



PSP

PURDUE SPACE PROGRAM: A SEDS Chapter



One of the
LARGEST
SEDs USA Chapters

*Students for the Exploration and
Development of Space*

SPACEVISION

Annual SEDs
Conference

25 YEARS
Since Dec. 1994

L1

High-Power
Rocketry
Certifications

5 technical teams with
hands-on work you can
be a part of

Stargazing Nights
Barbecues
Facility Tours
Industry Networking
...and more

OUTREACH

with the local community

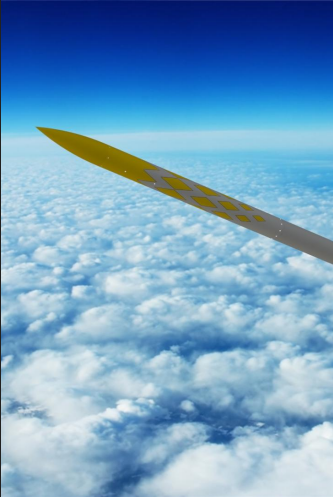
Opportunities for

ALL

majors to
have fun and learn

Exec Board

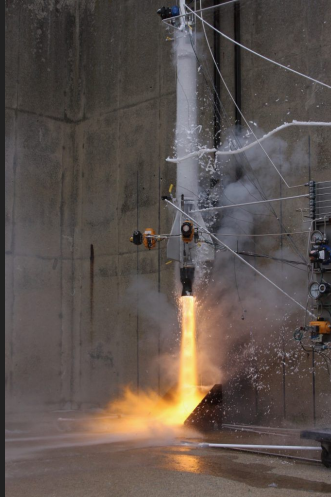
Hybrids



Solids



Liquids



NASA Student Launch



SSPI





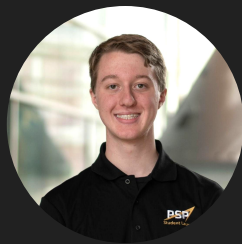
NATHAN GURGENS

President
AAE 2021



ERIC WILLIAMSON

Vice President
AAE 2022



ANDREW DARMODY

Treasurer
AAE 2023



ETHAN COUNEN

Secretary
AAE 2022



FORREST LIM

Technical Director
ME 2022



MAOR GOZALZANI

SEDS Representative
AAE 2022



JUSTIN SMITH

Social Chair
IE 2022



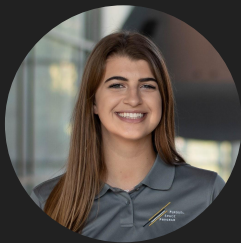
SKYLER HARLOW

Outreach Chair
ME 2022



DYLAN DILGER

Fundraising Chair
AAE 2022



BRYNNE HUNT

Social Media Chair
EE 2022



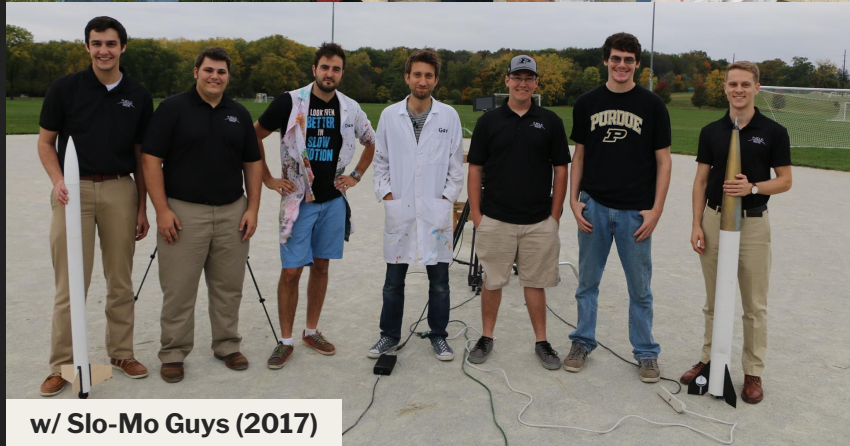
ANDREW LAPRADE

Branding Chair
CmpE 2022



JACK COSTELLO

MRF Committee Chair
MDE 2022



w/ Slo-Mo Guys (2017)



Pau Pineda (2020)



SEDS USA

- Students for the Exploration and Development of Space (SEDS USA) is the national organization that PSP is a part of.
- An international community of students who love space just like you!
- A lot of great opportunities
 - Board and Staff positions
 - Projects
 - Grants
 - Conference opportunities
 - Networking
- <https://seds.org>





