

TEXAS ROCKET ENGINEERING LAB

SPONSORSHIP PACKAGE

2020



The University of Texas at Austin
Cockrell School of Engineering

MISSION

The Texas Rocket Engineering Lab is an interdisciplinary research laboratory focused on creating capable professionals to meet the needs of aerospace organizations. The lab constructs an environment of inclusion, diversity, open knowledge-sharing and active community engagement to promote interdisciplinary collaboration. TREL works to complete long-term, tangible projects while demystifying the intricacies of applied rocket science in order to better serve its peers and successors.

VISION

To become the gold standard of professional collegiate rocketry, knowledge-sharing, and diverse inclusion amongst its peers and industry stakeholders. To function as a leader in new space innovation, incubating the next generation of aerospace pioneers. Its long-term vision is to become the official non-profit launch arm of the University of Texas system.

CORE VALUES

COMMUNITY

Commitment to giving back as an educational entity to the greater Austin community

LEADERSHIP

Leaders in pioneering industry-standard collegiate rocketry

DIVERSITY

Making Diversity a priority to enrich our opportunities

PASSION

Our members are passionate about aerospace, no matter their discipline



SIZE

TREL is exceptional amongst collegiate rocketry labs in more ways than one. For TREL, size matters: the lab is 130 members strong and growing, almost 150% larger than the average aerospace organization on college campuses nation-wide. TREL understands that diversity is paramount and is actively working to recruit more women and put them in positions of leadership. Its male-female ratio already bests the industry's average of just 20%, and will continue to improve in future generations.

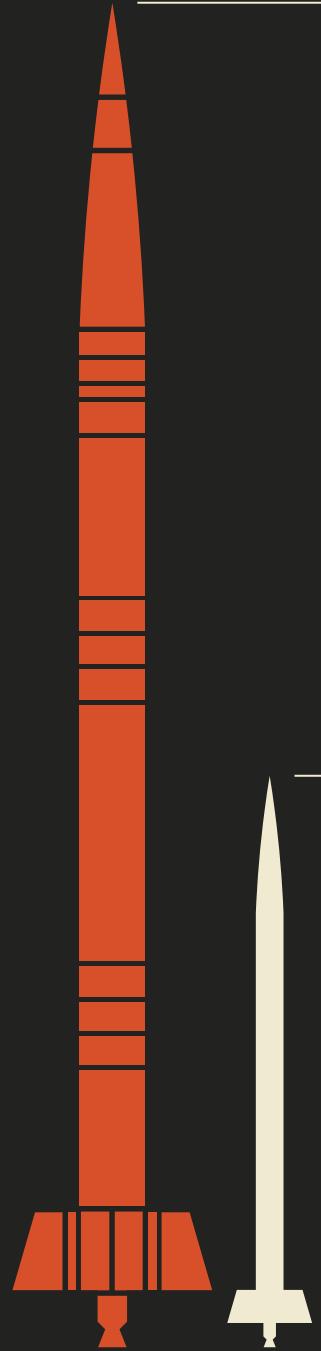
**130 MEMBERS
+ GROWING**

**130 TOTAL
MEMBERS**

**29
WOMEN**

22%, Higher than
the industry average
of 20% for women in
aerospace

~50 MEMBERS
Average members of other
aerospace organizations.



