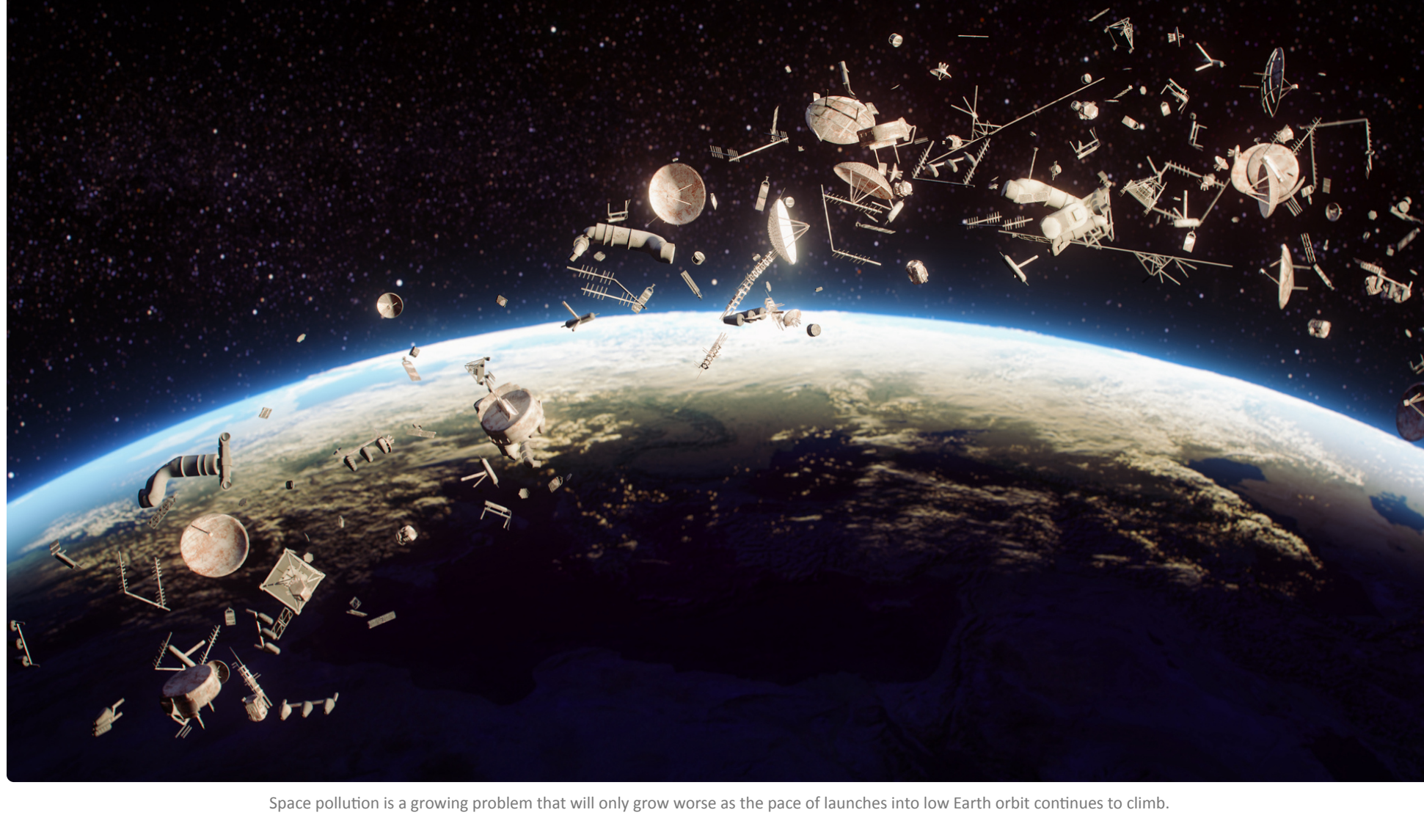


Creating sustainable space means we must all be space stewards



Alex Miller 3 minutes

Space Sustainability



Space pollution is a growing problem that will only grow worse as the pace of launches into low Earth orbit continues to climb.



First we must ask ‘how much space is in space?’

The cost of launching satellites has dropped dramatically, crowding in low Earth orbit (LEO) has risen exponentially and the risk of collisions between spacecraft that result in destructive orbital debris is significantly higher.

A critical first step to solving the potential collision problem in space is identifying the orbital carrying capacity in space — a measure of the mass of a satellite multiplied by a satellite’s surface area (or cross-sectional area) times the number of objects in space — among other factors.

