



Where I work Julián Fernández Barcelona

Photographed for *Nature* by
Guillermo Gutierrez Carrascal.

Since I was around 12, I've been interested in technology and have sought opportunities to work with hardware. I developed this interest both at and outside of school.

I became fascinated by the Internet of Things: the devices, machines and objects that exchange data over the Internet and other communications networks. Later, I developed an interest in using satellites to increase connectivity where there are no mobile networks. I thought that if a way could be found to build and launch satellites cheaply, then communications could be made more affordable. When I was 15, I posted on the online forum Reddit expressing my interest in pursuing this interest.

Through Reddit, I met like-minded people, and in 2018, a group of us formed a non-profit organization and started making satellites. We launched our first orbiting picosatellite, Fossa Sat 1, in December 2019. Weighing just 250 grams, it was essentially a mobile-phone tower for space. After that, we became a commercial company – Fossa Systems in Madrid. Our customers so far

have been in industries such as agriculture, and include logistics companies that transport goods across oceans. These are areas in which asset data, such as the GPS location of a cow or the temperature of a shipping container, need to be exchanged reliably, so that companies can monitor their productivity in remote locations.

I'm now 19, and our first 13 commercial satellites were launched this year. We aim to have 80 small satellites launched by 2024. We sell these to businesses for roughly US\$100,000 – an order of magnitude cheaper than market prices. Because our satellites are deployed in very low Earth orbits, they fall back through the atmosphere every 2–3 years, rather than staying in orbit and generating space debris.

In this image, I'm conducting tests on a satellite solar panel. Our objective in the next five years is to make space-enabled connectivity accessible to everyone.

Julián Fernández Barcelona is the co-founder of Fossa Systems in Madrid. **Interview by Virginia Gewin.**