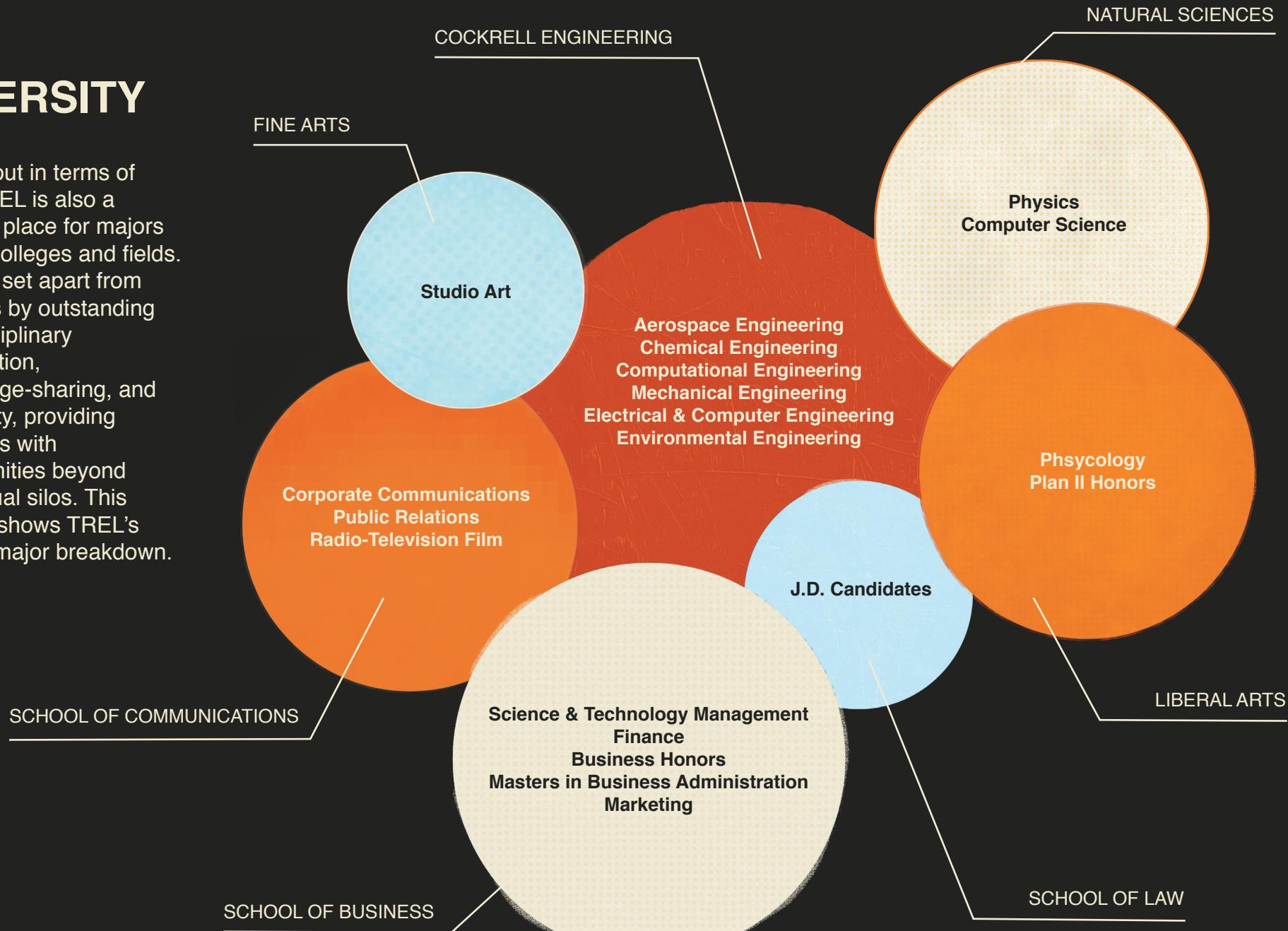
**Texas Rocket
Engineering Lab**
27.85 ft.

**Average Height for
Collegiate Rocket Labs**
12 ft.

TREL's design speaks for itself. While other collegiate rocket organizations focus on short-term, quick-turnaround projects, launching series of small vehicles, TREL works on an extended timeline. Its members gain experience in greater depth and breadth than they would elsewhere, mirroring industry practice and production. Larger rockets mean more complex systems, and TREL's are compliant with NASA and SpaceX standards for bipropellant liquid propulsion architecture, hardware and software. TREL is looking to scale up even further in the future, becoming the official launch arm of the University of Texas and working with aerospace companies to provide small space launch services at low cost.

DIVERSITY

A standout in terms of size, TREL is also a meeting place for majors across colleges and fields. TREL is set apart from its peers by outstanding interdisciplinary cooperation, knowledge-sharing, and inclusivity, providing members with opportunities beyond their usual silos. This graphic shows TREL's current major breakdown.