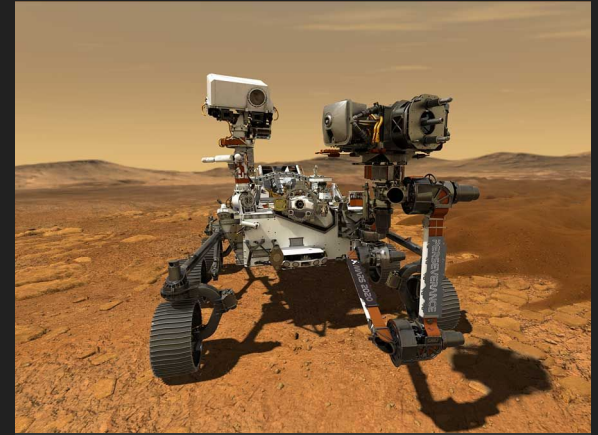
SpaceX successfully launched two new starlink missions on August 18 and 30. Totaling over 500 in orbit

<https://www.spacex.com/launches/>



The SpaceX Crew-1 mission to launch Oct. 23 and deliver 4 astronauts to the ISS

<https://www.nasa.gov/subject/18971/crew1/>



Three Mars missions were launched this summer from the USA, UAE and China

<https://www.space.com/three-mars-missions-launch-july-2020.html>



The amazing original



The sequel that was a little bit worse but still great



The weird third movie that people always forget



The Anime



What the director wanted



What the fans want



MIDWEST **ROCKETRY** FORUM

FOOTPRINTS

Revisiting the Past
to Step Toward the Future

- A conference celebrating rocketeers and sparking enthusiasm for the space industry
- Inspired by the Spring Space Forum hosted by PSP (1998-2013)
- Main event is a podcast series that dives in to various topics in rocketry featuring special guests
- Includes live workshops and panels

