

Seeking an end to cosmic loneliness: Inside the quest to find out if humans are the only intelligent life in the universe

We're now getting closer than ever before to learning how common living worlds like ours actually are. New tools, including machine learning and artificial intelligence, could help scientists look past their preconceived notions of what constitutes life. Future instruments will sniff the atmospheres of distant planets and scan samples from our local solar system to see if they contain telltale chemicals in the right proportions for organisms to prosper.

"I think within our lifetime we will be able to do it," says Ravi Kopparapu, a planetary scientist at NASA's Goddard Space Flight Center in Maryland. "We will be able to know if there is life on other planets."

Follow the latest news and policy debates on sustainable agriculture, biomedicine, and other 'disruptive' innovations. Subscribe to our newsletter.

[SIGN UP](#)

At the Zwicky Transient Facility near San Diego, California, which continuously searches the entire night sky for brief flashes of light coming from unknown sources, engineers are teaching artificial intelligence how to identify features that would not be expected from natural phenomena. "It's at that point that we can start asking questions," says Ashish Mahabal, an astronomer and data scientist at Caltech. The answers to such questions could help reveal novel astronomical events or, just maybe, a star surrounded by enormous solar panels that feed an energy-intensive alien society.

[**This is an excerpt. Read the full article here**](#)