SCOPE



ISS | 408 km



Halcyon
106.7km
350,000 ft



Karman Line

**UCLA
RECORD**
3.658 km | 12,000 ft



Military
Plane
27km
90,000ft

Concorde
18km
60,000ft



Burj Khalifa
0.828km
2,712ft



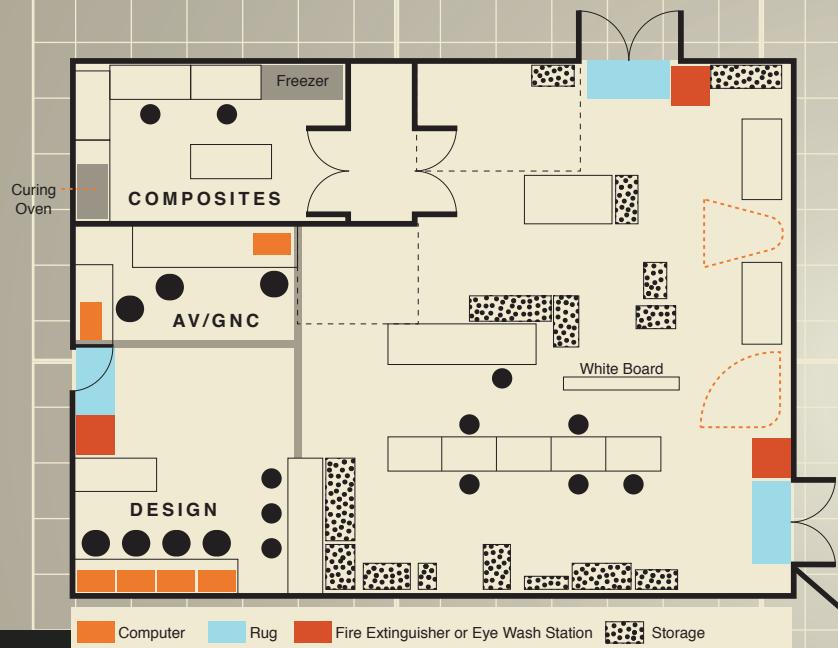
100 km

TREL IS *GOING FURTHER*

One-third of the way to the International Space Station, TREL's launch goal is 338,000 feet higher than UCLA's current record for a bipropellant liquid propulsion rocket. The Karman Line, the point at which the earth's atmosphere dissipates into space, serves as TREL's next horizon. TREL is currently on-schedule to launch by 2020.

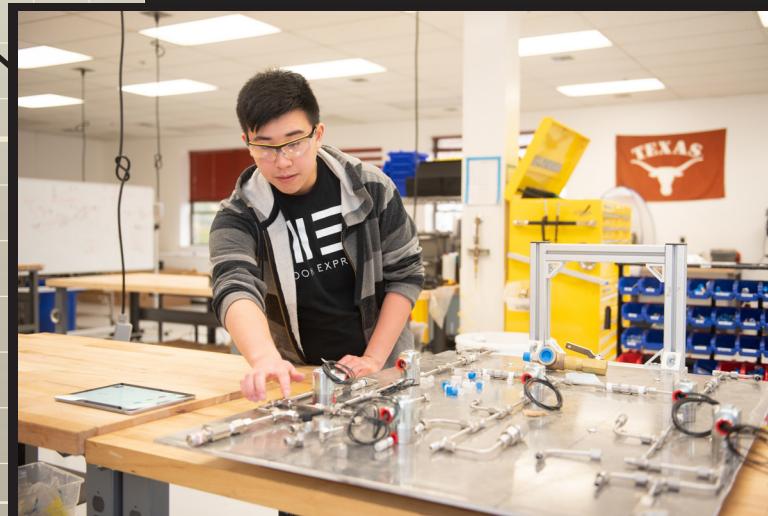
SCALE

All TREL facilities and members are ITAR registered and compliant. TREL works extensively with appropriate law and government officials to ensure the lab adheres to the professional regulations of advanced rocketry systems.



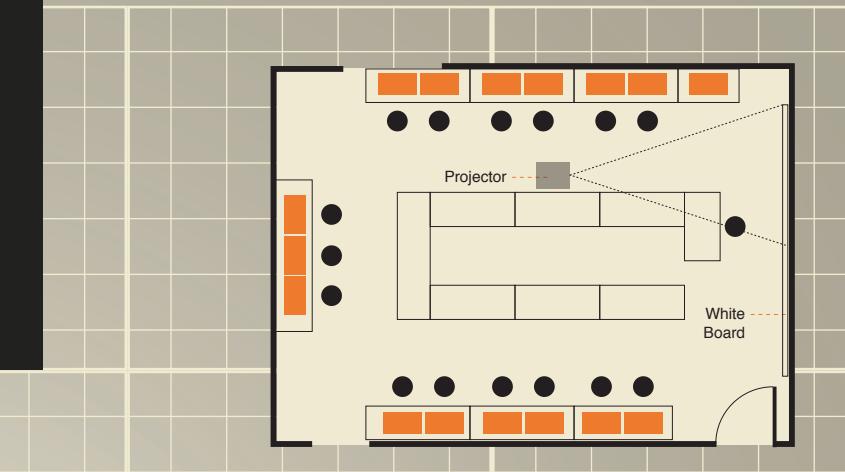
TREL FABRICATION LAB

The TREL Fabrication and Assembly Facility is a private, 2,300 square foot manufacturing center where the final assembly of the Halcyon rocket will occur. The facility is equipped with a growing selection of tools, equipment, test stands, and a full clean room to ensure the rocket is constructed safely and effectively. Halcyon will be transported to New Mexico for launch at the end of 2020.