LAUNCHES MID-SEPTEMBER

REGISTER NOW AT

FORUM.PURDUESEDS.SPACE

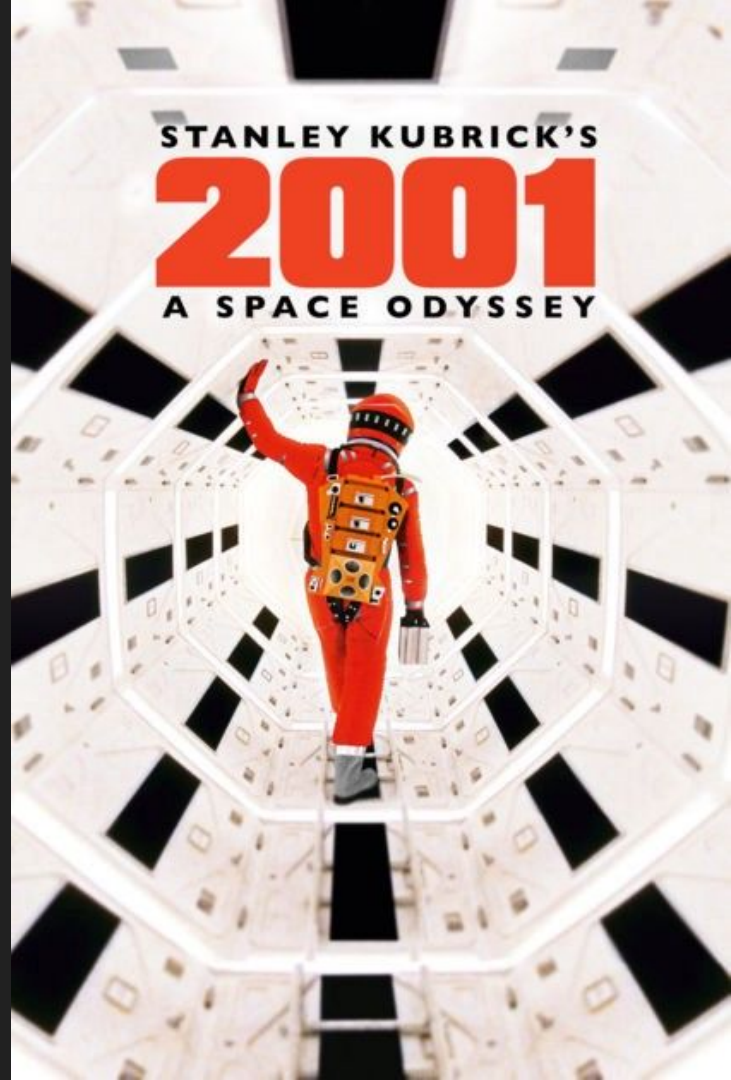
Typical Social Events

- Welcome Barbecue
 - Corn Hole, Frisbee, Hula Hoops, Pulled Pork
 - Tour Zucrow Labs (Largest Academic Propulsion Lab in the World)
 - Meet Other Members!
- Stargazing
- Artemis Game Nights
 - Multiplayer starship bridge simulator
- Yuri's Night
 - A celebration of Yuri Gagarin's flight on April 12th to become the first human in space
- Bowling @ Union Rack n Roll



Virtual Social Events

- Trivia Challenge
 - Held over Zoom, a giant game of Kahoot
- Movie Nights
 - Gather (virtually) to watch space movie classics together
- Speed Socials
 - Via Zoom, everyone is put into small breakout rooms to give a quick introduction, fun fact, and have a fast conversation before time's up and everyone is put into new groups to do it again!



Outreach Opportunities in a Typical Semester

- College Mentors for Kids
 - Usually from 3:30-5 pm on a weekday
 - Fun rocket/ space themed engineering activities
 - Many different age groups to work with
- Imagination Station
 - Usually on the weekend
 - More of a booth that children can stop by while they are at the museum
- Purdue Space Day
 - Typically a whole day event (Saturday in late October/ early November)
 - Many different roles you can serve
 - Activity Crew- usually with other PSP members and leading children through an activity
 - Group Leader- might be with other PSP members and guiding children through all of the activities they go to in the day



OUTREACH OPPORTUNITY

Purdue Space Day

SAT, OCTOBER 24 9:00 AM - 5:00 PM

Purdue Space Day is seeking approximately 40 volunteers to present activities during the virtual event on October 24th. The plan is for volunteers to lead the activities as they are broadcast via YouTube Live on the day of the event. As a back-up plan, we will also have each crew record the activity in advance.

RSVP



CONTACT

Skyler Harlow

sharlow@purdue.edu





L1 High Power Rocketry Certifications

- Launch your hobby or career in rocketry by obtaining a Level 1 Certification
- Open to all members
- Stay tuned for build and launch days throughout the semester

CONTACT

Forrest Lim

lim262@purdue.edu



Want to start a project?

- Submit a proposal to start a new technical project or team
- Only requirement is that it is relevant to space exploration
- Proposal will be discussed between proposing party and exec board to maximize likelihood of success

CONTACT

Forrest Lim

lim262@purdue.edu



Kyle Runkle Rocketry Competition

- Rocketry Competition hosted by SEDS
- Information coming soon, but likely involves building a small multi-staged solid rocket

INTEREST FORM



docs.google.com/forms/d/e/1FAIpQLSduOjmcLPeumQsHp3G5zbvm1GMFn463MdhJliu1DZSnorJP/1Sw/viewform

