

On Space Art

by Xin Liu & Xin Wang

January 19, 2021



Xin Liu, *Orbit Weaver*, 2017. Production still of artist's performance during a parabolic flight. Image courtesy of the artist. Photo by Steve Boxell.

During the prolonged lockdown that defined much of 2020, the Xinjiang-born, New York-based artist and engineer Xin Liu juggled multiple roles. These included participating in a volunteering network that supplied PPE to medical workers in dire need of protection against Covid-19; designing an indie game, *Sleepwalk* (2020), which reflected on the conditions of confinement and hyper-connectivity; engineering a series of hypnotic sound experiences with her partner Gershon Dublon titled *The Wandering Mind* (2020), which guides the dreams of a sleeping audience with source materials organized by an AI system; and live-streaming an ambient soundscape recorded on Whitehead Island, off the coast of Maine, for the Camden International Film Festival.

As the Arts Curator at MIT Media Lab's Space Exploration Initiative and an artist who makes work for exhibition spaces, film festivals, and astronomical conferences, Liu's ongoing fascination with space as a medium and destination for new art has seen her send a wisdom tooth into outer space, cultivate potato seeds that had travelled to the International Space Station, and imagine weightlessness as an intimate, "body-opening" condition. In this interview, we spoke about the past lives and expansive futures of Space Art, her unique mixture of academic and identitarian backgrounds, and the creative strategies of innovation and resistance while working at the juncture of art and technology.

Xin Wang: You've recently been referred to as a "famous space artist" in a panel discussion poster, which suggests that this is a solidified genre.

Xin Liu: It is a genre! If you google "Space Art," there's a Wikipedia page that defines it, though it's very much about visual artists depicting the vision of space exploration, like images of Martian colonies, weightlessness, spaceships, etc. It was also called Astronomical Art, with notable artists such as Chesley Bonestell. These artists really tried to define the aesthetics of space, which even changed the way we would later color actual scientific images captured through different telescopes. Even now, if you look at NASA's art programs, that's still basically the main concept. Slowly it diverged into art in space, or art that uses space and environmental textures for creation, experimentation, and storytelling.

For me, Space Art conceptually connects more to Land Art in the seventies; the questions they were asking—regarding spatial-temporal dimensions and the way we engage with geological transformation—are more related. However, there is this jump in the Space Art medium from astronomical paintings right away to "art in space." It is a gap in our understanding of Space Art; in my position as the Space Art curator at MIT, I have made sure to take into account Land Art, science fiction, and so on, in lectures.

XW: What questions do you want to ask with your Space Art?

XL: First of all, the duality in our perception of the world: being a human being walking, eating, sleeping, drinking, and laughing on this planet; and on the other hand, knowing that we exist on a gigantic rock spinning around another hot rock in endless space. The epistemological jump is exciting but also problematic when we distance one from the other. People talk about science

versus culture as if they are the polar opposites. I'm trying to reconcile the two views of the world and find places to live in-between. My other interest has more to do with the body, our sensations, our death, and the cycles of life and materials.

XW: Your works have always struck me as poetic—you sent one of your wisdom teeth into space in *Living Distance* (2019), which was inspired by childhood folktales and executed with robust engineering. But the whole debate around the idea that culture and science are antithetical has a long history. Susan Sontag wrote about it in the sixties, for example; what are you seeing in terms of new manifestations of, and challenges to, that tension?

XL: The philosopher Yuk Hui has proposed the concept of cosmotechnics, which argues that science and technology aren't objective but are born of human cultures. One of my current projects, *Unearthing Futures*, is a collaboration with the Peruvian artist Lucia Monge, the International Potato Center in Lima, and the International Space Station (ISS). We are interested in potato history as human history; native to Peru, the potato's journey becoming one of the most widely grown crops in the world mirrors colonial history. As we set foot and grow crops beyond the earth bond, one option here is to engineer the perfect potato that survives all conditions, while the other is to trust the possibilities of biodiversity, where a consortium of diverse species that are mutually dependent yields a higher chance of survival in extreme environments. Both are questions of science and technology, but at the same time they reflect philosophies—ones about how we survive.

We selected six varieties of native Peruvian potatoes with different characteristics, sent the potato seeds to the ISS to spend a month in microgravity, and exposed them to environment stressors such as radiation. The project has not grown potatoes in space, but it's a significant step to understanding how environmental stressors affect thesis seeds. Having harvested the first generation in our respective studios, we plan to grow multiple generations and increase the numbers that we can process. Maybe in the fourth or fifth generation we can cook them and use them in workshops that involve the general public (we are working with public elementary schools in Portland) to think about the possibilities of food and agriculture in space exploration. Space potatoes are the protagonists in our stories and would facilitate these dialogues.