TREL DESIGN SPACE

Located in the heart of UT's engineering research center, the TREL Design Space is the primary location for the development of component schematics, system requirements, and proprietary software programs. Across the hall is the state-of-the-art Inventionworks Center, which allows for rapid prototyping and testing of designs that will eventually become the Halcyon rocket.



BASE 11

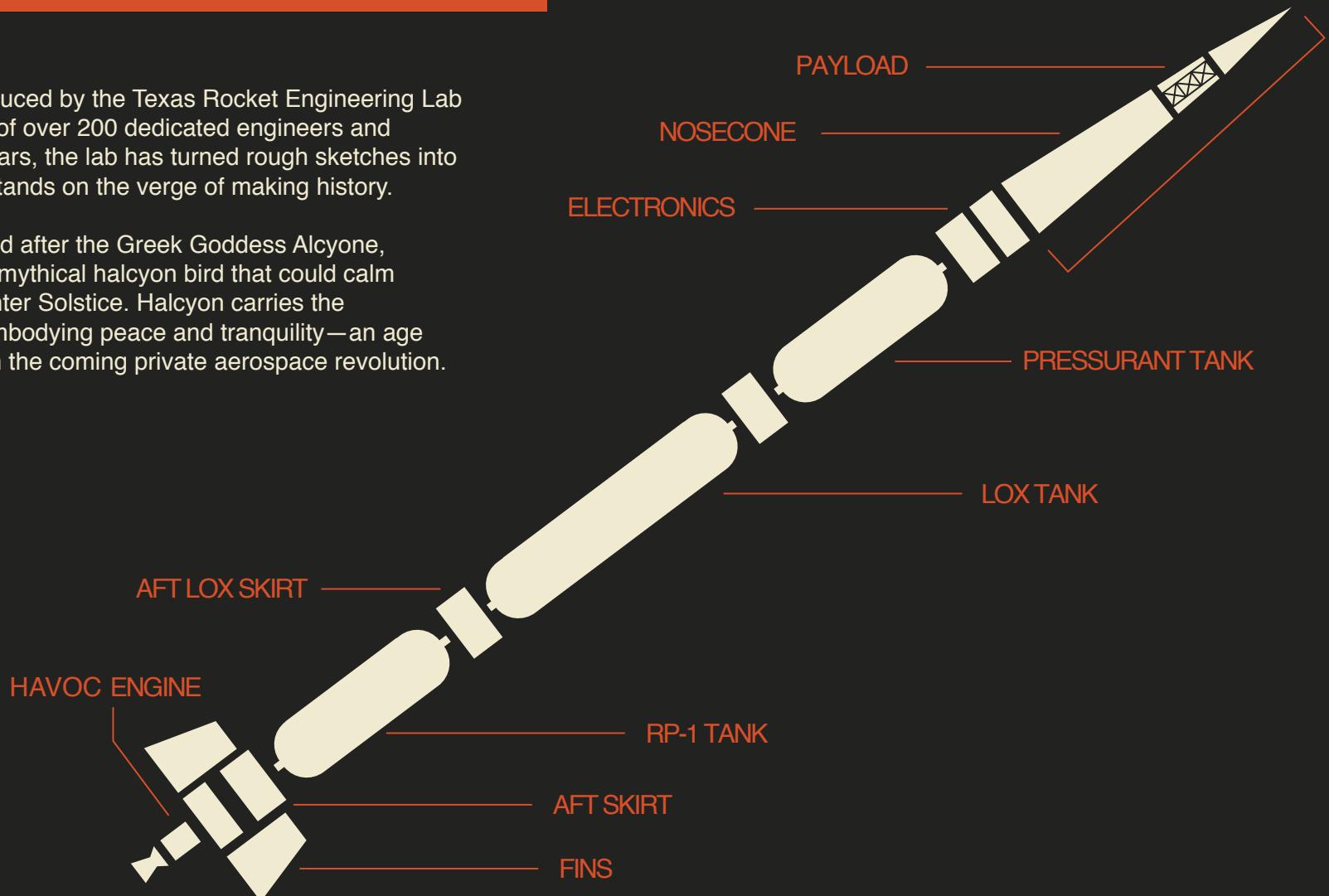
The Base 11 Space Challenge is an international competition for a student-led university team to design, build, and launch a liquid-propelled, single-stage rocket to an altitude of 100 kilometers – the Karman Line – by the end of 2021. TREL is competing along with 19 programs from across the United States and Canada for a \$1 million+ prize that is supported by Spaceport America, Firefly Aerospace, and Dassault Systèmes. TREL regularly participates in design reviews and receives feedback from Base 11's team of industry experts to ensure compliance with safety protocols and engineering viability.