CONTACT

Forrest Lim

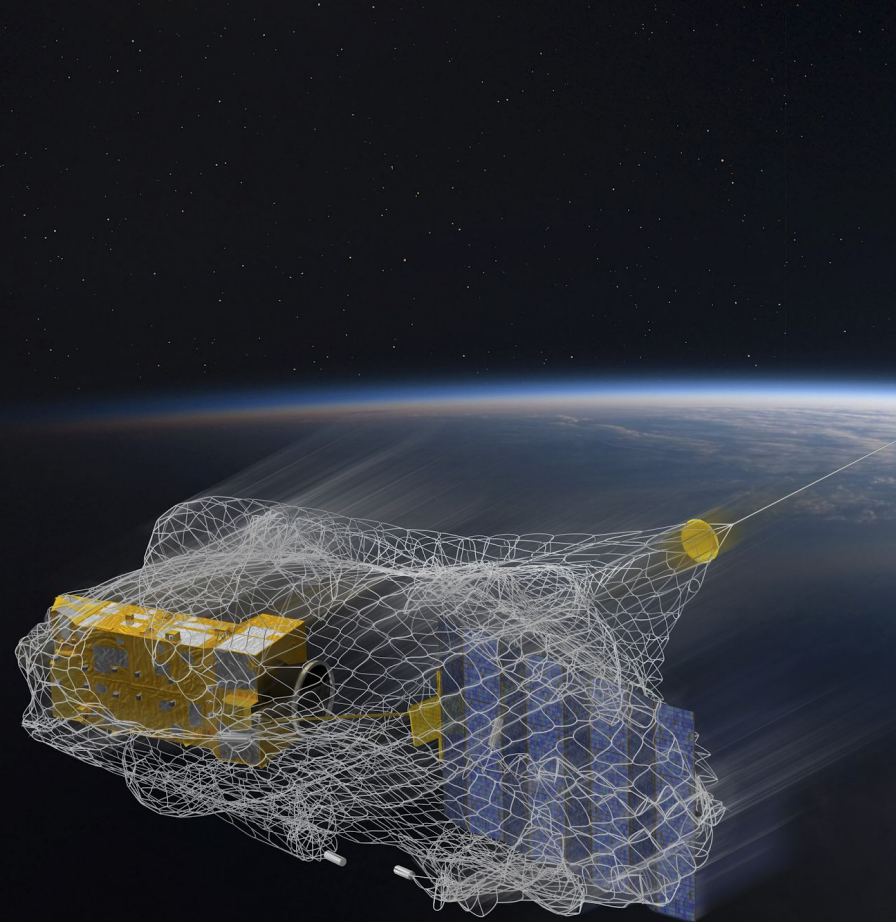
lim262@purdue.edu





About PSP-SSPI

- Annual SEDS-SSPI Satellite Competition
- PSP has a history of claiming first place
- This year's theme is Taking out the Trash
 - Research the space debris problem
 - Evaluate various proposals to deal with space debris
 - Technical, political, legal, economic, perspectives
- Open to many different disciplines



“Society of Satellite Professionals International”

**We're looking for a new
team lead!**

LEARN MORE

purdueseds.space/sspi

INTERESTED?

Forrest Lim

lim262@purdue.edu



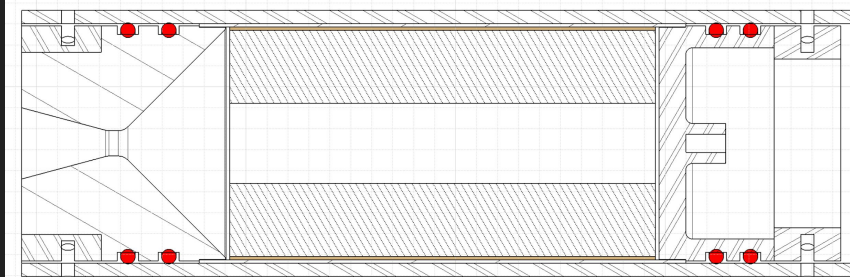
Spaceport America Cup

- Annual Competition held at Spaceport America, NM
- Teams compete from all over the world
- 30,000', Student Researched and Designed (SRAD) solid motor
- Team's third year of competition
- Designing and testing solid rocket motor at Zucrow Laboratories



Subteams

- Propulsion
 - Working towards full-scale hotfire
- Avionics and Recovery
 - Developing SRAD flight computer
- Payload
 - Finishing autonomous UAV design and manufacturing
- Structures
 - Finishing last year's manufacturing work
 - You'll learn to love BIDC



More Info

Open for anyone interested in joining a hardworking, dedicated team.

Callout: 7 PM Monday, September 7:

Payload: 7 PM Tuesday, September 8

Structures: 7 PM Wednesday, September 9

Avionics and Recovery: 7 PM Thursday, September 10

Any questions, reach out at yarger@purdue.edu



CALLOUT: Live on Webex

Mon, September 7
7:00 PM via Webex



LOOKING FOR

Manufacturing
Electronics
Structures
Composites
Recovery

LEARN MORE

purdueseds.space/solids

QUESTIONS?

