

BACKGROUND

- 50+ undergraduate engineering and science students pursuing liquid and solid rocketry
- Developing skills and experience needed to excel in the airplane, launch vehicle, and spacecraft industries
- Develop an alumni network throught the aerospace industry, in companies such as Maxar, Raytheon, NASA, Boeing, and many more to come

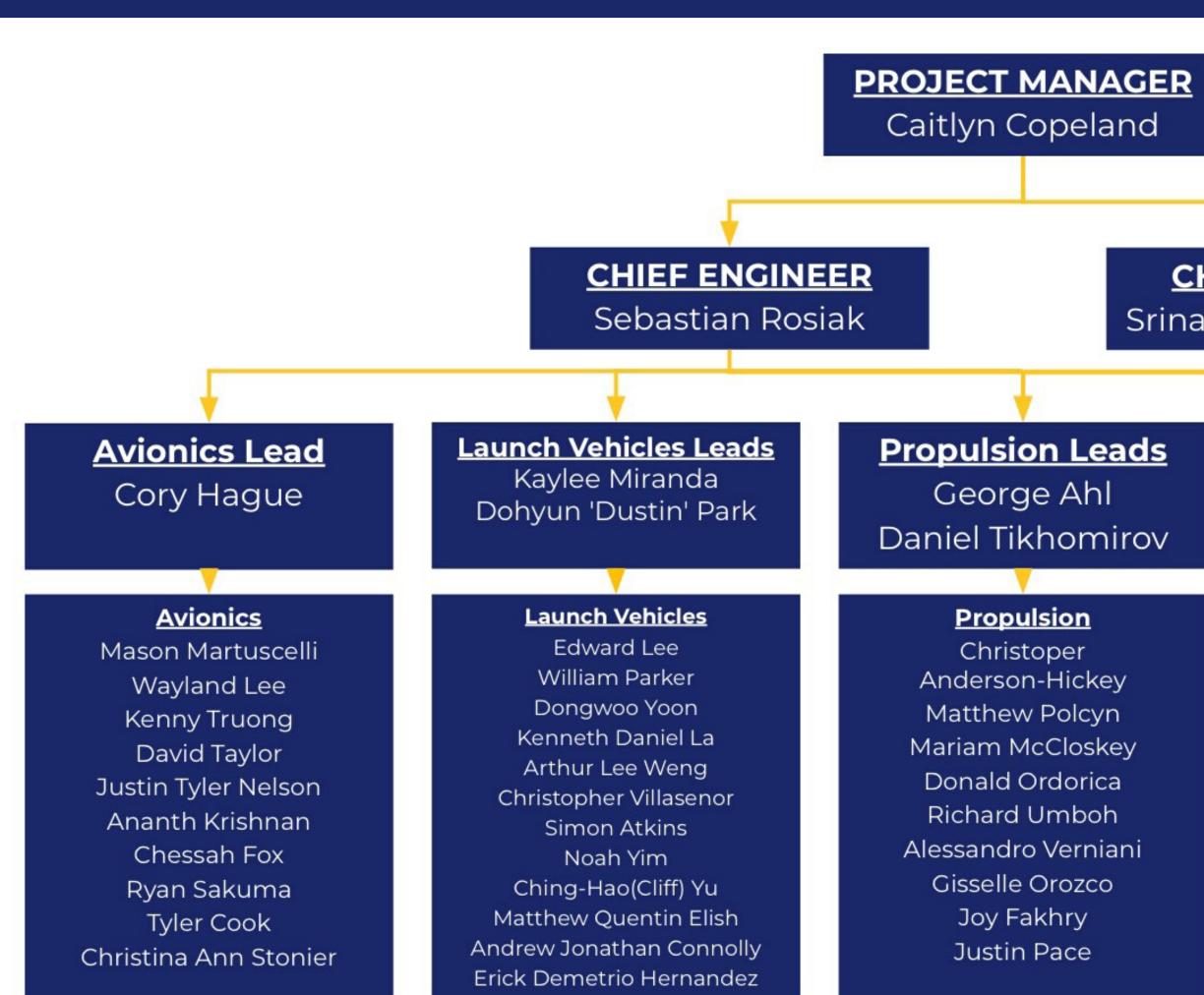
GOALS

- Launch a liquid bipropellant rocket to 45,000 feet
- Break the altitude record for collegiate liquid rocketry
- Successfully fire the most powerful methalox rocket engine developed by undergraduate students

