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## For decades, artist Eduardo Kac has been laser-focused on sending hologram project into space



Eduardo Kac, 61, will send his artwork 'Ágora,' a hologram he first created in 1986, on the Deep Space Enterprise mission aboard a United Launch Alliance Vulcan Centaur V spacecraft to be launched by Celestis later this year. Photo courtesy of Eduardo Kac

By Adam Schrader

July 28 (UPI) -- Eduardo Kac has been trying for 37 years to realize his vision for an art project he began when he was just 24 years old -- sending one of his holographic poems, or holopoems as he calls them, into deep space. He will finally have that chance later this year.

Kac, 61, will send his artwork *Ágora*, a hologram he first created in 1986, on the Deep Space Enterprise mission aboard a United Launch Alliance Vulcan Centaur V spacecraft to be [launched by Celestis](#). The company described the mission as a

love letter to science fiction and the first time capsule in space.

"I saw it in deep space. It's how I conceived of it. It made sense to me," Kac said in an interview with UPI. "I'm not a space agency, I don't fly rockets, so it's a very difficult thing to do as a normal person."



Eduardo Kac is pictured working in his holography studio in Rio de Janeiro in 1986. Photo courtesy of Eduardo Kac

Kac said that, over the years, he has been meeting people and seeking out opportunities to send art into space in the hopes of one day seeing this particular work sent out into the universe.

"Through meeting all these different companies, I have been trying to find ways to complete this project. To my credit I don't give up," Kac said.

Other items being sent in the mission -- which the memorial spaceflight company has only said will launch "later this year" - - include samples of human DNA, cremated remains and what the company calls "MindFiles" of more than 200 people.

The remains of those who are being sent into space for posterity include, among others, figures such as Star Trek's

creator [Gene Roddenberry](#) and several original cast members, as well as Apollo astronaut Philip Chapman.

"I'm definitely planning on going to Cape Canaveral, because I want to see this rocket fly. It's going to be a very emotional moment, I am certain," Kac said.

After liftoff from Cape Canaveral in Florida, the spacecraft will "put a lunar lander on course for its rendezvous with the moon" and continue into a heliocentric orbit around the sun, according to the company.



Eduardo Kac's artwork, a hologram titled 'Agora,' will be preserved in a titanium case and launched into space. Photo courtesy of Celestis

### ***Agora* and the meaning behind it**

Kac's art is a hologram, a three-dimensional image formed by the interference of light beams from a laser. If you look at it under a microscope, you can see the interference pattern.

The hologram comes in two forms: the near-microscopic material on which the data is encoded -- the physical object being sent into space -- and the image created when it is illuminated.

"Lasing is a natural property of the universe. You do have parts of the universe that lase naturally. So conceivably, it could be

illuminated using naturally occurring lasers in the universe," Kac said, adding that the hologram is being sent into space in a titanium case to protect it from radiation.

"It's also conceivable that future civilizations that retrieve this work will have lasers."

The hologram specifically shows the Portuguese word "agora" which means "now" when viewed. He called the unique medium "perfect for this particular project."

Kac, whose family originated in Poland, was born in Brazil and has lived in Paris and New York City. He chose the word because of its differing meaning depending on the placement of the accent. The word in Ancient Greek, without the accent, means "a gathering place."

He said the word becomes a form of poetry because of this accent mark, a "tiny little speck that articulates space and time in the work."

"This piece is rather unique in several ways. First, it's an actual object. It's a thing, it's not a digital image, it's not an idea, it's an actual handmade physical, material object," Kac said. "That's important because it's the first time that a physical art object will be in permanent orbit in deep space."

The hologram's image can be propagated to a much larger size than the device where the data is stored. Theoretically, that size is limitless, but at a certain size it would become imperceptible to the human eye and require technology that does not yet exist.

"Dealing with something both small and immense and this contrast between nearly microscopic and beyond the macroscopic is part of the internal aesthetic tension of the work, which is echoed in the work itself," Kac said.

Charles M. Chafer, the chief executive of Celestis and one of its co-founders, told UPI the company is "honored" that Kac

chose to partner with the space company.

"We're honored that a talented and notable artist, Eduardo Kac, selected our Enterprise Flight deep space mission as an interplanetary platform to extend his work into the cosmos," he said.



Celestis 'MindFiles' are seen. Celestis is a memorial spaceflight company and has partnered with artist Eduardo Kac to preserve his art in space. Photo courtesy of Celestis

### **An artist's love for science**

Kac started to create his poetic holograms in 1983 while living in Rio de Janeiro. In 1986, he was living in New York and worked as an artist-in-residence at the Museum of Holography, an institution that had sought to preserve more than 800 holograms.

Over the course of the next decade, Kac created more than 24 holopoems. The museum [closed in 1992](#) citing budget cuts.

His other works are held in prestigious collections, including the Museum of Modern Art in New York and the Tate Modern in London.

As an artist, Kac does make art in traditional media such as drawings with ink on paper, sculptures, lithographs, and silk-screen prints. But he prefers to [experiment with technology](#).

"I have dedicated my life and developed a career working with technology as my medium because technology allows you to work directly in the realm of the real," Kac said. "A painting or drawing is representational, but by working with technology, I can intervene in the physical world and reality in ways that traditional works can't."

In 2017, the artist created an artwork titled *Inner Telescope* in space [onboard the International Space Station](#). Kac partnered with French astronaut Thomas Pesquet, who built the artwork in space from items inside the space station under Kac's direction.

That work, when viewed from one angle, shows the French word "MOI" and from another shows a human figure with its umbilical cord cut. It was produced by the Observatoire de l'Espace, the cultural lab of the French Space Agency, and created with the support of the European Space Agency.

"*Inner Telescope*, the work I did aboard the ISS, that was 10 years of work. That took me the longest to complete," he said. "But *Ágora* definitely will beat them all."

Kac is in the process of creating another work to be displayed on the moon.

"It's almost like I'm collaborating with a young version of myself. My 24-year-old self is saying, 'Thank you for not letting me hang here, not abandoning me and staying with me,'" Kac said.

"Then 61-year-old me is saying, 'Thank you for creating this and not giving up all these years.'"

[^](#) **BACK TO TOP**

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