XW: When we were reviewing proposals for *Sojourner 2020*, an open call for artworks to be sent into low earth orbit by the MIT Media Lab Space Exploration Initiative, there were equally visible tendencies to flatten the crossover between art and technology into very gimmicky projects. In your position as both curator and artist working in this increasingly hyped juncture of art and tech, what are some of your goals and challenges?

XL: With the dropping costs of space launches and privatization, we are entering the New Space Age. Space Art is truly at the frontier now (no pun intended). There are many amazing art practitioners I've been able to invite to MIT and imagine together what this practice can be. The artist Agnes Meyer-Brandis, for example, created *The Moon Goose Colony*, where she trained geese on planetary science and different flight patterns to prepare them for the Moon. She even

incubated and hatched the eggs herself. In *42-The Large Meteor T-R-A-P* (2014), she uses electronic magnetic devices to guide the movement of meteorites, which can be viewed as a planetary defense system. In fact, the first planetary defense systems launched by NASA (the Double Asteroid Redirection Test) this past year also had to do with devices latching onto the meteorites to change their course of movement. I really like projects that are ambitious, beautifully executed, and which explore scientific possibilities as well as artistic ones. Unapologetically inserting yourself into other domains is also something I'm passionate about.

XW: What are some examples of such insertions?

XL: I recently had a conversation with the researcher Weng Jia, who looked into the detailed history of weather satellites beyond the pragmatics of weather forecast—itsself a form of weather control that generates state power. It's important to understand that history, but at the same time we can ask, as cultural producers, what now? We can either involve public engagement and sign petitions to request open access, or we can learn from the hackers—there are so many amateur enthusiasts who eavesdrop on state-owned radio signals, and through listening we are able to understand so much already. During the pandemic, my partner Gershon Dublon and I have tinkered with software-defined radio. Using just a tiny, 20-dollar USB dongle with an antenna we built from our clothing wires, we could receive the signals from retired National Oceanic and Atmospheric Administration (NOAA) weather satellites as they pass through the sky.

Even before the pandemic, my partner was looking into personal monitoring of air traffic, as most aircrafts have to broadcast their locations after reaching 18,000 ft. This was a fun plane-tracking activity at home. But later on we were put in touch with the Standing Rock Sioux tribe, who were protesting the Dakota Access Pipeline encroaching their territories. They were being illegally harassed and even sprayed with unknown chemicals by aircraft flying over their encampment, but couldn't track the perpetrators. We helped them set up the aforementioned system using a computer, a 20-dollar dongle, and electrical metal wires, with which they were actually able to "see," ID, and track the aircraft. Using that data and US Freedom of Information Act (FOIA) requests, the water protectors were able to pursue their harassers and hold them accountable. Is it art practice? I think it's important and exciting to examine the "wall"; there's no wall that's perfect—there are always cracks. You can find things between the breaks and slowly percolate, and, in a way, take back those powers—I found those processes most exciting.

XW: I think this is a powerful approach that counters the general pessimism towards big tech, technocratic states, and surveillance to the point that people don't even want to think about the possibilities of cracks.

XL: But that's a facade, and I don't know who marvelously crafted it. A lot of these things, such as the radio, are not so complicated. Given a week and the internet, most people can figure it out; it's not rocket science. You know who is most interested in amateur radio nowadays? The fifty-plus generation, sometimes grandpas. There is a big community in Staten Island in New York.

However, in the arts, these systems and disciplines are rendered unfathomable, which prohibits further investigation. That's the problem.

XW: When you were speaking about “the cracks in the wall” earlier, I had a very dark thought—in the future, planetary warfare will look drastically different and be much more deadly than the wars currently taking place on Earth.

XL: Future wars may not be quite so physical as we imagine—the virus is a powerful model for what could happen. It shows how fragile and resilient humans are; cyberattack, trade wars, geoengineering manipulation of nature—these are all struggles on different planetary scales, and we have to constantly self-educate as citizens and decode what the decision makers are actually saying.

XW: You received your undergraduate training at Tsinghua University, which is known for its rigorous focus on scientific training and as a place that has groomed many of China's top technocratic leaders. It's also considered the Chinese counterpart of MIT, where you completed a graduate program. How do those experiences compare and inform your trajectory?

XL: When I was in Tsinghua, I studied mathematics, physics, and mechanical engineering; my degree was in precision instruments. Nowadays I still practice them in my sculpture in its manufacturing and fabricating processes. It's a craft. I later went to Rhode Island School of Design (RISD), not because I wanted to be an artist, but out of a sad realization. In China, we separated art and science education since high school, and my liberal arts education was limited.

