AI and space travel

Is AI applicable?

AI can be applied to spaceflight. **AI** can help satellite navigation, and at the current speed that AI is developing at we could do a diverse array of things. According to forbes, **AI** is also used to control the navigation of satellites and other spacecraft. The **AI** is able to look at the patterns of other satellites, planets, and **space** debris. ... These **AI**-enabled systems are able to determine the amount of power and frequencies that are needed to transmit data back to Earth or to other satellites.

Autonomous

We can use the same type of AI that is in autonomous cars to help improve
The safety of rockets. We could use facial recognition to identify potential threats such as asteroids.

Nasa is thinking the same thing

According to Nasa Could the same computer algorithms that teach autonomous cars to drive safely help identify nearby asteroids or discover life in the universe? NASA scientists are trying to figure that out by partnering with pioneers in artificial intelligence (AI) — companies such as Intel, IBM and Google — to apply advanced computer algorithms to problems in space science.
Machine learning is a type of AI. It describes the most widely used algorithms and other tools that allow computers to learn from data in order to make predictions and categorize objects much faster and more accurately than a human being can. Consequently, machine learning is widely used to help technology companies recognize faces in photos or predict what movies people would enjoy. But some scientists see applications far beyond Earth.

Giada Arney, an astrobiologist at NASA's Goddard Space Flight Center in Greenbelt, Maryland, hopes machine learning can help her and her colleagues find a needle of life in a haystack of data that will be collected by future telescopes and observatories such as NASA's James Webb Space Telescope.

“These technologies are very important, especially for big data sets and especially in the exoplanet field,” Arney says. “Because the data we’re going to get from future observations is going to be sparse and noisy. It’s going to be really hard to understand. So using these kinds of tools has so much potential to help us.”

To help scientists like Arney build cutting-edge research tools, NASA’s Frontier Development Lab, or FDL, brings together technology and space innovators for eight weeks every summer to brainstorm and develop computer code. The four-year-old program is a partnership between the SETI Institute and NASA’s Ames Research Center, both based in Silicon Valley where startup-hatching incubators that bring talented people together to accelerate the development of breakthrough technologies are abundant.

In NASA’s version, FDL pairs science and computer engineering early-career doctoral students with experts from the space agency, academia, and some of the world’s biggest technology companies. Partner companies contribute various combinations of hardware, algorithms, super-compute resources, funding, facilities and subject-matter experts. All of the AI techniques developed at FDL will be publicly available, with some already helping identify asteroids, find planets, and predict extreme solar radiation events.

“FDL feels like some really good musicians with different instruments getting together for a jam session in the garage, finding something really cool, and saying, 'Hey we’ve got a band here,’” says Shawn Domagal-Goldman, a NASA Goddard astrobiologist who, together with Arney, mentored an FDL team in 2018. Their team developed a machine learning technique for scientists who aim to study the atmospheres of exoplanets, or planets beyond our solar system.

These Goddard scientists hope to one day use advanced machine learning techniques to quickly interpret data revealing the chemistry of exoplanets based on the wavelengths of light emitted or absorbed by molecules in their atmospheres. Since thousands of exoplanets have been discovered so far, making quick decisions about which ones have the most promising chemistry associated with habitability could help winnow down the candidates to only a few that deserve further, and costly, investigation.

Link to full articlehttps://www.nasa.gov/feature/goddard/2019/nasa-

takes-a-cue-from-silicon-valley-to-hatch-artificial-intelligence-technologies