OBJECTIVES

- Design and manufacture a modular test stand for liquid bipropellant rocket engines up to 10,000 lbf
- Reliably manufacture and assemble multiple PTE engines for multiple test fires and launch
- Design lightweight launch vehicle structure to launch a 2.2 lb payload to 45,000 ft and recover safely
- Develop test stand data acquisition and control system
- Develop launch vehicle avionics system for valve acquisition, data collection, and telemetry

TEAM STRUCTURE



UCIROCKET PROJECT Advisor: Professor Mark Walter

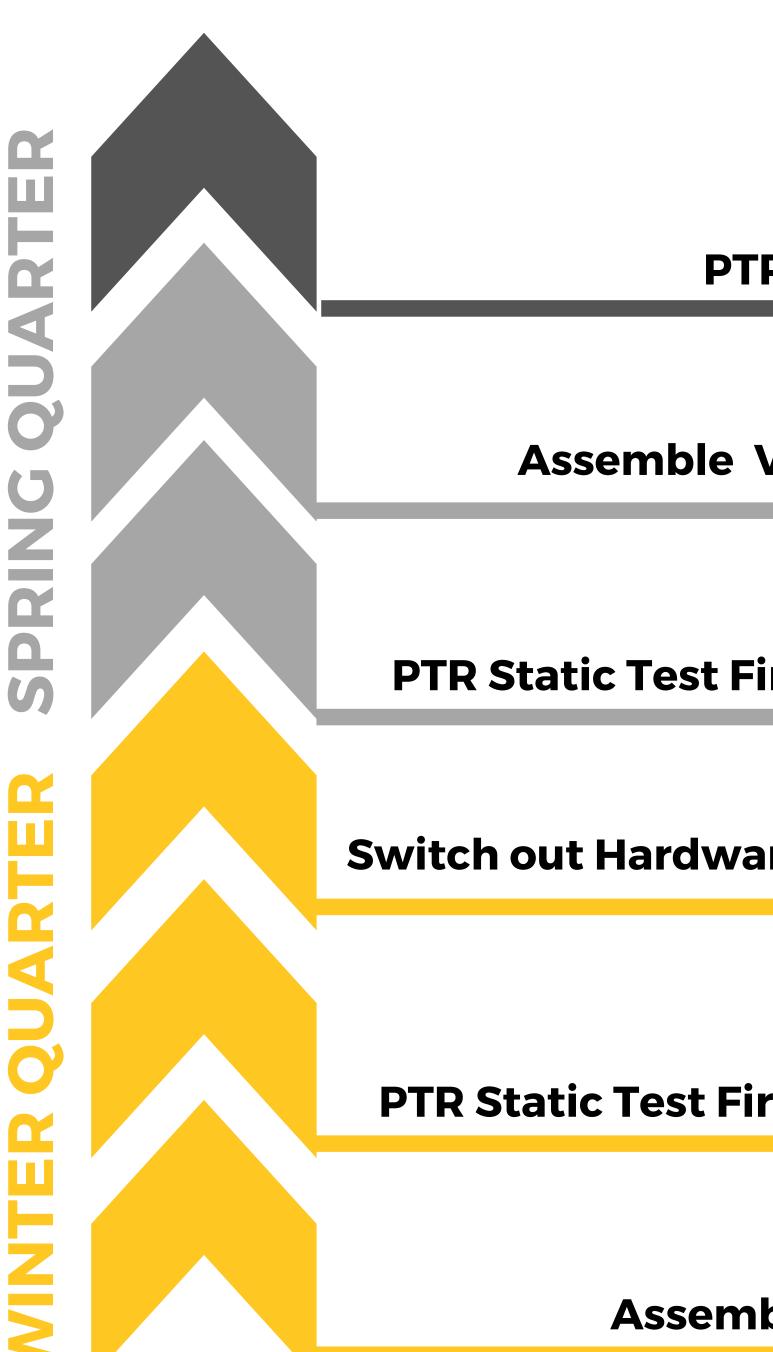
TIMELINE

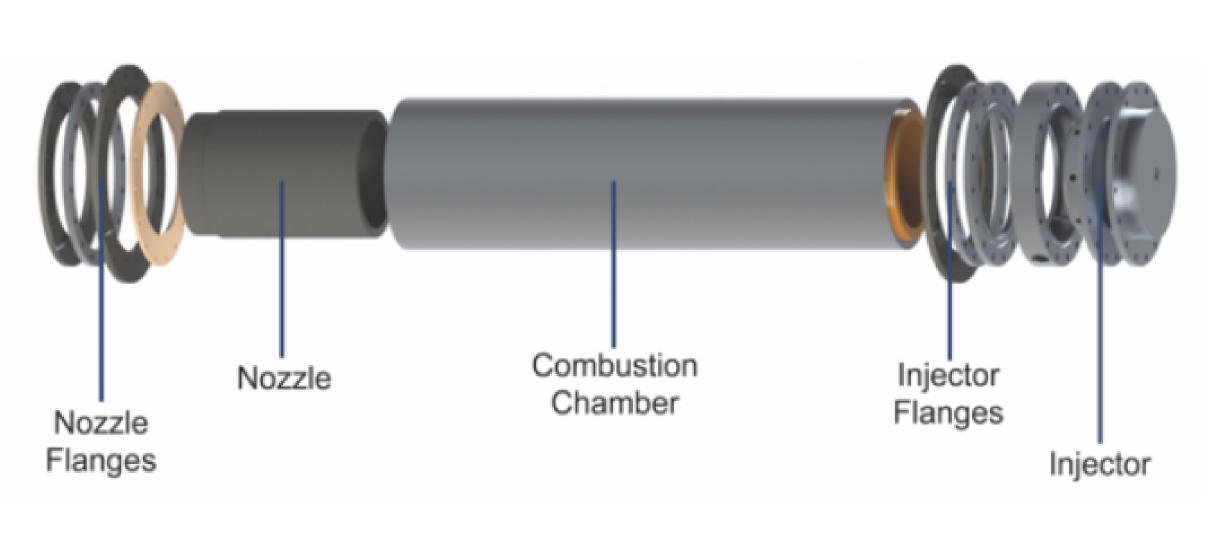
CHIEF ENGINEER

Srinath Gopalakrishnan

Testing Leads Jonathan Palafoutas Leo Anthony Mora

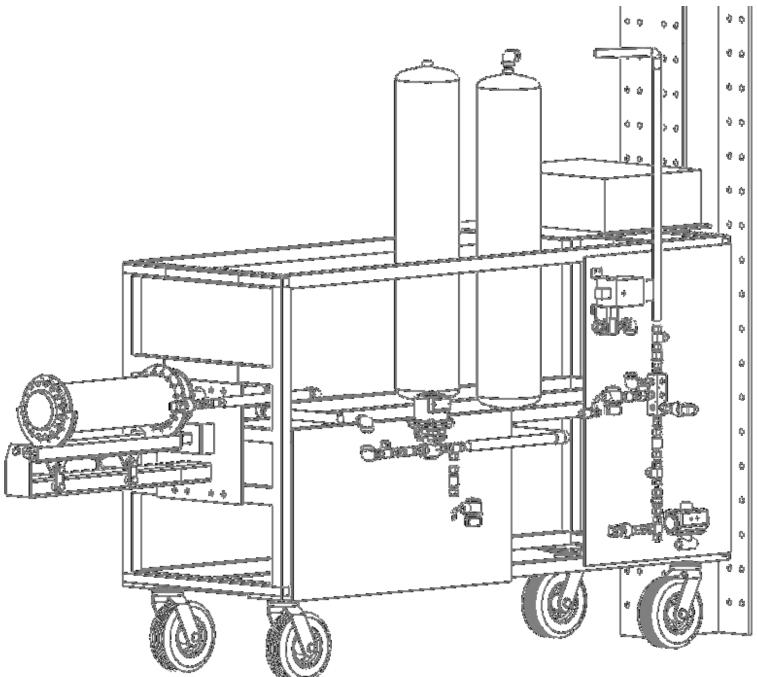
> <u>Testing</u> Austin Holm Zackey Sahebzada





Operations Lead Jorge Karam

Operations Jorge Alvarez Figueroa Shray Patel Nicholas Gurnard Parker Lupercio Nhan Doan