It was a selfish desire to study fine arts after college just to become a “complete” human being. I am very grateful that my parents didn't disapprove this decision. At the time I told myself that I'd probably still end up working for Google and Microsoft; I had interned at both places during graduate school, thinking that's how I would make a living eventually. But those two years were transformative and gave me an absolutely new way of looking at the world. Even graduating with an MFA from RISD, I still couldn't commit a hundred percent to being a professional artist, as it is really difficult financially. I'm a practical immigrant. I had to figure out a way to stay in the country and feed myself. Then I went to MIT, because it was fully funded and I had the luxury to do research; after another two years in school, I decided that I wanted to work freely, and “artist” is the title that offers the most freedom.

XW: Do you still believe that?

XL: I do. If you tell people you are an artist, whatever you do doesn't surprise them as much. It's harder to talk about sending a tooth to space as a physicist.

XW: I'm struck by the way you describe gravity as a “momentum of feelings” on your website.

XL: That's something I was thinking about when I first experienced weightlessness in 2017, during a parabolic flight. The plane literally free-falls in the sky, and in reference to the cabin, everything inside the plane is weightless. I had a bit of a performance background in dance. The experience was shocking: there was no "free from gravity"—gravity is always there. It was just everything falling together. The experience was less about me floating or flying than about the ground beneath me dropping. It's not liberating in the way that you are accelerating and going up, which is what we associate with space exploration probably, but rather a kind of letting-go and descending. It was an eye-opening—body-opening—experience for me, and a bitter-sweet moment as well.

XW: Speaking of bodies and embodiment, do you find this excessive attention to—often performances of—an artist's identity shows up more or less or differently for you, given the curious juncture of disciplines and identities you inhabit?

XL: It depends on who is seeing me. The tech aspect of me can seem alarming to people who are used to traditional practices, and in the so-called media/tech/science art world, gender might manifest more. The audience decides who I am. My name reads as gender-neutral in both English and Chinese. Sometimes people assume I'm a man initially, because I'm working with technology; but a bit more engagement with the work might compel one to realize that I could be a woman, because of the way I deal with technology. Still deeper into it, you might realize I'm Asian.

Another interesting aspect comes from the fact that I don't just participate in art events; I also present my works at the International Astronautical Congress (IAC), where it's just pleasing to see my portrait—that of a young Asian woman—next to attendees that are largely from different demographics. And I enjoy that—inserting myself in different systems. It's not just gender, but also geographic. I am an outlier in many ways—I went to a military-affiliated high school, so the instinct to fit in was strong growing up. But here, as people of color and women, we naturally stand out and have more identities. It could be tiring but it's also our power—meaning that we can potentially empathize with more people. People like you and me—when we talk about America in a positive light in China or criticize the Chinese government, we are perceived as brainwashed by Western liberalism; but when we talk about Chinese companies like WeChat positively here, or the effective Covid-19 responses and technological innovations in China, we'd be considered brainwashed in the other direction too.

XW: I always feel that exposure to different systems of brainwash leads to utmost clarity. What do you think the future of space art will be, or what you hope it could be like?

XL: I think it will mature like digital art, bio art, internet art, AR/VR art—all these sub-domains. I read extensively on space policies, which obviously figure prominently on many nation states' agendas. At the IAC conference in 2020, eight national space agencies just signed the Artemis Accords, which is an international agreement on the principles for corporations and civil explorations for the moon, Mars, comets, and asteroids. Particularly notable is the encouragement and protection for private entities to participate in the future of space

exploration, and its effect on commercial activities will be significant; even the ISS is going through a commercialization process already. Space will become more commercial and privatized; it will engender more conversations and force us to be involved and investigate the industry.

XW: What's your favorite Space Art piece?

XL: I was struck by Ilya Kabakov's *The Man Who Flew Into Space From His Apartment* (1985) when I first knew about it. I have been (and am still) confined in my apartment due to the pandemic. It is the absolute desire to break the ceiling and get out. Though both are heading towards outer space, the Soviet campaign in space exploration and a personal desire to leave, to be free, cannot be more different. In fact, one is defeating the other.

ABOUT THE AUTHOR

Xin Liu (b. 1991, Xinjiang/China) is an artist and engineer. She is the Arts Curator in the Space Exploration Initiative in MIT Media Lab, a member of New INC in New Museum, and a studio resident in Queens Museum. She is also an artist-in-residence in SETI Institute and the recipient of numerous awards and residencies.

Xin Wang is a curator and art historian based in New York. She is currently planning an exhibition that explores Asian Futurisms for The Museum of Chinese in America, New York. While pursuing her PhD in art history at the Institute of Fine Arts, New York University, she's also been conducting a series of public zoom webinars on topics of technology, new media, and Asian American perspectives for the Whitney Museum of American Art since spring 2020.