

**Persistent Space
Observation
Network for
Cislunar Space
Domain
Awareness**



Overwatch Aerospace

The Cost of Not Being Able to See in Cislunar Space

Cislunar Economy

2022 Valuation:
3.77B USD

2035 Valuation (Proj):
19.8B USD

CAGR 2025-2034:
11.2%

Impact of Collisions

Expected Cost:
42B USD (10y proj)

Expenses Related to Satellite Collisions:
Satellite Replacement
Loss of Service Revenue
Orbital Debris Cleanup

Operational Challenges

Currently 21 objects in cislunar space & collision avoidance already occurring

Traffic growth will greatly increase maneuver frequency

Defense Applications

Securing Access to Strategic Resources

Maneuver Space with Limited Coverage

Domain Awareness

Why Now - Technology

Advances in Solar Sailing Technologies: Over the past decade, missions like IKAROS and ACS3 proved that solar sailing was a physically viable method of propulsion. Current research into advanced sail materials, electrochromic panels, and novel sail geometries promise to take solar sailing from a scientific novelty to an incredibly powerful tool for maneuvering satellites and observation platforms

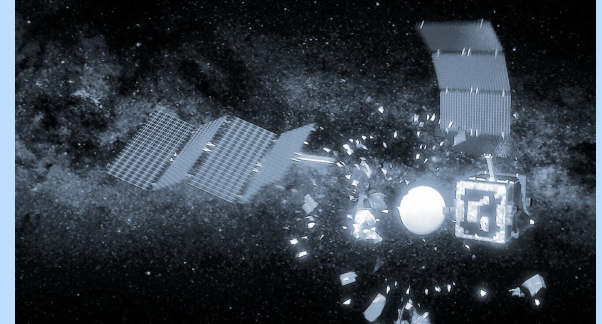
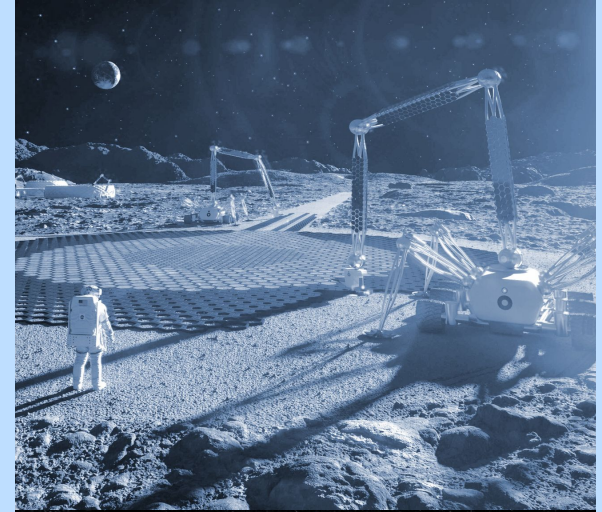
Lowering Cost to Launch: During the Apollo Program, the cost to launch objects into lunar orbit was around \$25,000 (adjusted for inflation) per kilogram. Now, with advances in making heavy-lift launch vehicles more powerful and affordable, the cost to launch objects into lunar orbit has dropped as low as \$3000 with SpaceX's Starship, making it more affordable to place observation platforms in cislunar orbit



