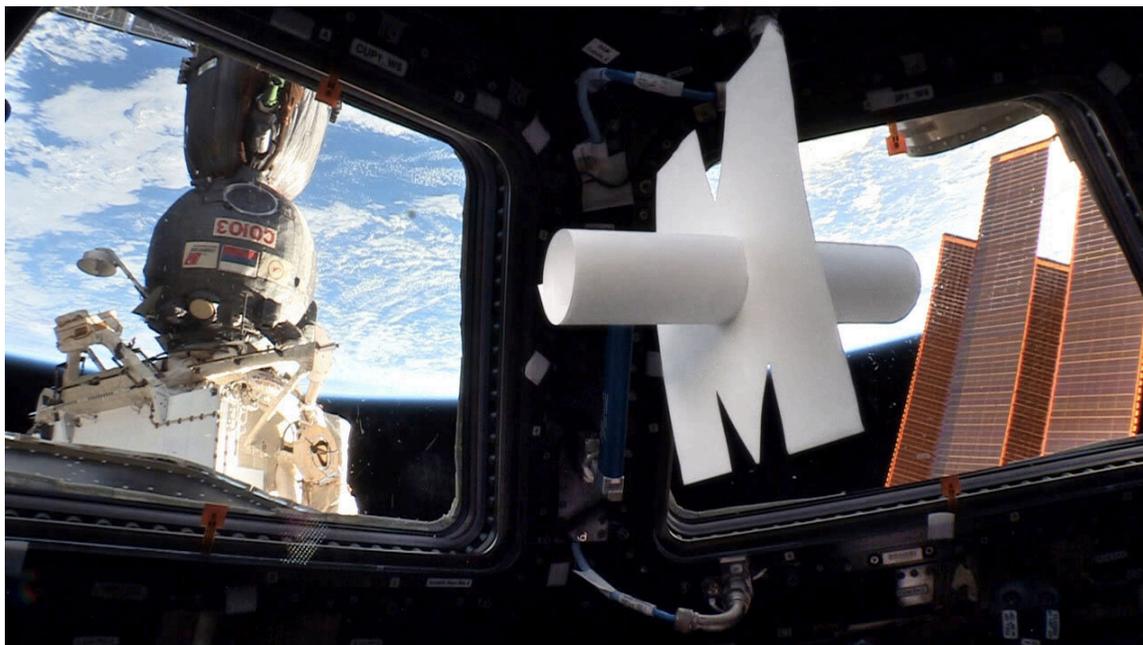


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A Space Odyssey: Making Art Up There

By FRANK ROSE | MARCH 23, 2017



If you're an astronaut aboard the International Space Station, you spend much of your time running science experiments. Among the jobs for Thomas Pesquet, a 39-year-old Frenchman currently there on a six-month stint: using virtual reality to gauge the effects of zero gravity on his hand-eye coordination, trying out a suit designed to keep weightlessness from stretching out his spine, analyzing the microbes in his water and directing a robot in the Netherlands from about 240 miles up. In his spare time, he posts photos on Twitter and Instagram of what's passing beneath him: Mount Etna erupting, the artificial islands of Dubai, the Australian Outback, the entire country of Denmark.

Last month, however, there was a more unusual item on Mr. Pesquet's agenda. Working with the earthbound artist Eduardo Kac, he created an artwork in space. It was a simple piece: nothing more than could be done with two sheets of paper and a pair of scissors. "Since the goal was to be born in space, it had to be created with materials that were already in the space station," Mr. Kac (pronounced katz) explained in a telephone interview from his home in suburban Oak Park, Ill. Transporting art materials by rocket ship was not in the plan.

The artwork — a piece of paper cut into an M, and another piece of paper rolled into a tube and stuck through the middle of the M — might look a bit silly

on [Earth](#), where gravity would accentuate its flimsiness. But floating weightlessly in the space station, it looks fragile, even magical — not unlike the planet beyond.

Viewed with a certain amount of imagination, the paper construction can be said to spell “moi.” Mr. Kac, a [professor](#) of art and technology at the School of the Art Institute of Chicago, means this not as an individual “me” but in the collective sense: His “moi” stands for all of us. The piece itself is called “Inner Telescope,” for reasons that become clear only when you look through the O formed by the paper tube and view a tiny portion of Earth. “We point a telescope to the stars,” he said. “But this is a telescope that from the stars we point to ourselves.”

Mr. Kac’s artwork was made possible by the [Space Observatory](#), an office of France’s National Center for Space Studies that focuses on the cultural aspect of space exploration. Beginning Friday, March 24, the observatory is hosting its [annual celebration](#) of art and space at the center’s headquarters in central Paris, just opposite Les Halles. Among the participants will be Mr. Kac, who will show a 12-minute art video of the paper cutout being assembled and floating through the space station.

“It’s a simple, powerful work, evocative of language and poetry,” Gérard Azoulay, the director of the Space Observatory, said by email in French. The contrast between the humble materials required to make it and “the ultra-technological context in which it was realized intensifies its emotional power,” he said. “And it’s only meaningful in a state of weightlessness.” Outside the Earth’s gravity, it can move freely, he added.