Nate Yarger

yarger@purdue.edu

TEAM CALLOUT SLIDES:

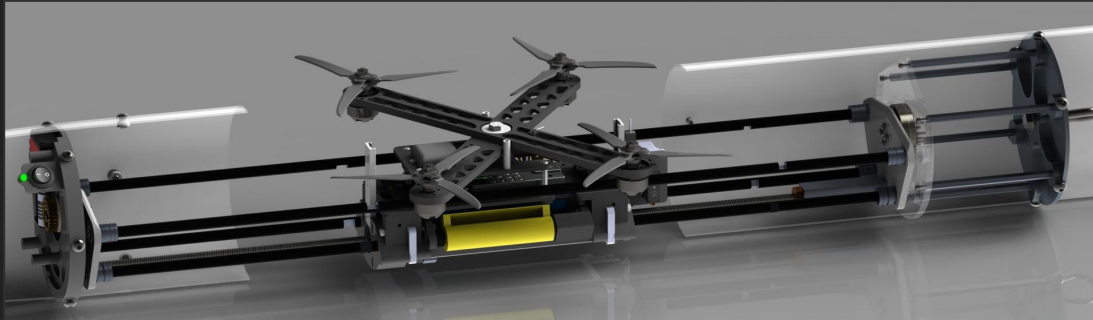




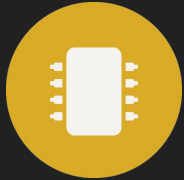
(PSP Student Launch)

PSP-SL

- Annual NASA competition in Huntsville, AL
- Design/Build/Test a rocket and payload to reach chosen altitude
- Project Life Cycle and Documentation in line with Aerospace industry standards.
- STEM Outreach 2019- 2020:
 - 1,136 K-12 direct interactions
- Annual NASA defined payload challenge

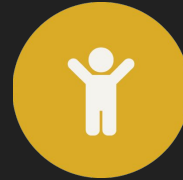


STUDENT LAUNCH SUBTEAMS



Avionics & Recovery

Altimeters, tracking and parachute recovery



Outreach

Spread awareness and knowledge of space to the community



Business

Manages the budget and sponsorships



Payload

Design of the NASA-specific payload, aerobraking system.



Construction

Overall vehicle design, propulsion, and onboard cameras



Safety

Ensure the quality and safety of the team and rocket

PSP-SL Projects

Avionics & Recovery:

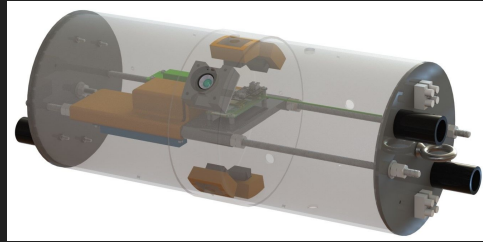
- Analyzing in flight recovery forces
- Creating robust trajectory code

Construction:

- Sub-scale and Full-scale Construction
- Motor Structure
- FEA (Finite Element Analysis)
- Camera Bay

Payload:

- Design testing and assembly of mission assigned by NASA
- Self-Righting lander
- Creating an AeroBraking system

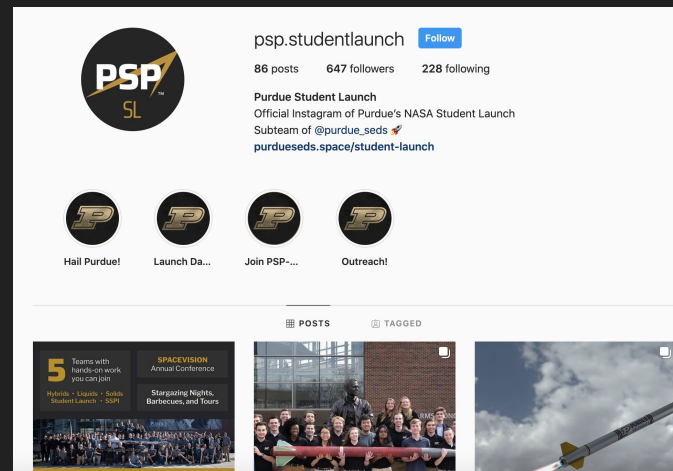


Want to join PSP-SL?

- Meetings will be on every Sunday, 11-1pm over Zoom
- All majors welcome!
- Members should want to be active, ask questions, and learn from each other
- Fall 2020 PSP-SL First Meeting/Callout on 9/6/2020 at 11am

Interested? Questions?

- Email me at: Julian Petrillo: jpetril@purdue.edu
 - CC Skyler Harlow: sharlow@purdue.edu



Follow our Instagram!
[@psp.studentlaunch](https://www.instagram.com/psp.studentlaunch)



CALLOUT

Sun, September 6
11:00 AM via Webex

<https://tinyurl.com/slcalloutF2020>

LOOKING FOR

Construction
Payload
Avionics
Safety
Outreach
Business

LEARN MORE

purdueseds.space/student-launch

QUESTIONS?