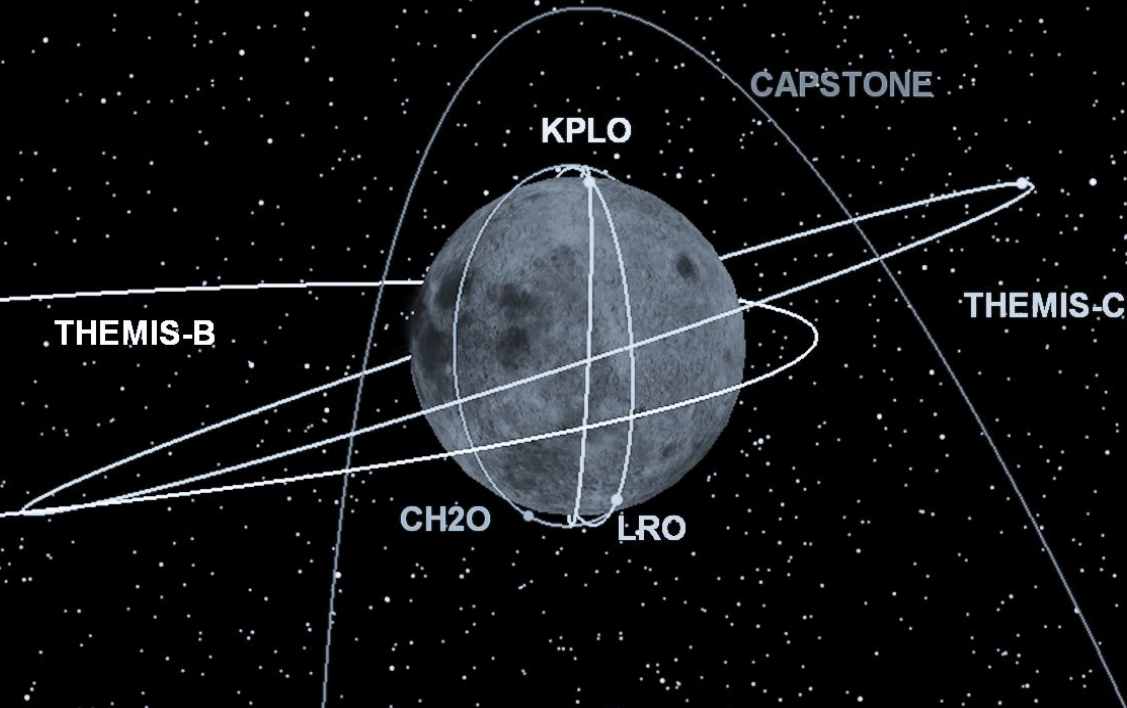
Why Now - Demand

Growth of the Lunar Economy: *The aforementioned growing affordability of launching into lunar orbit combined with growing interest in the lunar economy from the resource extraction, defense, and energy industries (among other sectors), have poised the lunar economy to grow massively over the next decade as private enterprises seek to capitalize on the many opportunities the moon has to offer*

The Intersection of Supply and Demand: *The growth of the lunar economy will inevitably lead to the proliferation of satellites across cislunar space. Tracking these satellites will be a priority for companies in order to keep their lunar enterprises operational and profitable. Advances in solar sailing technology allow for the development of persistent observation platforms that can reliably monitor said satellites*



Addressing the Challenge



**Comprehensive Cislunar
Space Domain Awareness
Requires:**

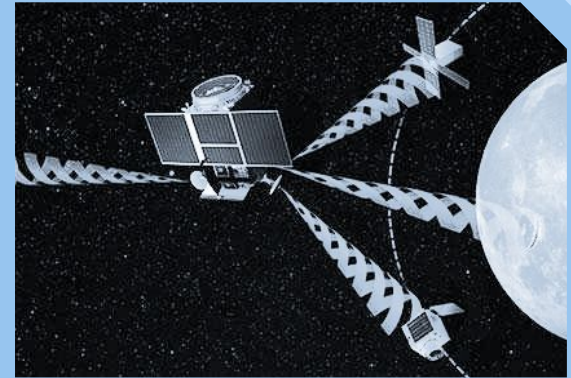
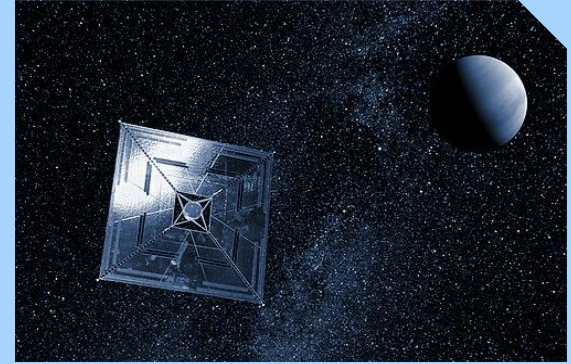
*Platforms Enabling
Persistent Observation*

*Ability to Reach and
Maintain Positions Other
Satellites Cannot*

Continuous Coverage Layers

The Product: Statites for Cislunar Object Tracking

- **Statites:** *Satellites that use solar sails to modify their orbits and/or hover at positions in space that would be unreachable in traditional orbits*
- **Deployment:** *Statites are assembled in LEO, before transitioning to operational positions in cislunar space*
- **Coverage Geometry:** *Each statite covers a different region in cislunar space. Together, their coverage regions overlap, eliminating gaps and enabling continuous visibility and tracking capability*



