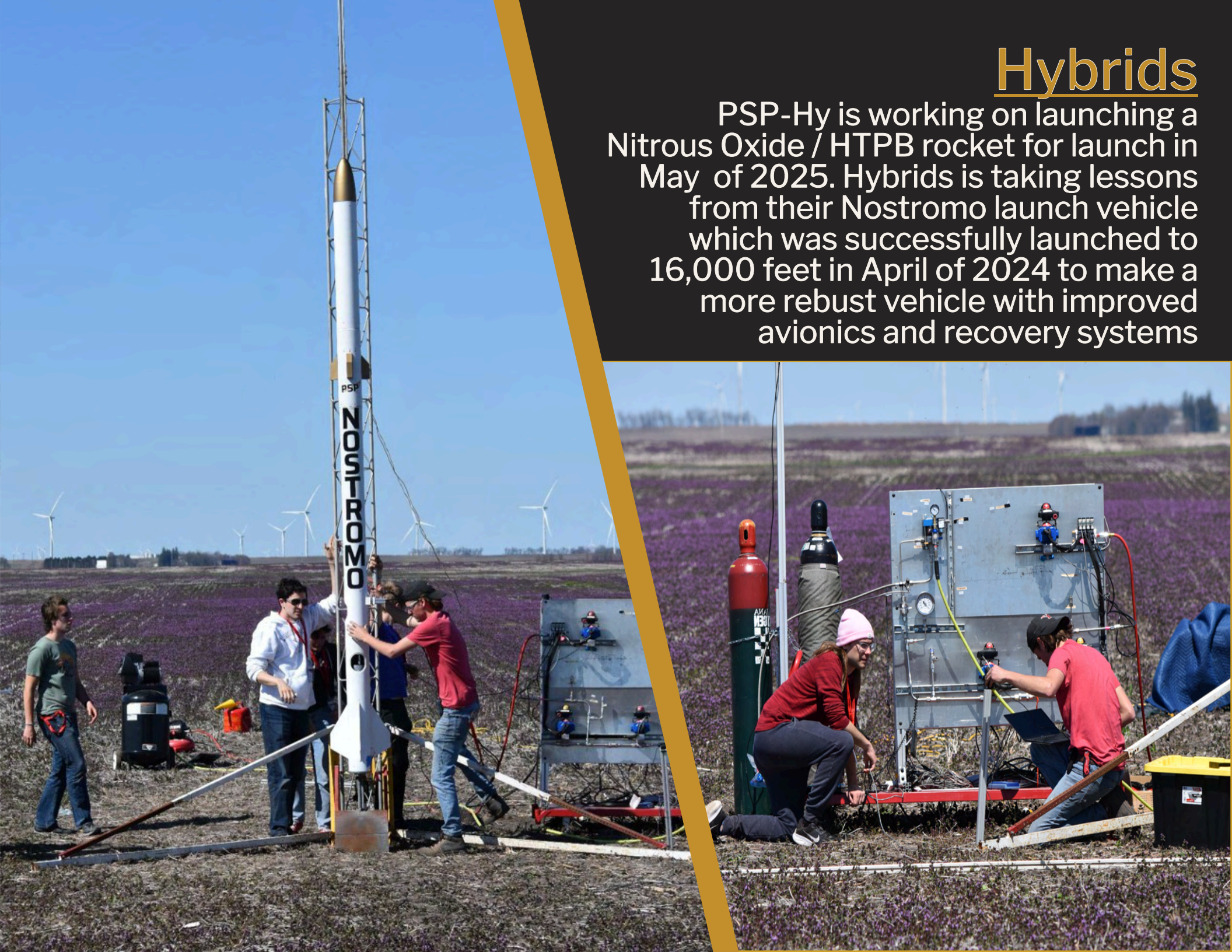
PSP-HA is determined to launch and recover a two-stage payload-carrying high-altitude rocket beyond the Karman Line. Stepping towards that goal, PSP-HA is currently competing in the Argonia Cup, launching the most payload possible on an impulse limited 2-stage rocket