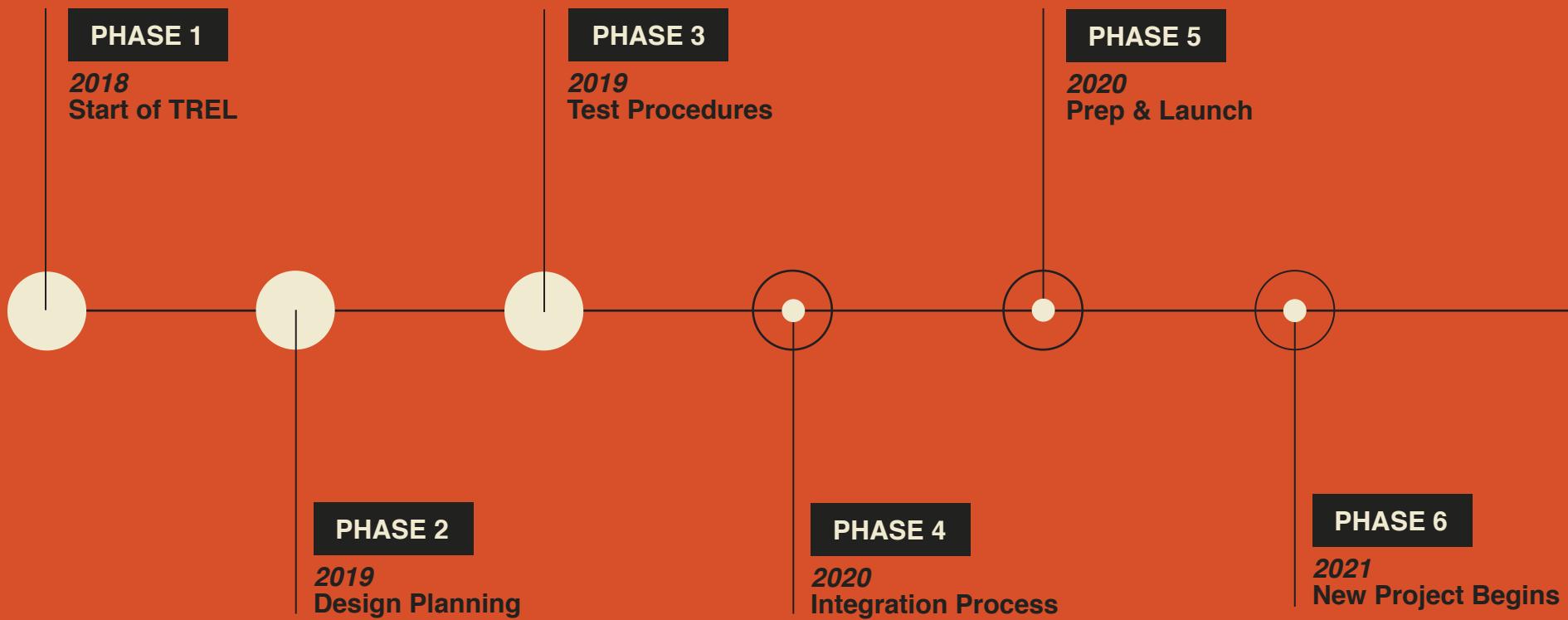
HALCYON

Halcyon is the first rocket produced by the Texas Rocket Engineering Lab and represents the hard work of over 200 dedicated engineers and aerospace pioneers. In two years, the lab has turned rough sketches into a fully-developed rocket that stands on the verge of making history.

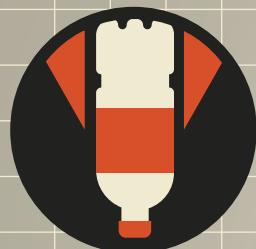
The Halcyon rocket was named after the Greek Goddess Alcyone, who was transformed into the mythical halcyon bird that could calm the raging seas during the Winter Solstice. Halcyon carries the double meaning of a period embodying peace and tranquility—an age TREL intends to be a part of in the coming private aerospace revolution.