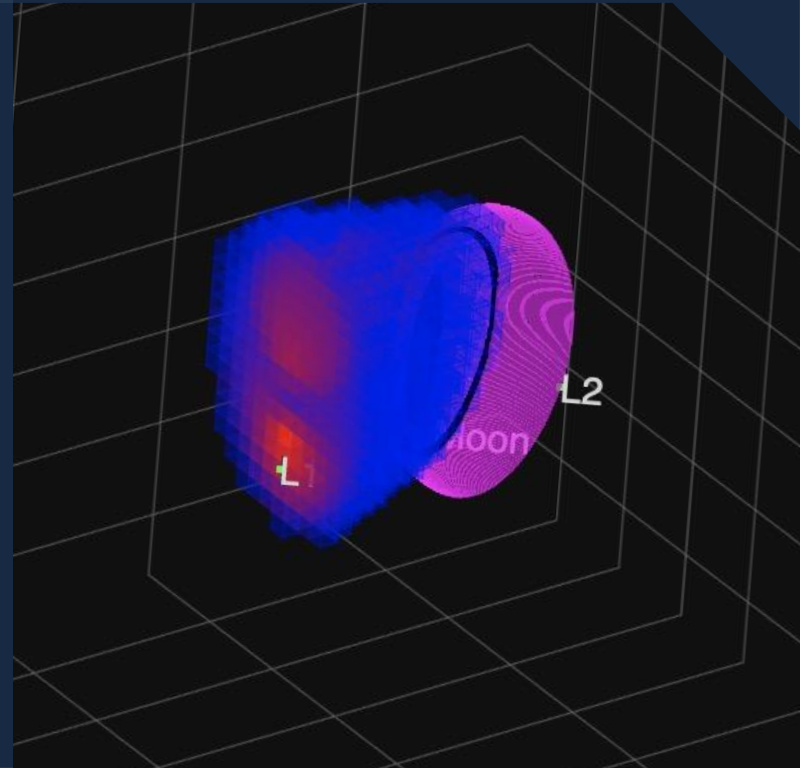
Current Progress On Development

Pictured Below: Simulation of the Ability of a Satellite in an Earth-Moon CR3BP Orbit to Observe Different Parts of Cislunar Space

Simulated coverage capabilities of satellites in different orbital regimes, to validate effectiveness of such systems in observing cislunar space. Early simulations have shown that satellites in **Earth-Moon CR3BP orbits provide low rates of coverage**, reinforcing need for alternate trajectories.

Expanding simulation framework to evaluate coverage and trajectory feasibility for other orbital families and statite-based platforms across cislunar space.

Developed and evaluated multiple solar sail geometries to optimize area-to-mass ratio, identifying several promising configurations. Will further optimize sail designs for packing efficiency and deployment complexity, and extend simulations to integrated system-level validation.



Market Analysis

Current Contracts & Commitments

NASA - 20 Billion to Lunar Infrastructure Over Seven Years

US Space Force - 1.8 Billion for Andromeda IDIQ Contracts

Shifts and Evolutions in Existing Market

Public and Private Actors are Shifting Space Activity & Development to the Moon and Cislunar Space

Existing Space Awareness Systems Currently Optimized For Earth Orbit

Emerging Demand in Current Market

Cislunar SDA represents an emerging market driven by growing lunar infrastructure and traffic

Both state and private actors are expected to meaningfully ramp up lunar operations over the next decade, driving CSDA demand

Primary Revenue Streams

Non-dilutive funding through SBIR/STTR contracts and government-backed research initiatives supporting research into solar sailing and cislunar SDA development

Revenue generated from contracts for providing tracking and monitoring services to both government agencies and commercial operators

Licensing orbital tracking and observational datasets and analytics to third parties with interest in raw and derived data presents another revenue stream

Market Validation & Traction

- Initial customer discovery with officials from the DoD confirmed growing strategic interest in CSDA amid concerns with adversary satellite operations expanding into the cislunar region
- Additional discussions with officials from NASA and the Office of Space Commerce confirmed a growing need for tracking infrastructure as congestion in cislunar space continues to rise



The Competition and Why They Cannot Address This Challenge Effectively

Ground Stations

Coverage is intermittent due to occlusion and quality is poor due to Earth-Moon distance

Satellite Networks

Launching objects into cislunar space is expensive, and large-scale networks are required for sufficient coverage

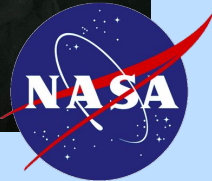
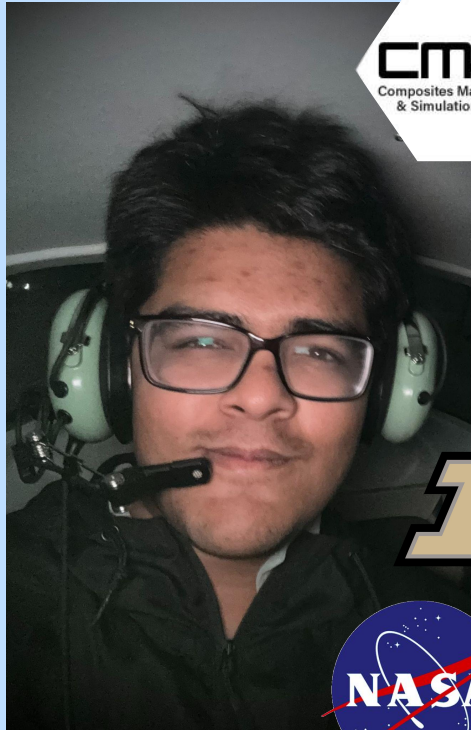
Private SDA Providers