Julian Petrillo

jpetril@purdue.edu

Skyler Harlow

sharlow@purdue.edu

NEW MEMBER FORM



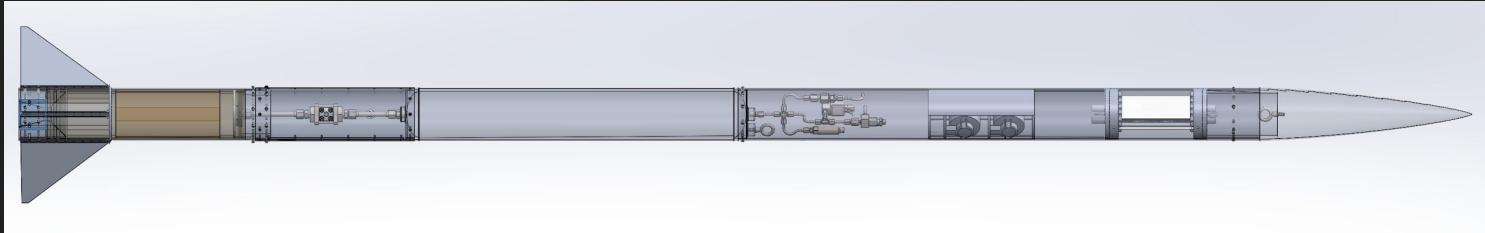
tinyurl.com/slnewmembers

The logo features the text "PSP" in a bold, white, sans-serif font. A yellow lightning bolt graphic is positioned behind the "PSP" text, extending from the bottom left towards the top right. To the right of the lightning bolt, the word "Hybrids" is written in a yellow, sans-serif font.

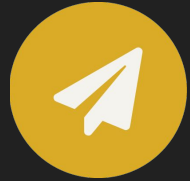
PSP Hybrids

Hybrids

- Continuing development of hybrid propellant rocket, targeting 10,000 ft altitude
- Development ongoing since Sept. 2018
- Targeting to launch in Jan. 2020 and to compete at FAR 1030 in June 2021
- Design fully complete, picking back up manufacturing from last semester

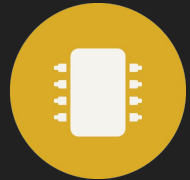


HYBRIDS SUBTEAMS



Aerodynamics

Dynamic stability and flight trajectory



Avionics

Vehicle electronics and control system



Business

Sponsorships and public relations



Ground Systems

Data acquisition and propellant loading



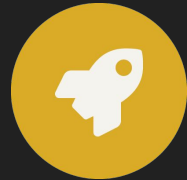
Manufacturing

Machining, assembly, and design workflow



Payload

Designing payload and its control system



Propulsion

Designing propulsion system



Structures

Design and integration of vehicle components

CALLOUT

Thurs, September 10
6:30 PM



LOOKING FOR

Payload
Structures
Manufacturing
Avionics
Ground Systems
Propulsion

LEARN MORE

purdueseds.space/hybrids

QUESTIONS?

Elvin Garayev

egarayev@purdue.edu

Callout QR code Link:

<https://purdue-student.webex.com/purdue-student/j.php?MTID=m3dc8ec4f2c653c7ee69d9d5a70da6429>



BOOMIE ZOOMIE

FAR-MARS Launch Contest

- Designed since 2017
- Entirely student-designed
- Two hot-fires
- Expected to launch in the future