# Hybrids

PSP-Hy is working on launching a Nitrous Oxide / HTPB rocket for launch in May of 2025. Hybrids is taking lessons from their Nostromo launch vehicle which was successfully launched to 16,000 feet in April of 2024 to make a more robust vehicle with improved avionics and recovery systems

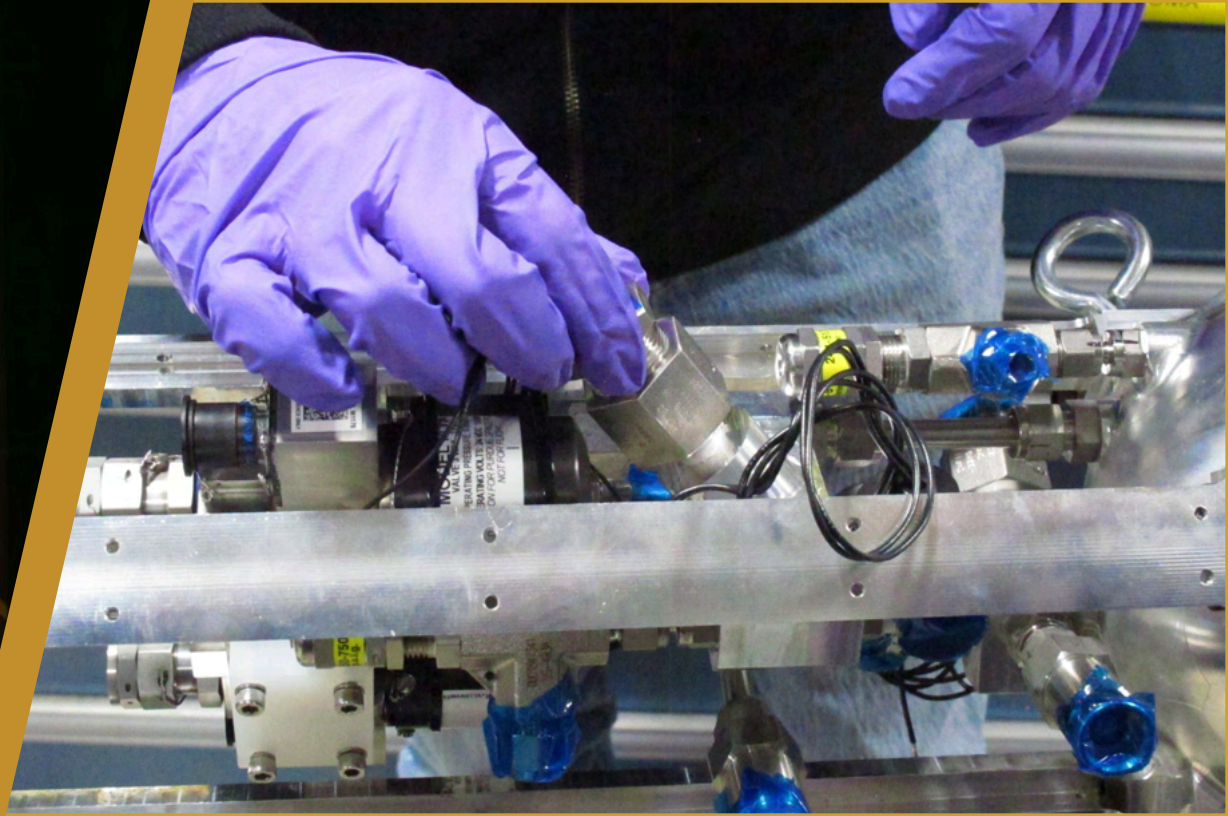
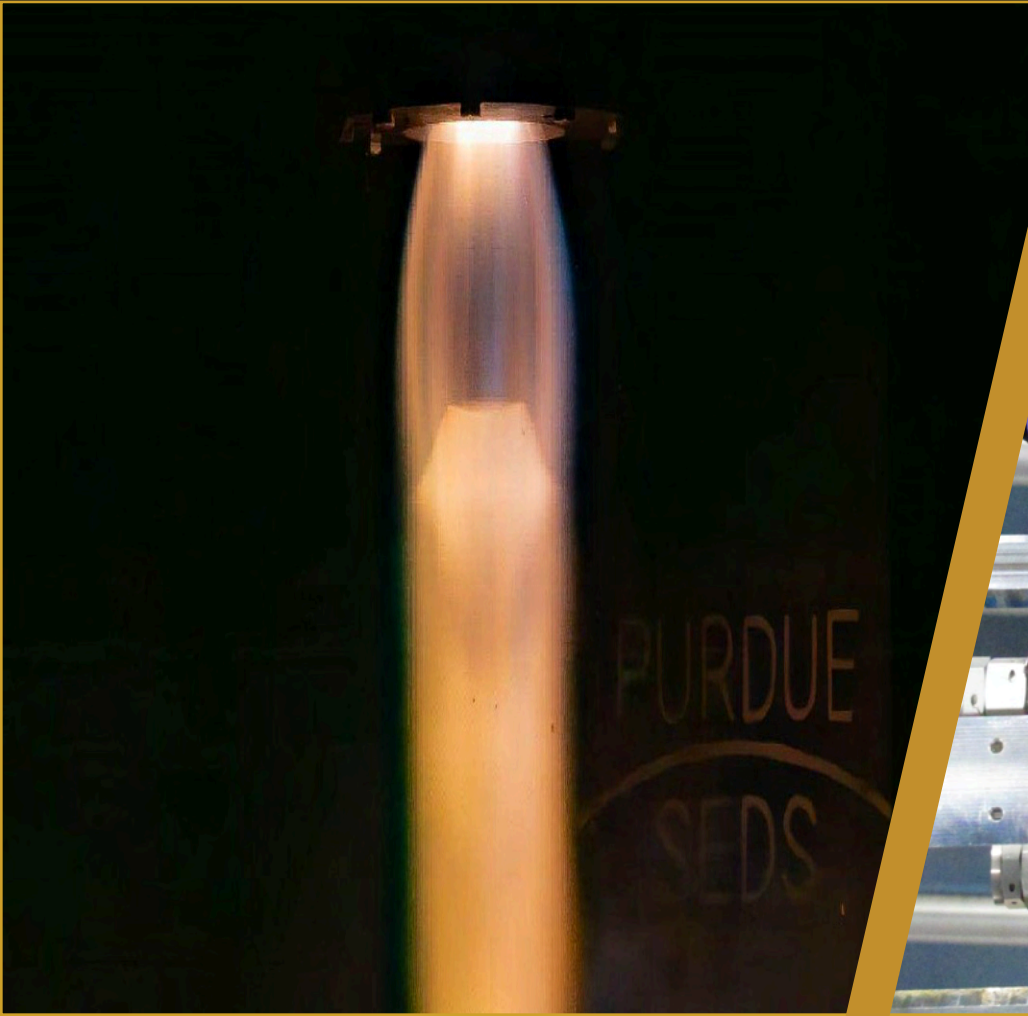