TIMELINE



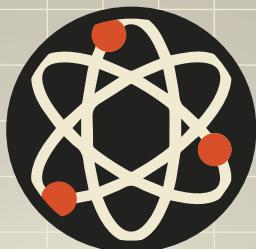
COMMUNITY EDUCATION & OUTREACH



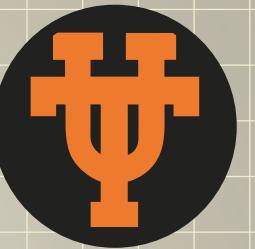
Middle School
Bottle Rocket



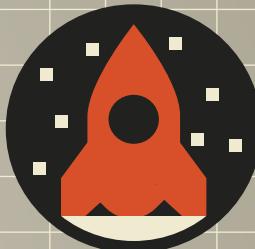
Summer Camp



Science Olympiad
Education



Explore UT + Girl Day
Fair



Girl Scouts STEM
& Aerospace Outreach

TREL has partnered with Austin ISD middle schools to create rocket fabrication kits so students can design and launch their own custom rockets. Students compete against one another while learning the fundamentals of aerospace hands-on.

In the future, TREL seeks to establish a three-day workshop where students from the Austin area will be introduced to the life of a rocket scientist. The interdisciplinary curriculum will cover the history of spaceflight, the fundamentals of rocketry, and pathways to aerospace, with an emphasis on interactive engagement between TREL members and students.

ATX Science Olympiad is a national academic competition in which teams of middle or high schoolers compete in 23 different events covering topics from anatomy to engineering to electronic circuits. TREL volunteered as a representative of rocketry and aerospace and used bottle rockets to demonstrate how Newton's Third Law enables flight.

During Explore UT and Girl Day, TREL interacts with thousands of high-school students that are interested in becoming a Longhorn. The lab showcases its state-of-the-art facilities and research opportunities unique to The University of Texas. TREL supports the UT Girl Day initiative by creating hands-on activities that educate and inspire young women, introducing them to STEM and highlighting pathways for future careers.

TREL is in the process of creating a specialized program with the Girl Scouts of Central Texas. The initiative will expand upon the Girl Scout merit-badge system and drive interest in STEM and related fields.

FIREFLY @ UT

PROFESSIONAL GUIDANCE

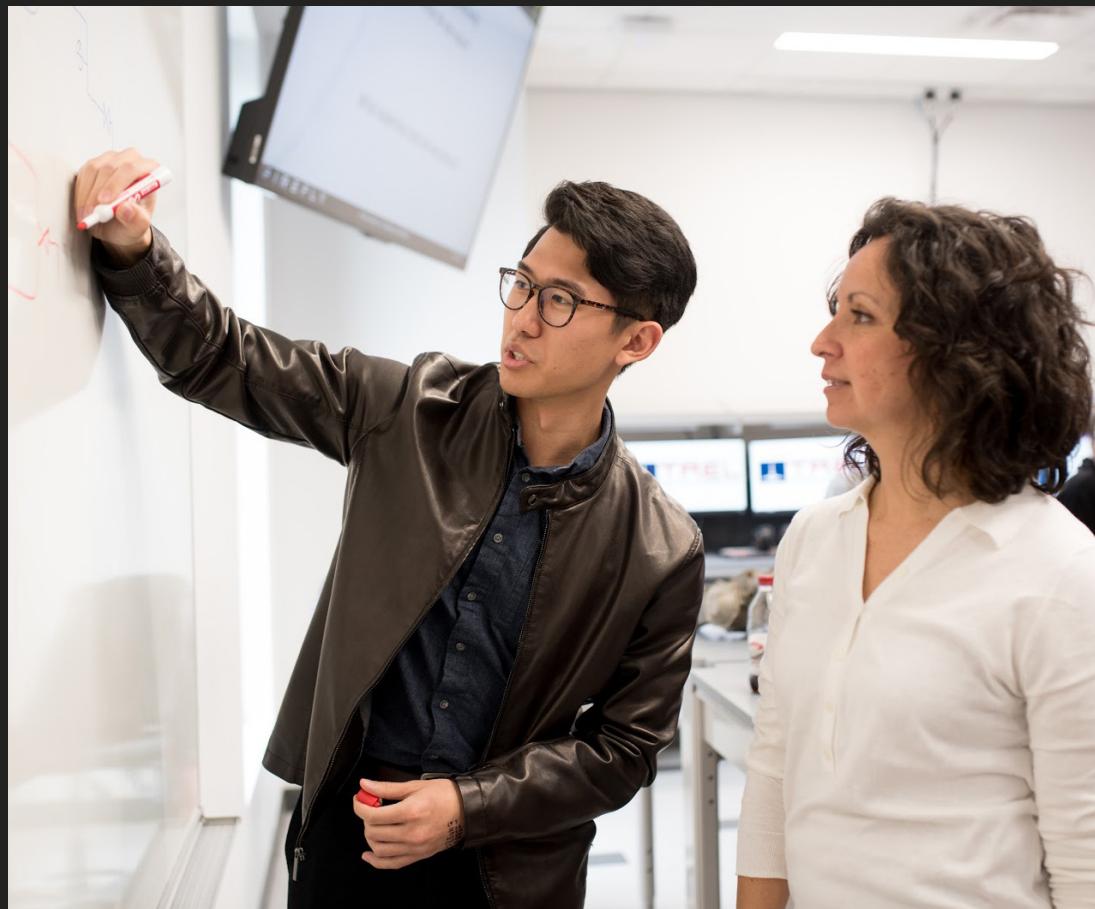
Industry leaders in aerospace engineering, Firefly provides design reviews and years of experience to ensure TREL rockets are built efficiently, cost-effectively, and safely.