E-Space is driving an effort to determine *how much space is in space*, because the company believes that simply maneuvering a satellite out of the way is not responsible enough.

If we don’t save space, who will?

E-Space is committed to keeping space clean for generations to come. The company is driving the space industry toward a safer overall space system design and standard, building sustainability into its core space architecture.

As spacecraft get larger with bigger cross-sections, the probability of collision increases dramatically. This lack of concern about size needs to be addressed.

That’s why E-Space is intentionally designing its satellites based on a set of clearly defined tenets to create the most sustainable satellite constellation in space, including small cross-sectional area, low-mass spacecraft that fail safely and demise fully with no component release.

Six tenets of responsible spacecraft design

- 1. Fail safe:** If a satellite fails, it will automatically de-orbit itself rather than remain in orbit as debris until its orbit degrades naturally. The E-Space satellites will de-orbit very quickly, lessening the time they’re in orbit in the event of failure.
- 2. 100% demise:** E-Space satellites are significantly lighter and use much less metal than traditionally built satellites. This allows them to burn up completely upon re-entry and avoid instances of material falling to Earth.
- 3. Small cross-section:** E-Space is creating satellites whose profile is such that only a small section is exposed to the orbital path where debris may fly.
- 4. Low mass:** Even compared to many of the small satellites in LEO, E-Space satellites feature very low-mass construction. This highly efficient design helps them avoid collision with less of an impact if another object does collide with one of them.
- 5. No component release:** E-Space satellites have fewer parts, making them much less likely to release components in the unlikely event of a collision, which further minimizes creating more orbital debris.
- 6. Entrain and de-orbit:** In the event of collision, E-Space is investing in technology to eventually capture components from the other object and then sacrificially de-orbit.

E-Space satellites are 30-640x more resilient in space

E-Space believes all satellite players need to start adjusting how they build their spacecraft to start reducing the probability of catastrophic collision events. For E-Space, some of these new approaches include:

- The ability to operate in high-debris environments;
- A space system up to two orders of magnitude more sustainable as compared to existing LEO networks; and
- Lower mass spacecraft ensures destruction of any single satellite will not impact other satellites or lead to collisional cascading.

Space is a common resource that has been degraded in much the same ways the Earth environment has been. But it’s not too late to start turning the tide, and it all begins with following and regulating a more sustainable approach to how we use the heavens to enhance life here on Earth.

Alex Miller

Alex Miller leads editorial at E-Space. Based in Denver, he’s a longtime journalist who’s been involved with the satellite industry for over a decade.

Connect on LinkedIn
All author’s articles

You may also like

“E-Space is the most dynamic environment I’ve been in, and I’m having the most fun I’ve had at a company in a while.”

David Levitt | Program Manager

E-Stories Sep 28, 2023 3 Minutes

Meet Team E-Space: David Levitt

Alex Miller

SAT Chat With Team E-Space

William Ricard | Director of Strategy and Product

E-Stories Sep 28, 2023 5 minutes

Preparing for commercial service

E-Space E-Space

E-Stories Sep 28, 2023 3 Minutes

Hyper-scale IoT is E-Space’s game-changing approach to global sensor coverage

E-Space E-Space

E-Stories Sep 26, 2023 3 minutes

E-Space aims to be the ESG partner to the planet

E-Space E-Space

“We’re focused on establishing proper orbital resources and building the company’s presence as a global space operator.”

Ethan Lavan | Director of Regulatory Market Access | Europe

E-Stories Sep 26, 2023 3 Minutes

Meet Team E-Space: Ethan Lavan

Alex Miller

“I’ve learned a lot at E-Space, and from the standpoint of the things I’ve always wanted to do, it’s just been a great experience.”

Prithvi Sathiya | Satellite Development Engineer

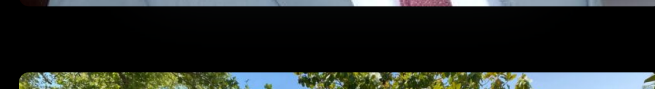
E-Stories Sep 25, 2023 2 Minutes

Meet Team E-Space: Prithvi Sathiya

Alex Miller

[← Back to topic](#)

E-Stories



Become an E-Space Insider to receive the latest news and updates right to your inbox.

Subscribe

Navigation

- [Home](#)
- [About](#)
- [Industries](#)
- [Careers](#)
- [News Hub](#)
- [Contact](#)