

ART ON THE MOON, POETRY FOR *HOMO SPACIENS*: AN INTERVIEW WITH EDUARDO KAC ABOUT HIS ARTWORK *ADSUM*

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ABSTRACT

This interview focuses on Eduardo Kac's new artwork-poem *Adsum*, a laser-etched glass sculpture created for the lunar environment. From the work's enigmatic title to its five stages of development involving NASA spacecraft, cosmic tests, as well as micro, human, and cosmic scales, the artist considers the following questions: How do you create a meaningful visual composition at the threshold of visibility? How do you write with symbols in a manner that is not dictated by Earth gravity? How do you consciously forward a message into the future while maintaining the ability to communicate contemporaneously?

KEYWORDS

Eduardo Kac, artwork, lunar environment, *Homo sapiens*

While at first glance the symbols that make up Eduardo Kac's artwork *Adsum* may look like a cryptic code from an intergalactic civilization, closer scrutiny reveals that the message they convey expresses humanity's belonging in and connection to the universe. Simply stated, Kac has created a work for the Moon, a work meant to be at home in the stark environment and on the perennial timescale of our nearest celestial body.

Adsum is Kac's follow-up to his magnum opus *Inner Telescope* (2017), realized aboard the International Space Station (ISS) with the cooperation of the astronaut Thomas Pesquet. Since 2019, Kac has been implementing a multistage effort with the goal of landing *Adsum* on Earth's natural satellite. The first three stages of his project have now been completed.

For the first stage, completed in September 2019, Kac created the *Proof of Concept* version, measuring 10 × 10 × 10 cm (4 × 4 × 4 in.). He then proceeded to miniaturize it, thus producing the *Flight-Ready* version, measuring 1 × 1 × 1 cm (0.4 × 0.4 × 0.4 in.).

In the second stage, on February 19, 2022, Kac flew *Adsum* to the ISS aboard a Cygnus spacecraft, which lifted off on an Antares 230+ rocket from NASA's spaceport on Wallops Island, VA. The physical, three-dimensional *Adsum*, which is made of glass, stayed aboard the ISS for ten months. It returned to Earth safe and sound on January 11, 2023, thus passing the test of its first cosmic excursion.

The third stage was the creation of what he called the *Regex* version—a pared-down interpretation of the four symbols using only the most basic typographic characters—which orbited the Moon in a flash drive aboard the Orion spacecraft launched in November 2022 atop the SLS (Space Launch System), described by NASA as “the world’s most powerful rocket.”

In the fourth stage, projected for 2023, the planar version of *Adsum* literally will arrive at the Moon aboard Intuitive Machines’ Nova-C lander, etched on Galactic Legacy Labs’ virtually indestructible nanofiche disk.

The fifth and final stage of the project is scheduled to take place in 2024, when the glass sculpture itself will fly to the Moon.

With its five phases, Kac’s awe-inspiring *Adsum* intertwines experimental poetry, composed entirely of visual signs, and a *new space* ambition, configuring a one-of-a-kind aesthetic journey predicated on the contrast between the diminutive scale of the work and the boundless expanse of the universe, where even our large planet is nothing but a tiny speck.

Between his trips to Europe and NASA’s spaceport in Virginia, I caught up with the artist as he embarks on the final phases of his project, which will land the actual three-dimensional poem/sculpture *Adsum* on the Moon, aboard a spacecraft. The interview that follows is accompanied by a detailed chronology of *Adsum*’s milestones to date.

Let’s start with the title. Why Adsum?

A popular Latin phrase used in relation to space is “ad astra,” which we already find in Virgil’s *Aeneid*, written between 29 and 19 BCE. The phrase is often taken as a motto, to communicate the vision of human presence and action in space. It is so common that it was even used as the title of a popular film. Think of the *Adsum* title as part of an antiphony: tradition says “ad astra” (“to the stars”); I reply “adsum” (“Here I am”).

What is Adsum about?

The very word “space” evokes the notion of a place. As a counterpoint, *Adsum* focuses on time. In a more general sense, *Adsum* is about our connection to the

universe. In a more specific sense, it is about how time is relative and how we perceive it differently depending on where we are in the cosmos.

Can you give an example?

Sure. Let's use an example close to home. The duration of a lunar day, which corresponds to the time it takes for the Moon to complete one rotation on its axis relative to the Sun, is equivalent to approximately 29 Earth days. If you lived on the Moon, you'd experience daylight for approximately two weeks. Likewise, your lunar night would last approximately two weeks. As a Moon inhabitant, both your notion of and your bodily response to the daily cycle would be different from what we experience on Earth.