This is hardly the first time Mr. Kac has done something out of the ordinary. In the 1990s, after graduating from college in his native Rio de Janeiro and earning an M.F.A. at the [Art Institute](#), he made a name for himself as a progenitor of “bio art,” meaning art made with living matter. For his [1999 work “Genesis,”](#) he created a so-called “artist’s gene” by writing a sentence from the Book of Genesis first in the dots and dashes of Morse code and then in the four-letter alphabet of DNA, creating an artificial gene that was subsequently incorporated into bacteria. By shining short-wavelength ultraviolet light on the bacteria, viewers online were able to alter its genetic code. When that was translated back into Morse code and then into English, a mutation occurred in the sentence from the Bible.

The following year, Mr. Kac enlisted scientists at the French National Institute of Agronomic Research to splice a genetic sequence that produces green fluorescent protein into the DNA of an albino rabbit. The result was “[GFP Bunny](#),” a white rabbit that glowed green under blue light. The bunny, also known as Alba, was one of many such lab-generated creatures. Though the process that created her is now widely used in medical research and the scientists whose work made it possible were eventually awarded the [Nobel Prize](#) in Chemistry, the idea that this could be art generated [considerable controversy](#) at the time. Mr. Kac considers the whole thing hypocritical, given that painters have been sealing their canvases with rabbit skin glue for centuries. “Behind every da Vinci, Velázquez, Goya or Picasso,” he said, “there are countless dead rabbits.”



Mr. Kac's focus on transgenics — the transfer of new genes into existing organisms — has long been matched by a fascination with escaping gravity. In 2007, he published "Space Poetry," a manifesto in which he called for writing "that requires and explores weightlessness." In Western languages, he points out, you read from left to right, in others from right to left. But almost universally, you read from top to bottom. As with writing, so with art. "Look at the splatter paintings of Pollock," he said. "The entire history of art has operated under an unspoken guiding force, which is gravity. So I started to ask myself in the '80s, what if we could remove this restraint?"

Other countries, it is safe to say, were not falling all over themselves to support space poetry. But Mr. Azoulay, an astrophysicist at the National Center for Space Studies — known by the French acronym CNES — had founded the Space Observatory in 2000 as a "laboratory of the arts and sciences." The idea, he said, was "to encourage the world of culture to create, in addition to stories of science and history and politics, stories of space."

There is, of course, no shortage of space stories, from H. G. Wells's "The War of the Worlds" (1898) to "Star Wars" (1977) to last year's "[Arrival](#)." But for the most part, Mr. Azoulay said, "directors and screenwriters use their imagination to construct a story and then try to give it credibility by tapping into the available literature in magazines or on the internet, or by interviewing experts," as Ridley Scott did for "The Martian." A film like "[Hidden Figures](#)," based on a little-known, real-life story, is closer to what Mr. Azoulay has in mind.

To that end, he has opened the archives of CNES and even established an artists in residence program. There are 10 or so artists on the roster at the moment. Among them is Bertrand Dezoteux, whose recent video [“Waiting for Mars”](#) used marionettes to portray astronauts who in 2010 and 2011 spent 520 days in an isolation facility in Moscow on a simulated mission to [Mars](#), and the novelist [Christine Montalbetti](#), who published a book last fall about [Sandra Magnus, a NASA astronaut](#) who was on the final mission of the United States [space shuttle](#) program.

It was as an artist in residence several years ago that Mr. Kac started developing “Inner Telescope.” To him, a key aspect of the project is “how this work speaks to a future that has yet to be invented” — 30 years from now, when space travel could be as common as air travel is today, he said.

What will this future be like? “Imagine we find ourselves floating — it’s going to be an amazing sensation. Looking at the Earth will be amazing. But by the third day, you’re going to start asking other kinds of questions. I wonder, what can you do in space that you cannot do on Earth? What would space cuisine be like? What would space theater be like? What would space poetry be like, in terms of developing something that is truly unique to that environment? Because now we’re talking about the cultural dimension of space in a different sense” — not how space affects culture on Earth, but how culture will evolve in space.

At 55, Mr. Kac is unlikely to go to space himself, and when he started talking with Mr. Azoulay, it was anyone’s guess when another French astronaut would go. Mr. Pesquet had long dreamed of space travel, but at the time he was an airline pilot, flying the Airbus A320 passenger jet for Air France. In 2009, however, he was selected for the European Space Agency’s training program, and in 2014 he was assigned to a mission on the International Space Station. Mr. Kac was introduced to him a year later at the Paris Air Show. In 2016, they met again to rehearse the operation — how to cut the paper, how to record the experience on video — at the European Astronaut Center outside Cologne, Germany. “I trained him,” Mr. Kac said, “and he trained me.”

Mr. Pesquet — who jogs, sails, skis, plays basketball and squash, enjoys mountain biking and has a black belt in judo — is clearly more jock than artist, though he does play the saxophone. Still, he has taken to the “Inner Telescope” project with evident enthusiasm. In November, shortly before blasting off on a Soyuz rocket from [Russia’s Baikonur Cosmodrome](#) on the steppes of Kazakhstan — the only spaceport capable of sending astronauts to the International Space Station — he took a moment to describe his mission for posterity. His choice of words was perhaps inevitable: “It will be a small step for man,” he said, “and a giant leap for art.”