

TEXAS ROCKET ENGINEERING LAB

TREL

TEXAS BORN. SPACE BOUND.



TREL

WHO WE ARE

TREL is an interdisciplinary research lab at the University of Texas Austin, bringing together students from over 23 majors spanning from aerospace engineering to business and law. TREL is committed to incubating the next generation of innovators & rocketeers.

Our program attracts top talent across campus with 200+ applicants competing for 30 positions this past fall. Within the lab students work in one of 10 sub teams working to build and launch the largest collegiate bipropellant rocket to date.



3 weeks to **design, build, and activate**
strongback



PROJECTS

Halcyon [Mk1]

Halcyon is TREL's flagship project - a liquid bi-propellant rocket measuring over 26 feet in length and engineered to **break the current record achieved by a collegiate liquid rocket**. MK1 features two Composite Overwrapped Pressure Vessel (COPV) tanks and is guided by a Thrust Vector Control (TVC) system. We believe **Halcyon is the largest and most advanced student-built rocket in the world to ever successfully static fire and make it to the pad.**

Neptune [Mk2]

Neptune is TREL's next-generation launch vehicle featuring an electric pump-fed engine design. It includes two COPVs for propellant storage and an onboard active pressurization system, with a composite airframe and thrust vector control for precise flight handling. This vehicle marks a major step forward for collegiate rocketry as TREL advances toward orbital capabilities, **becoming the first student group to send a liquid rocket to space.**

Texas Rocket Engineering Lab



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HALCYON

SPACEPORT AMERICA

TREL returned to Spaceport America shortly after our spring break attempt with the goal of static firing Halcyon. After pushing through the flight computer failures we finally successfully completed three static fires. Making Halcyon the largest collegiate liquid rocket to ever static fire. With multiple successful static fires under our belt, we are prepared to launch Halcyon in Winter 2025.

STATIC FIRE

After main valve failures and swaps, flight computer helium intrusion failures, a grueling igniter campaign, Halcyon had finally made it to the pad in a condition ready to be static-fired.

We had performed successful LOx cold flows, RP cold flows, vertical igniter tests, and a LOx ignition. All the pieces were in place to be able to static fire the vehicle for the first time, after the vehicle had begun build only a few months prior.

The first static fire attempt had an engine light but hit an abort off of LOx inlet pressure. The second static fire attempt had an engine light but ran into another abort.

Finally, everything went right and the vehicle performed its first full-duration static fire, going until we ran out of deluge system supply.

This was one of the biggest moments in TREL's history, and now, as we head to launch, we aim to recreate these history-making moments more and more, pushing the boundaries of what is thought possible by a collegiate team.



Largest student built rocket **in the world** to ever static fire



4 integrated vehicle static fires in 3 weeks,
100+ torch fires completed



THE PEOPLE

Engineering TOMORROW'S LEADERS LAUNCHING TODAY

Operating at the scale of a full aerospace organization, Texas Rocket Engineering Lab is entirely student-run, comprising of eight interdisciplinary engineering teams: **Structures, Mechanisms, Engine, Stage, Integration & Ground Structures, Software, Avionics, and Guidance, Navigation, and Control.** Using scrappy, resourceful innovation, our engineering teams achieved a full rocket build and attempted launch within just six months - culminating in the first student-built liquid bipropellant rocket to feature a fully guided control system, active thrust vector control, and fully automated launch sequences.

By December 2025, we aim to reach 15 km altitude, **doubling the collegiate record** for student-built liquid-fueled rockets.

By March 2026, we intend to surpass the Kármán line at 100 km, becoming the **first student group to send a liquid-fueled rocket to space.** With every component being designed, built, and tested by students, for our sponsors, this is more than a partnership - **it's a direct investment in the future of space exploration and a proven pipeline of top-tier engineering talent.**

Operations FROM VISION TO VELOCITY

The Operations Division comprised of 3 teams [**Finance, Marketing & Communications, and Corporate Development**] is the reason our rockets don't just lift off, but stay on track. As an interdisciplinary team of students from business, law, liberal arts, and engineering, Operations ensures that the lab runs with the precision and coordination of a full-scale aerospace company. From managing complex purchasing pipelines to expanding industry partnerships, coordinating logistics, and building our public-facing brand, this team enables TREL to deliver on its boldest ambitions. This semester, Operations actualized Halcyon's launch by **rapidly executing purchases, analyzing budget plans, producing high quality media from test sights, coordinating experiential events with industry leaders, and establishing professional relationships with companies of all kinds who financially support our engineers.** In short, Operations' work doesn't just support the lab; it scales it. They are the strategies that make TREL sustainable, competitive, and industrious - **the force behind every milestone we aim to break.**



WHY TREL

TREL Work Ethic

Our students, on average, each contribute 500+ hours per semester on top of a full course load. They drive six hours on weekends to remote test sites, camp in barren terrain, and fly cross-country to New Mexico - all in pursuit of pushing the limits of what student-led rocketry can achieve. That perseverance has brought us to the brink of something historic: a full vehicle launch just one month into the fall semester, and a mission to reach space.

This is more than a lab - it's a launchpad for the next generation of engineers, systems thinkers, and aerospace innovators. With every successful subsystem, every efficient procurement, and every hands-on test, TREL students are proving their capabilities on a national stage. Your investment isn't just in a rocket - it's in a workforce trained under pressure, tested in the field, and ready to lead. Now is the time to help UT Austin become the #1 student rocketry program in the world - and to fuel the people who will define the future of space exploration.

TREL TIERS

	Bronze \$1,000	Silver \$2,500	Gold \$7500	Titanium \$10,000	Diamond \$15,000
Recognised on Website, Social Media, & Newsletters	✓	✓	✓	✓	✓
Wall of Recognition (Logo in Labs)		✓	✓	✓	✓
Access to TREL Resume Folder + Internal & Alumni Job Postings		✓	✓	✓	✓
1 Company Hosted Meet & Greet Per Semester (2 Sem. Total)			✓	✓	✓
1 Student Led Technical Pres. Per Semester (2 Sem. Total)				✓	✓
Logo at Test Sites				✓	✓
Logo on Rocket					✓

TIERS ARE RENEWED YEARLY

TREL TITLE PARTNER - \$20,000+

Support through hardware, software, product donations, and discounted pricing makes the biggest difference in our lab. Direct access to critical tools and components reduces downtime, increases modularity across our systems, and allows students to focus on testing, integration, and flight-ready development rather than reconfiguring limited resources.

CONTACT

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The University of Texas at Austin
**Aerospace Engineering
and Engineering Mechanics**