Was Adsum conceived specifically for space?

Yes.

In what way?

Adsum is the second work in which I create a nongravotropic composition, i.e., a work that doesn't have top or bottom, left or right, front or back. *Adsum* can be experienced in all directions. The first work is *Inner Telescope*, realized aboard the ISS in 2017, after 10 years as artist-in-residence at the French Space Agency. *Adsum* is an artwork conceived for the Moon; it's poetry for *Homo sapiens*.

Why the Moon?

As I have been pointing out since the mid-1980s, when we create art on Earth, by default, what we actually do, is create art *for the Earth*. This means that we implicitly treat the environmental conditions on our home planet as the baseline of the art system. The entire history of art is predicated on this planet's gravity, on this planet's atmosphere and temperature variations, on this planet's ability to partially shield itself from cosmic radiation. However, we are now in the very early stages of a new cultural phase in humanity's history, known under the name *new space*, in which, relatively speaking, low-cost access to space or spaceflight technologies will assure an increasing and regular presence of diverse, global participants in space activities. As a first step, the Moon will no longer be thought of and treated as the "remotest star" turning "her perfect face/Upon the world below," as once wrote Emily Dickinson. The experience gained there will pave the way for a crewed mission to Mars and, one day, to deep space. This is all to say that, in the decades to come, the Moon will begin to feel much closer than it is now, on all levels: intellectually, emotionally, economically, politically, scientifically, and—it must be affirmed—culturally, artistically, as well. For me, to make art *for the Moon*, to literally have *Adsum* on the Moon, is to expand our understanding of what art

can be, is to contribute to a new phase of cultural exploration, and to express, in a direct, material way, the awe of our position in the Universe.

Your work Inner Telescope (2017) was conceived for zero gravity and in your video we see it floating through the International Space Station. Was Adsum also conceived for zero gravity?

No. *Adsum* was not created for zero gravity because the Moon does have gravity. The Moon's gravity is six times weaker than the Earth's because it is smaller than our home planet. So *Adsum's* mass is the same on Earth and on the Moon; however, its weight is different. *Adsum* weighs 2.5 grams on Earth and 0.41 grams on the Moon. Having said that, I should also point out that *Adsum* was created in an antigravitropic way.

Please clarify.

In the early 1980s, when I invented holopoetry (i.e., holographic poetry), I demonstrated that art and social writing systems are gravitropic; in other words, they follow our perception of gravity, with a clear sense of top and bottom. Since then, I have been developing works in which this traditional principle that has guided our telluric culture from the beginning is not operational. *Adsum* is antigravitropic because it works in every direction.

Why did you laser-etch the four symbols that compose Adsum inside a glass cube?

The poem itself is volumetric and is written in the Z-axis. The cube is transparent, so you can see the symbols from any side. The cubical form is perfect because all sides are the same, suggesting to the viewer that all sides have equal perceptual valence. The cube at once enables, protects, and perpetuates the composition. Further, since the surface of the Moon is visually characterized by circles (craters), a cubical form is a marker of difference. It stands out as a human creation. The cube also resonates with a prevailing image of "building blocks" as a fundamental unit. From a pragmatic perspective, the cube is a very stable and efficient form; because its height is the same in all directions it is less prone to flexural stress (bending), say, than a cylinder. I'm also drawn to the fact that the cube has traditionally represented three-dimensional space, while the content of the symbols is about time. As a whole, the work thus alludes both to space and time.

What's the relationship of Adsum to the Moon?

The first, and possibly the most self-evident aspect, is the scale. At the cost of one million dollars per kilogram to transport an object to the Moon, it was imperative for me to reduce the mass of the object to the highest degree, while still maintaining its ability to be fully seen and directly experienced with the naked eye, without the need of auxiliary devices such as a computer or a microscope.

Adsum measures 1 × 1 × 1 cm and weighs 2.5 grams. How do you produce maximum impact within a minimal volume? How do you create a meaningful visual composition at the threshold of visibility? How do you write with symbols in a manner that is not dictated by Earth gravity? How do you consciously forward your message into the future while maintaining the ability to communicate contemporaneously? The superposition of these formal problems circumscribes *Adsum*'s specific aesthetic realm as an artwork conceived for the Moon.

