



INVESTOR'S BUSINESS DAILY[®]

New to Investors.com? [Start here!](#)

LEADERS & SUCCESS

Physicist Avi Loeb Prepped His Whole Life To Find What's Beyond Earth



Avi Loeb, 62, is searching the world over for signs of life outside Earth. (Avi Loeb)



CURT SCHLEIER | 07:00 AM ET 02/01/2024

One of the most controversial scientists in the world, Avi Loeb, started his life on a family pecan farm in Israel. And some of his theories might sound nuts.



Loeb is raising the hackles of many fellow astrophysicists by suggesting the "X-Files" might be right: The truth (and extraterrestrials) are out there. But this theory goes to the heart of how Loeb thinks. He's looking for breakthroughs in understanding, not just incremental discoveries. And he has the **training to back it up**. Loeb is a longtime professor of astrophysics at Harvard — where he served as department chair for three three-year terms.

He is also the author of the bestseller, "Extraterrestrial: The First Signs of Intelligent Life Beyond Earth" and his recent follow-up, "Interstellar: The Search for Extraterrestrial Life and our Future in the Stars."

Loeb's career was not, however, written in the stars.

Find Topics That Fascinate You Like Avi Loeb

Growing up, Loeb, 62, seemed more interested in philosophy than the solar system. As a teenager, he'd accompany his mother, who was completing her undergraduate studies, at her philosophy classes.

The family raised chickens. One of Loeb's daily chores was to collect eggs. On weekends, he told Investor's Business Daily, he'd drive a tractor into the hills and spend hours reading existential philosophers.

But Loeb's early ambitions to become a philosophy professor were derailed during his mandatory military service. Because of his good grades in physics, he was placed in a new program. The program selected about two dozen or so intellectually gifted students each year to do defense-related research. The military put Loeb through school with a major in physics all the way through his PhD. After graduation, he performed his mandatory two years of military service, in part doing research on a project funded by President Ronald Reagan's Strategic Defense Initiative.

But he kept looking for how he'd make his **mark on science**.

Loeb: Take Risks

Another oddity would further frame Loeb's career. On a trip to the United States, Loeb visited the Institute for Advanced Studies (IAS) in Princeton University. Loeb knew IAS offered one of the world's most prestigious postdoctoral fellowships. While there, he met several faculty members who, after checking into his bona fides, offered him a five-year position. There was one condition. He must switch his academic focus from physics to astrophysics.

It was a risky offer, Loeb says. He doubts he would make for a good **young candidate today**. "I had to learn everything back then from scratch. I did not even know what caused the sun to shine," he said.

But he came to realize "that this arranged marriage was my old love dressed up in different clothes. I figured that astronomy addresses questions that previously were in the realm of philosophy, such as 'how did the universe start?' and 'what is the origin of life?' So I actually have the privilege of addressing philosophical questions using modern scientific means," he said.

This duality, Loeb feels, has advantages. "Being a theorist rather than an observer makes me less vulnerable to outside circumstances that are beyond my control, such as bad weather, allocation of observation time on telescopes or long delays in the construction of suitable instruments. Instead I can wake up in the morning with an inspiration for an idea that was never considered before and flesh it out to a full paper the same day."

Advance Your Knowledge

In 2003, Loeb applied for a position at Harvard. He got it when another applicant turned the job down — because the university was notoriously slow handing out tenure. That didn't bother the new assistant professor in the astronomy department. "I accepted, because in the case of not receiving tenure I could always go back to my father's farm. After all, I had been used to collecting eggs every afternoon growing up as a child."

Not to worry. Loeb soon made his presence known in the astronomy universe. He's published more than 800 peer-reviewed papers. He was also among the founders of the Event Horizon Telescope. This project initially involved six radio telescopes positioned around the world aimed at the same spot at the exact same time.

Go For Breakthroughs Like Loeb

These radio telescopes aimed at a black hole 26,000 light years from Earth, something so small no single telescope could see it. Yet, in 2019, at simultaneous news conferences around the globe, Loeb and his team of astronomers revealed something no one had ever seen before: the first photograph of a black hole.

Another was photographed three years later, and the next goal is to get a moving image of a black hole.

Smadar Naoz, an assistant professor in the astronomy department at the University of California, Los Angeles, considers it an amazing achievement and only the beginning. "It was an exciting discovery and hopefully the next generation (of radio telescopes) will reveal new understandings of black holes," Naoz said.

Loeb continued his leadership in the area. He's a founding director of the Black Hole Initiative at Harvard. The group of astronomers, physicists, mathematicians and philosophers — a kind of scientific roundtable — meet regular to study black holes.

Aim High Like Loeb Does

At about the same time he started another what some might call pie in the sky effort. It's called Breakthrough Starshot. The goal is to develop a tiny light sail vessel. The vessel will be powered toward the Alpha Centauri system — the planets closest to Earth, but 100 million more times distant than our moon. Powerful laser beams at speeds that could reach one-fifth the speed of light would push the vessel's sail.

"It's just like a bullet and could reach Proxima Centauri in about 20 years" — or within most of our lifetimes, Loeb said. Current propulsion systems would take literally centuries. It sounds crazy, but Loeb contends that none of what he proposes violates basic laws of physics. They, though, do present "technological challenges. We haven't identified any **show stoppers** yet. So we are working on it."

Naoz says: "I think that to achieve new scientific and technological breakthroughs, we need to take a big leap. Even if (Starshot) doesn't work out, we will learn something valuable."

Set Big Goals

In a separate project, Loeb's goal is to flood our planet with an array of telescopes, cameras and audio monitors studying the Earth's atmosphere for anything that moves. Backed by artificial intelligence, it will be able to weed out natural phenomena — birds, balloons, space junk — and point out anomalies.

The starting point for the more recent controversy was Oct. 19, 2017. That's when an observatory in Hawaii spotted a large object about the size of a football field in the sky. There was widespread agreement that the object was interstellar. But Loeb went a step further. "I suggested that it was artificial in nature" — that is crafted by some form of intelligent life.

Subsequently, he and a researcher discovered an earlier interstellar object, called IM1, that crashed into the Pacific Ocean near Papua, New Guinea.

"I said it was worth studying, collecting more evidence about them," Loeb said. "To argue that we are the first technological civilization is arrogant."

Avi Loeb's Keys

- Leader in conducting groundbreaking research into the possibility of extraterrestrial life.
- **Overcame:** Concern his controversial theories could damage his reputation.
- **Lesson:** Follow the evidence: "I'm doing the work of a scientist, following the scientific method, and that's what will guide me. I have no fear for my reputation. It's those people who have a very strong opinion without seeking evidence who should worry about their reputation."

YOU MAY ALSO LIKE:

Meet The Guy Who Runs A Massive \$2.7 Trillion Bond Portfolio

Be Detailed And Targeted To Raise Money

Inspirational Quotes: Columbus Short, Sam Rayburn And Others

IBD Digital: Unlock IBD's Premium Stock Lists, Tools And Analysis Today

MarketSmith: Research, Charts, Data And Coaching All In One Place