BOOMIE ZOOMIE B

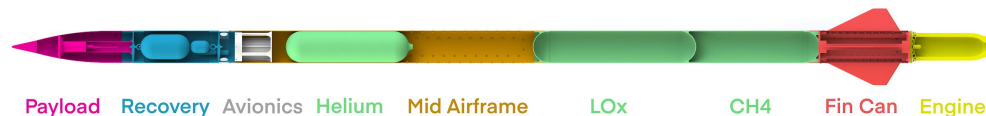
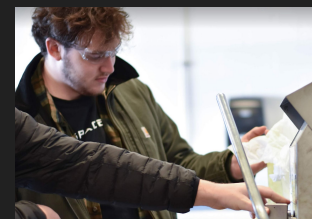
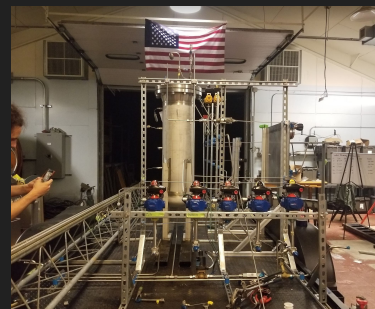
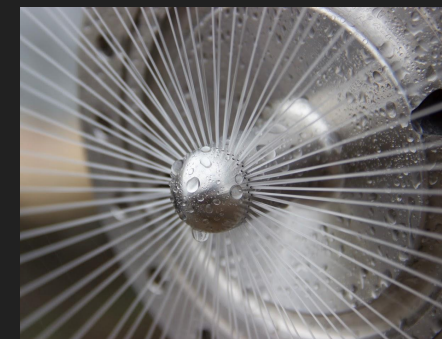
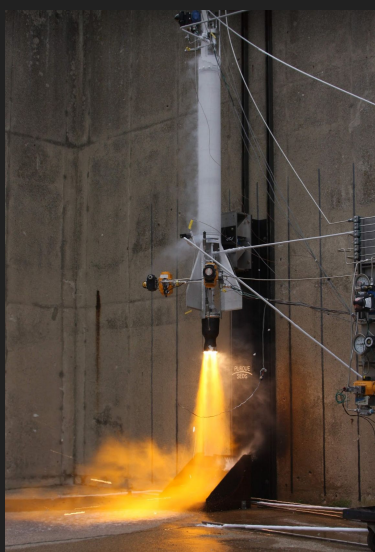
FAR-MARS Launch Contest

- Goal of improving performance of BZ1
- Passed Preliminary Design Review
- Progressing to Critical Design Review

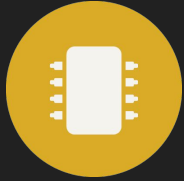
Sounding Rocket

Base11 Space Challenge

- Spun off to AAE 450 and AAE 535 senior/graduate design course
- Advised by AAE Prof. Stephen Heister
- Passed Critical Design Review
- Expected to conduct engine test



LIQUIDS SUBTEAMS



Avionics

Vehicle electronics and control systems



Business

Sponsorships and public relations



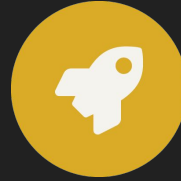
Manufacturing

Machining, assembly, and design workflow



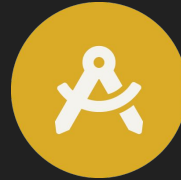
Fluid Systems

Designing propellant feed system



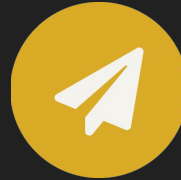
Propulsion

Designing thrust chamber assembly



Structures

Design and integration of vehicle components



Trajectory & Aerodynamics

Model simulation and analysis

MEET & GREET

Thu, September 3
6:00 PM via Zoom

[https://purdue-eduzoom.us/j/
99526266719](https://purdue-eduzoom.us/j/99526266719)

LOOKING FOR

Passionate People!

LEARN MORE

purdueseds.space/liquids

QUESTIONS?

Brynne Hunt

hunt132@purdue.edu

INTEREST FORM



forms.gle/oqMscJNSNH8vqKaa6



PSP

the Space Program

Solid • Hybrids • PSP-

ments for the Exploration and De

Interested in Marketing?

- Help promote events and teams on PSP
- Opportunities in graphic design, photography, video editing, merch, and web development
- Low commitment, and can be worked on alongside being on a team

CONTACT

Andrew LaPrade

alaprade@purdue.edu



INTERESTED IN JOINING PSP?

Fill out the Interest Form



forms.gle/QY1vwR9oQifJJvKfA



Dues

- Dues help PSP function and provide great events and experiences
- Adds you to the mailing list for upcoming events and access to Slack
- **\$10 per semester** (\$20 annual option)
- Pay online via TooCOOL

HOW TO VIDEO

purdueseds.space/paydues



Apparel

- Offering PSP branded apparel through TooCOOL
- Unisex t-shirts now available for \$15
- Planning on selling polo shirts and masks (prices and availability TBD)
- Weekly pickup in STEW B2-C, Wed & Thurs @ 3:30-4:30 pm

ACCESS TOOCOOL

purdueseds.space/toocool



NEXT MEETING

Tue, September 8
6:30 PM
via Zoom

QUESTIONS?

puseds@purdue.edu



Purdue Space Program



@purdue_seds



@purdue_seds



purdueseds.space