Let's talk about the different phases of the project. First, you created a large and a small version. Second, you sent the sculpture to the ISS, where it orbited the Earth for months. Third, the typographic version of the work has orbited the Moon. Fourth, you'll land the planar version on the Moon itself etched on a nickel nanofiche. To complete the project, you're preparing to send the Adsum sculpture to the Moon itself. How do these stages connect and structure the work?

These five phases are intertwined in the sense that they pave the road towards my goal of landing the *Adsum* sculpture on the Moon. First, I felt that it was necessary to test the physical integrity of *Adsum* before sending it to the Moon, and there's nothing like having it take off aboard a rocket, dock with and be transferred to the International Space Station, spend time in space, and then make its way back to Earth, to confirm its resilience. The question of temperature is resolved by the data and the issue of radiation is addressed by the fact that *Adsum* will remain protected inside a lander. The flight of the uncrewed Orion spacecraft around the Moon, in which the Regex version of *Adsum* was included, is an event of historical importance, because it served NASA as a test to confirm the feasibility of sending humans to the Moon's orbit aboard the same spacecraft, as part of the Artemis mission. While the Regex version was digitally recorded to travel aboard Orion on a flash drive, I will first reach the Moon with the planar version of *Adsum*, which is analogically engraved on a nickel nanofiche disc. The *Adsum* sculpture is scheduled to fly to the Moon in 2024, which will complete the project. When that happens, there will be two versions of the work on our natural satellite: the planar and the sculptural. Far into the distant future, space archeologists and astro-art historians will find that one will help them understand (and enjoy) the other.

Why is the typographic version of Adsum called "Regex"?

"Regex" is a specialized coding term, a shortening of "regular expression," which stands for patterns used to match character combinations in strings. Regular expression patterns are composed of simple characters, such as `/xyz/`, or a combination of simple and special characters, such as `/xy+z/`, depending on the context. In the case of the regex version of *Adsum*, it is composed of straightforward characters because NASA had specified that it could only contain

letters, numbers, commas, periods, and spaces, and it was with simple characters that I best configured the work's composition to match NASA's regex engine.

What is the difference between the regex and the planar versions of Adsum?

While the regex version is composed of letters only, in which the letters represent the shapes of the four symbols, the planar version on the Moon is a direct reproduction of my original ink drawing, in which I render the shapes of the four symbols directly, as a two-dimensional visual composition.

It seems that there is a dimensional scaling at work here, with the strings of the regex version being one-dimensional, the planar drawing being two-dimensional, and the sculpture being three-dimensional. What's the endgame of this process?

True, the work has versions that manifest themselves in different dimensions. The dimensional transformation of the work will culminate with the dimension of time, when *Adsum* will be surrounded by the vast emptiness of the universe.

The Adsum sculpture is made of glass. Isn't that an odd choice of material for a Moon artwork?

No, not at all. Glass is native to the Moon, i.e., it is formed naturally on the Moon. Lunar dust is mostly made up of very fine particles of silicon dioxide glass. According to NASA, most lunar glassy materials were created by the shock of meteoroid impact on the regolith. NASA believes that lunar green glass, which is seen on the ground, was formed in lava fountain eruptions. Likewise, the orange soil seen on the Moon is composed of volcanic glass. Glass is autochthonous to the Moon.

"They should have sent a poet," said Jodie Foster's character in the 1997 movie Contact. Now they have. Is Adsum a poem or an artwork?

I'm interested in creating liminal works in which the viewer can become a reader and vice versa. If the viewer's sensibility is primarily visual, the form and composition of the work communicate directly. If viewers have a literary sensibility, they can also parse the signs linguistically and apprehend the verbal dimension of the work. The two states coexist in the work.

Will Adsum survive the harsh conditions of the Moon?

Yes, and survivability is another way in which *Adsum* was conceived for the Moon, created for its *genius loci*. The work is made out of borosilicate glass, which is suitable for use from -192°C to $+500^{\circ}\text{C}$. The maximum temperature on the lunar surface is about 130° Celsius (266° Fahrenheit). When the sun goes

down, temperatures can dip to minus 173°C (minus 280°F). In 2024, *Adsum* will be aboard a lander that will touch down at the Lunar south pole, where it's likely to stay for the foreseeable future. Compared to other lunar regions, the environment at this site has a more mild temperature, without the extreme heat of noon or the frigid darkness of midnight. To be precise: at the Lunar south pole the sun is nearly always close to the horizon, creating an average surface temperature between 250 and 270 K (approximately -23°C to -3°C). Unconstrained by convention and protected inside the spacecraft, *Adsum* is an artwork for the ages.

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