PTR Launch

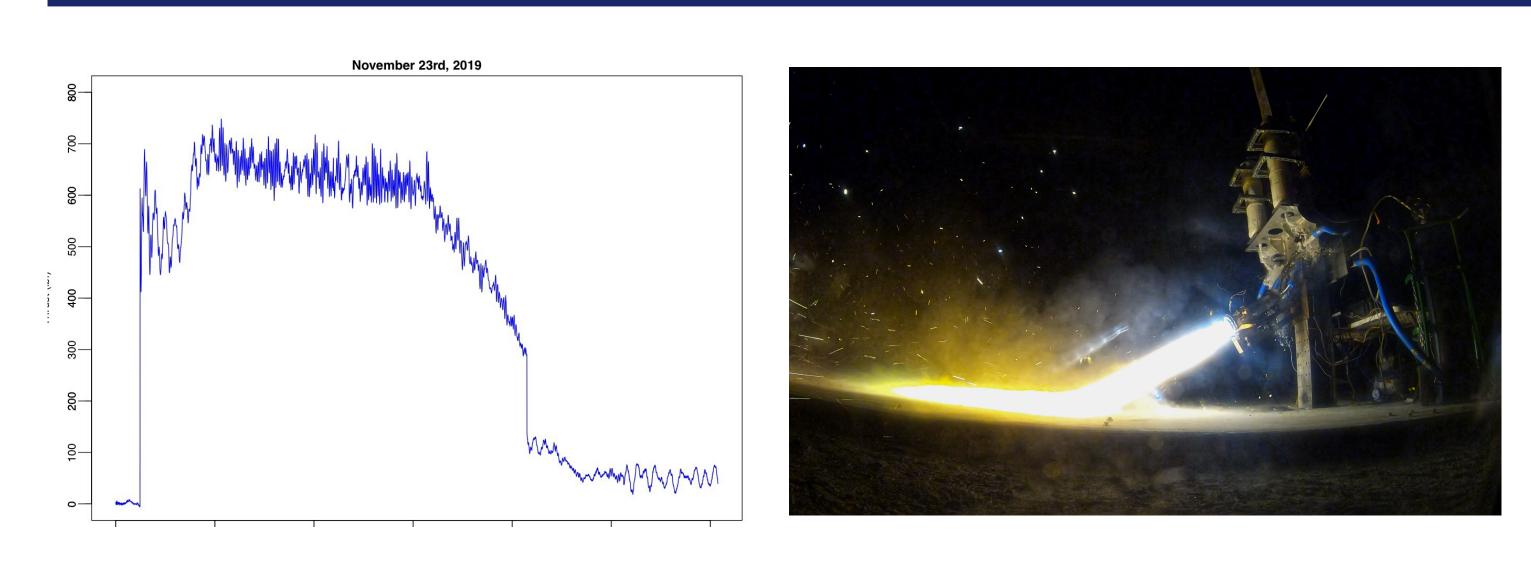
Assemble Vertical Structure

PTR Static Test Fire #3 - Flight Hardware

Switch out Hardware for Flight Components

PTR Static Test Fire #2 - Data Validation

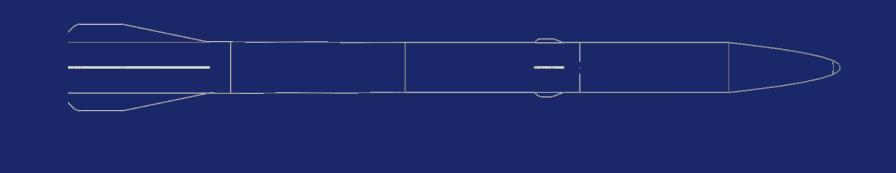
Assemble Cold Brew



- manual control box

PRELIMINARY TEST ROCKET BUDGET

Launch Vehicles	>
Testing	
29.0%	
Avionics	



PROGRESS

• Conducted UCIRP's first static test fire (STF1) producing an average of 750 lbf of thrust for 3 seconds • Redesigned and assembled an improved test stand to improve fluid system design and test operations • Redesigned test stand electronics to include new avionics bay, improved wiring, intutive LabView VI, and • Manufactured and purchased components to assemble

multiple PTE engine for next two test fires

• Finalized critical design of launch vehicle structures,

vehicle propulsion system, and recovery system

• Finalized design of ground support equipment and

infrastructure associated with vertical test fire and launch