INDUSTRY CONNECTIONS

Firefly has recruited a team of industry veterans from government positions and top aerospace firms to provide extensive industry connections and education and employment opportunities for all TREL team-members.

HIGH-END TESTING FACILITIES

Firefly provides large-scale facilities and professional oversight for the extensive testing required for the complex manufacturing of a liquid bipropellant rocket, from COPV bursts to hotfires.



DEEP IN THE HEART OF AEROSPACE



Texas is the epicenter for groundbreaking innovations in aerospace. An upswing of private launch providers now call Texas their home: Lockheed Martin, SpaceX, Blue Origin, Boeing, Firefly and more make use of Texas's wide open spaces to manufacture and test the next epoch of launch vehicles. Just south of Firefly Aerospace, the Texas Rocket Engineering Lab is making its mark as the seedbed for the next generation of global aerospace leaders.



TREL

University of Texas at Austin

5 **Van Horn**
Blue Origin

6 **Austin/Cedar Park**
BAE Systems
Firefly Aerospace
General Electric
L3Harris Technologies
Safran Seats US
Textron
UTC Aerospace

7 **Houston**
Boeing
ExpressJet
Jacobs
Lockheed Martin
Nanoracks LLC
NASA (Lyndon B. Johnson Space Center)
Northrop Grumman
Oceaneering
Raytheon
SpaceX
United
UTC Aerospace

8 **San Antonio**
Albany International
Boeing
Chromalloy
Elbit Systems of America LLC
General Electric
Lockheed Martin Aeronautics
StandardAero

SUPPORT TREL

TREL is fueled by the strong support of our corporate, private, and non-profit sponsors. Partner with us in establishing TREL and the University of Texas as the leader of university rocketry and space exploration.

FINANCIAL DONATIONS

Aid rocket development, component manufacturing and testing, technical training, and educational outreach programs.

MATERIAL DONATIONS

Raw aluminum, steel, carbon fiber, electronic sensors, connectors, and wires, recovery components, fabrication equipment and more.

MENTORSHIP

Mentorship from industry professionals that aids our engineers in developing the expertise needed to thrive in their careers.