# Liquids

PSP-L is working on a Liquid Methane / Liquid Oxygen rocket to launch that includes custom avionics boards, an additively manufactured engine, and custom Bang-Bang pressurization system.

Liquids is working on their next engine, a 2500 lb force, electric turbopump fed & regeneratively cooled engine





# Satellites

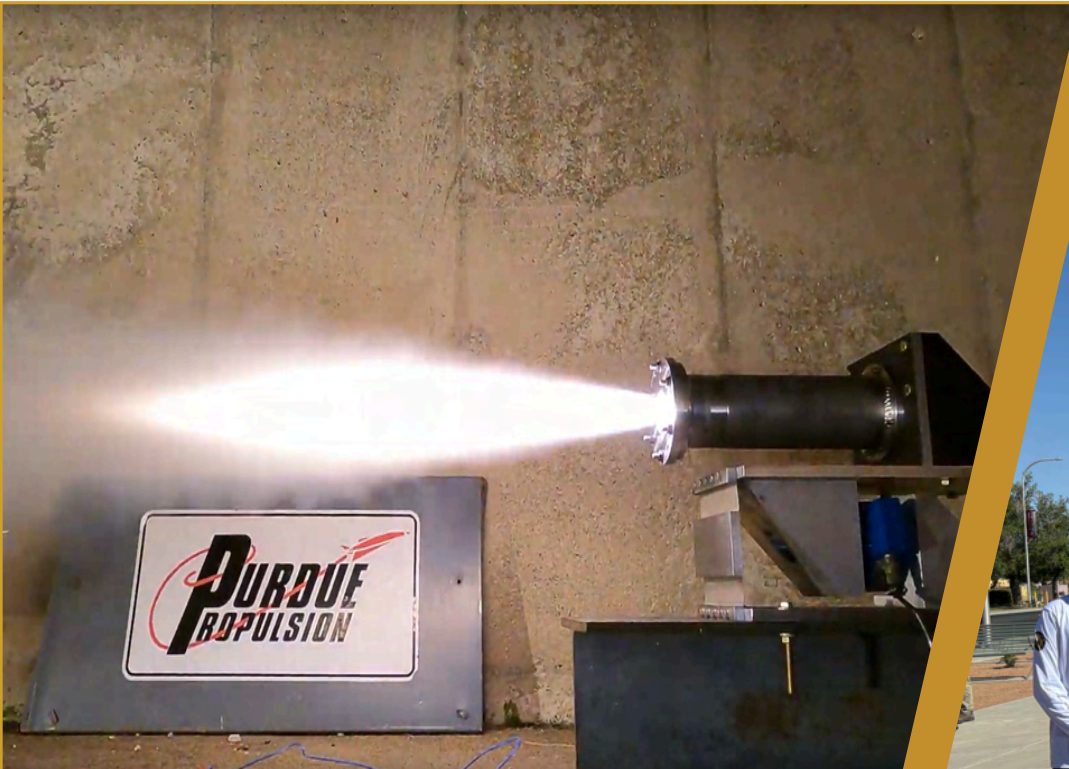
PSP-Sats is a team dedicated to designing and building with the intent to launch satellites aligned with industry standards. Satellites has previously signed letters of intent to provide satellites for NASA's CLPS program, as well as two other launch opportunities.





# Spaceport America

PSP-S is dedicated to manufacturing and launching a completely “Student Researched And Designed” (SRAD) rocket. PSP-S competes annually at the Spaceport America Cup in New Mexico, the largest collegiate rocketry competition in the world, having taken top 10 the last three years, and receiving numerous accolades.





# Student Launch

PSP-SL is dedicated to competing in the annual NASA Student Launch competition in Alabama. Every year Student Launch designs a new rocket and payload and launches 4 times. PSP-SL's design process is fully inline with all industry standards, including PDRs, CDRs and TRRs for each test







**Ignition**  
\$1,000

**Liftoff**  
\$5,000

**Max-Q**  
\$10,000

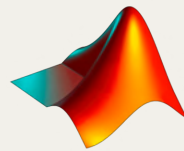
**Apogee**  
\$15,000+

Logo on PSP Website	●	●	●	●
Logo in PSP's Build Space	●	●	●	●
Dedicated Social Media Post		●	●	●
Logo on Launch Shirts		●	●	●
Resume Book Access		●	●	●
Personal Recruiting Event			●	●
Personal Team Presentations			●	●
Model of Flight Vehicles			●	●
Logo on Flight Vehicles				●
Invite to Design Reviews				●

Any material, service, or software donation shall be considered equal to its monetary value



# PSP Previous Sponsors



MATLAB®

**Relativity**



L3HARRIS™



**BLUE ORIGIN**





# PSP

puseds@purdue.edu  
purdueseds.space  
@purdue\_seds  
Purdue Space Program  
is a 501(c)(3) non-profit

## Contact Us

