

## The Wildest Moon Landing Conspiracy Theories, Debunked

Becky Little

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The [Apollo 11 moon landing](#) on July 20, 1969 was one of the most astonishing achievements in human history. That day, an estimated [530 million](#) TV viewers watched U.S. astronauts [Neil Armstrong](#) and [Buzz Aldrin](#) take their [first steps on the moon](#). Afterward, the two men and third crew member Michael Collins flew safely back to Earth and landed in the Pacific Ocean.

Yet just a few years later, some people claimed the “giant leap for mankind” had been faked. Conspiracy theories that the moon landing was actually a hoax that the U.S. government had staged to win the [space race](#) with [the Soviets](#) began to gain traction in the mid-1970s. Although these claims were false and easily debunked, they have persisted to this day.

Most of the deniers’ “proof” is based on perceived anomalies in the images transmitted back to Earth from the moon’s lunar surface. “With few exceptions, the same arguments just keep coming up over and over again,” says [Rick Fienberg](#), the press officer for the American Astronomical Society, who holds a PhD in astronomy. He has some first-hand knowledge of this: nearly 40 years ago, Fienberg debated one of the first prominent moon landing deniers, Bill Kaysing, on TV.

The initial claims the moon landing was staged came at a time when the [Pentagon Papers](#) and [Watergate](#) had [eroded Americans’ trust](#) in their government. But faking the success of the Apollo 11 mission would require deception on a grand scale—and would be practically impossible to pull off, says Fienberg.

“About 400,000 scientists, engineers, technologists, machinists, electricians, worked on the Apollo program,” Fienberg points out. “If in fact the main motivation for believing in the moon hoax that is you don’t trust the government, you don’t trust our leaders, you don’t trust authority, how can you feel that 400,000 people would keep their mouths shut for 50 years? It’s just implausible.”

Here, we break down some of the most enduring conspiracy theories about the moon landing—and why there’s no evidence to support them.

### 1. The moon landing is fake because the American flag looks like it is flapping in the wind.



Buzz Aldrin with the American flag on the moon in 1969.

If you look at the American flag in still pictures from the Apollo 11 mission, it appears to be flapping in the wind. But how can that be, since there’s no wind on the moon?

The simple answer is, it isn’t flapping, Fienberg says. That’s because it isn’t an ordinary flag. If the astronauts had planted a regular flag on the moon, it would’ve hung slack like flags do on Earth when there’s no wind. This wouldn’t make for a very appealing photo, so [NASA](#) designed special flags for astronauts to take with them ([all six Apollo missions](#) that made it to the moon planted an American flag there).

These flags [had a horizontal rod](#) inside to make them stick out from the flagpole. The Apollo 11 astronauts had trouble extending the rod all the way, and in still pictures, this creates a ripple effect that makes the flag look like it’s waving in the wind. In video images of the flag, you can see it only moves while the astronauts are grinding it into the moon’s surface. After the astronauts step away, it stays in the same bent shape because of the partially-extended rod.

### 2. The moon landing is fake because you can’t see the stars.



Aldrin during the Apollo 11 extravehicular activity on the Moon. He has just deployed the Early Apollo Scientific Experiments Package (EASEP) where you can see the Passive Seismic Experiment Package, the Laser Ranging Retro-Reflector and the Lunar Module “Eagle”.

NASA

“One of the first arguments I heard and one of the easiest to debunk...is the fact that there are no stars in the lunar sky,” Fienberg says. Or rather, there are no stars *in the pictures* that Armstrong and Aldrin took on the moon. But if you’ve ever used a camera before, it’s easy to understand why.

“All of the exposures of the astronauts on the moon are daylight exposures,” he explains. “The surface was brightly illuminated [from the sun]. And the astronauts are wearing bright white space suits that are highly reflective.”

The exposure on the astronauts’ cameras was too short to capture the space suits and the moon’s surface while also capturing the comparatively dimmer stars. The same thing happens if you go onto someone’s back porch at night and turn on the lights. Even though you can see the stars from where you’re standing, a quick-exposure camera won’t be able to capture them.

### 3. The moon landing is fake because the shadows aren’t right.



Aldrin pictured with the Lunar Module “Eagle.”

NASA

In images from the moon landing, it is possible to see certain objects even though they are in shadow. Skeptics argue that if the sun were the only source of light, this wouldn’t be the case.

Therefore, the fact that you can see some objects in shadow must be the result of special [Hollywood](#) lighting.

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The problem with this theory is that although the sun is the main source of illumination on the moon, it isn’t the *only* source of illumination. Another source is the lunar ground, which reflects the sun’s light. In the Apollo 11 pictures, “the sunlight is being scattered or reflected off the ground every which way, and some of it—a small fraction but enough to be able to see—scatters into the shadows,” Fienberg says.

This is why, in some images, you can make out a plaque that Armstrong and Aldrin left on the moon even though it’s lying in shadow.

### 4. The moon landing is fake because you can’t see Armstrong’s camera.



Neil Armstrong took this photograph of Aldrin with a 70mm lunar surface camera.

NASA

In one of the pictures from the moon landing, you can see Armstrong clearly reflected in Aldrin’s visor. Some skeptics have pointed out that Armstrong does not appear to be holding a camera, so someone else must be taking the picture. But that isn’t true.

Armstrong couldn’t walk around the moon with a regular hand-held camera. In his bulky suit, he needed something that was easy to manipulate. The camera he used on the moon was [mounted on the front of his suit](#), which is where his hands are in the reflection.

### 5. The moon landing is fake because Stanley Kubrick filmed it.



American film maker Stanley Kubrick.

Evening Standard/Getty Images

Director [Stanley Kubrick’s](#) film [2001: A Space Odyssey](#) wowed audiences in 1968 for creating a realistic image of outer space. It was so compelling that some conspiracy theorists later wondered if the government had actually hired Kubrick to film the moon landing in a soundstage (possibly like the one [James Bond ran through](#) in the 1971 film *Diamonds Are Forever*).

The thing is, the moon landing footage didn’t look real because Kubrick filmed it—Kubrick’s movie *2001* looked real because Kubrick [enlisted astronomical artists and aerospace engineers](#) to help him with it. The only “evidence” that Kubrick filmed the moon landing has itself [proved to be a hoax](#).

Denial of America’s great progress in space exploration and belief in these myths is “more of an ideological thing—a political thing—than it is a scientific thing,” Fienberg notes.

To those who know the moon landing was real, [conspiracy theories](#) that it was a hoax may seem silly and innocuous. But their consequences aren’t: they spread misinformation, make people susceptible to other false theories and could earn you [a punch from Buzz Aldrin](#).