SPONSORSHIP PACKAGES

Explorer | \$5,000

Pioneer | \$15,000

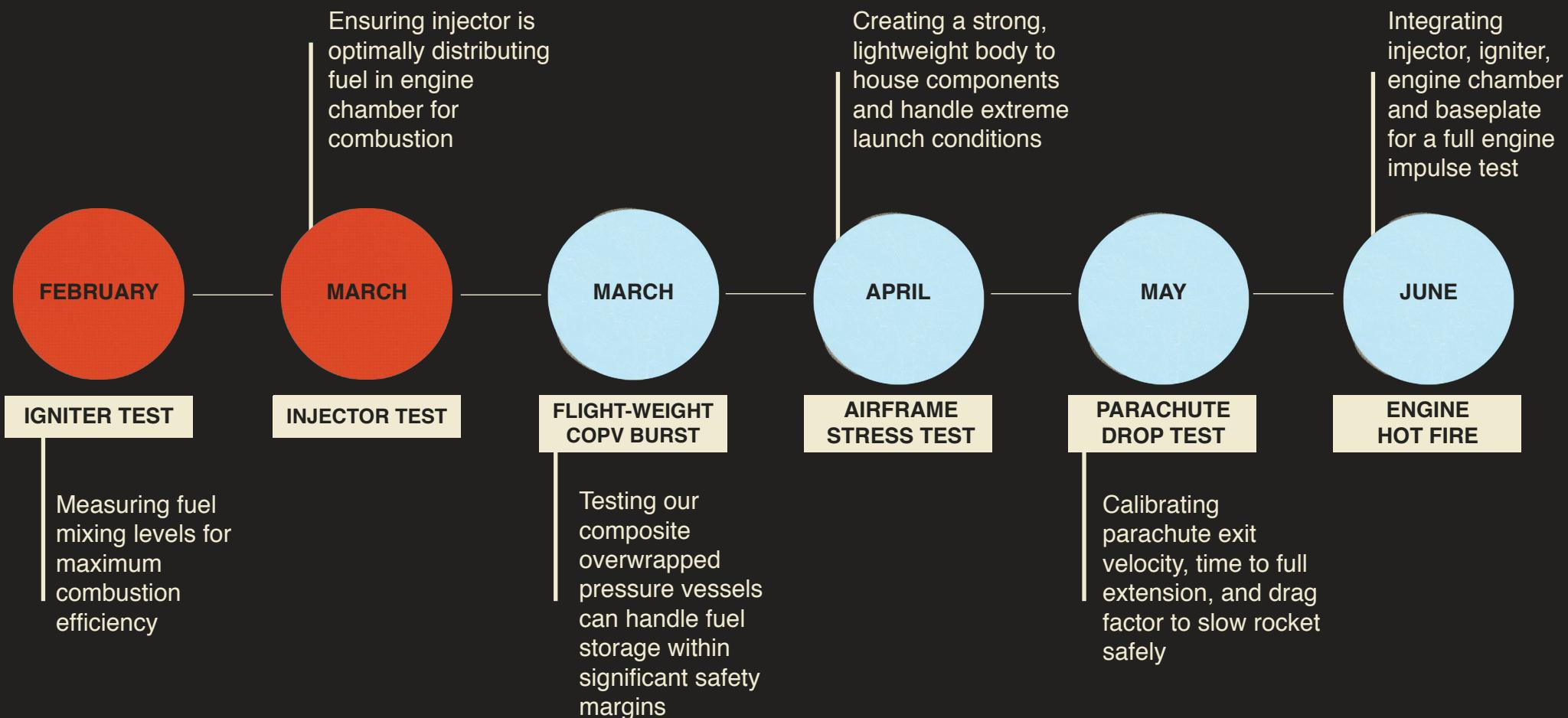
Vanguard | \$50,000

Trailblazer | \$100,000

Feature on Donor Wall	●	●	●	●
Logo on Website, Social Pages, Launch T-Shirt	●	●	●	●
Commemorative TREL Merchandise	●	●	●	●
Access to TREL Recruiting Events		●	●	●
Feature in TREL Promotional Video		●	●	●
Member of TREL Advisory Board			●	●
Custom Branding Opportunities			●	●
Invitation to Milestone Events			●	●
Naming Rights				●
Potential Research Partnerships				●
Personalized Experience with Team				●

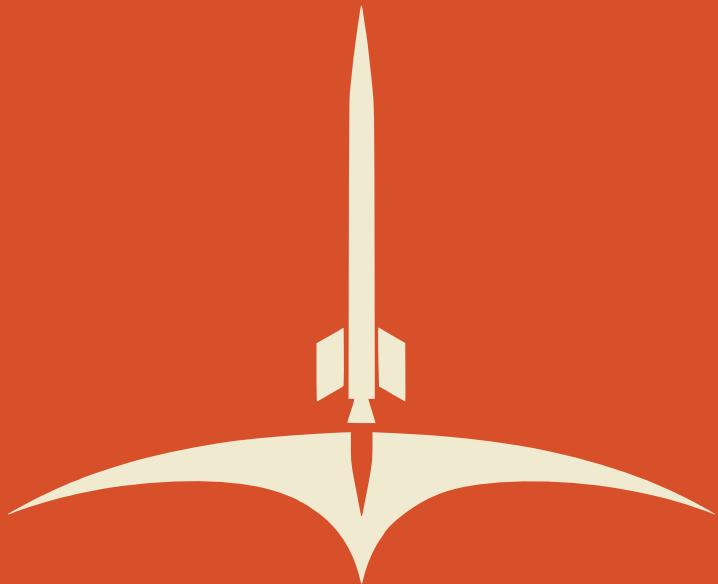
Donations of materials and time will be tabulated and counted towards donation tiers. Contact our business team at texasrocketengineeringlab@gmail.com to discuss custom packages

UPCOMING MILESTONES





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