ExoAnalytic, Turion Space, and others provide tracking capabilities but are largely Earth-focused and not built for cislunar space

Why Statites Can Tackle It

Statite technology enables observation platforms to hold positions that allow them to consistently view and track large swathes of cislunar space at a time with minimal downtime or need for replacement and maintenance

Why Me?

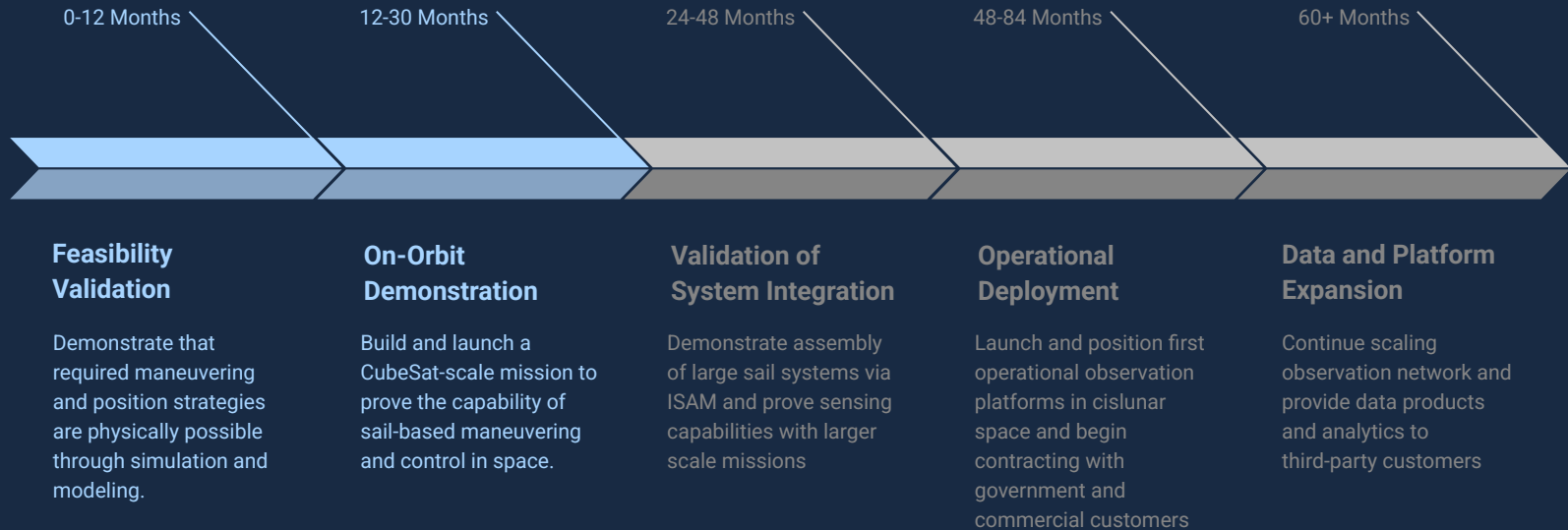


Execution Experience: Built propulsion testing infrastructure, led rapid prototyping for modular payload drop systems, coordinated flight tests for validating efficacy of UAS subsystems.

Domain Background: Implemented large-scale data systems for astrochemistry experiments at NASA Ames Research Center. Supported aerospace composites research at CMSC. Currently working under academic mentorship of Purdue professors on solar sail geometry.

Founder-Market Fit: My background in aerospace systems and simulations, as well as my experience in rapid prototyping and full-stack development of engineering systems, makes me uniquely well-equipped to tackle the challenge of persistent coverage gaps in cislunar space.

Roadmap



Funding Ask & Capital Usage

01	Simulation and Compute	• \$10k - \$15k
02	Sail Prototyping	• \$15k - \$30k
03	Electronics and Controls	• \$35k - \$50k
04	Deployment Mechanisms	• \$30k - \$40k
05	R&D Buffer	• \$60k - \$75k
06	Founder Runway	• \$50k - \$60k

Raising \$200k-\$270k to validate system design and readiness for CubeSat demonstration

Questions and Discussion