Frank Popper

Eduardo Kac: From Telepresence to Transgenic Art

Eduardo Kac's dialogical approach to artmaking is evident in both his telepresence and transgenic artworks. In 1986, several years before the full advent of the Internet, Kac first proposed the term "telepresence art", which can be defined as the coupling of telecommunications and telerobotics – that is, the projection of one's sense of presence to a remote space. Telepresence art can also be defined as remote agency – that is, the ability to affect a remote physical space through the network.

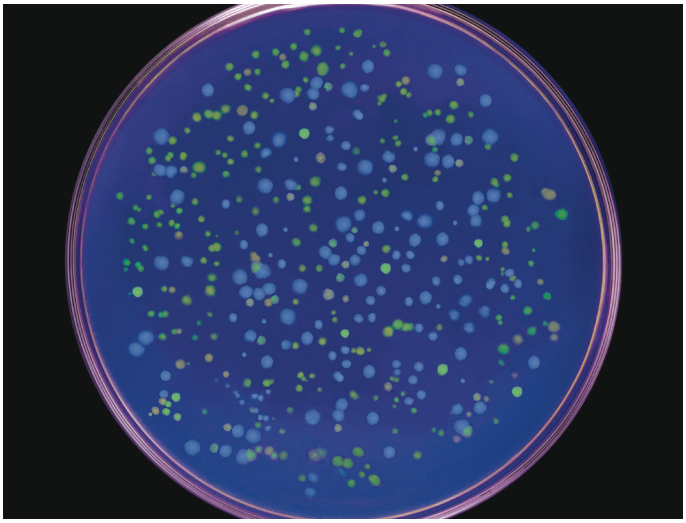
Besides simply coining the term, however, Kac was also a pioneer of this art form. His telepresence artwork *The Ornitorrinco Project* was continously developed between 1989 and 1996. *Ornitorrinco*, which means platypus in Portuguese, is Kac's name for both a series of telepresence artworks and the telerobot used to realize them. This noun was chosen as the robot's name because of the unique nature of the platypus, which is popularly thought of as a hybrid of bird and mammal. Kac's objective was to imply a kinship between the organic (animal) and the inorganic (telerobot).

Ornitorrinco events always involved at least two locations that were geographically remote from each other. The events also implicated one or more members of the public, who found themselves in the body of the telerobot, and through it navigated in a remote location by pressing keys on a telephone keypad and receiving visual feedback in the form of still or moving images on a computer or video monitor. The first international *Ornitorrinco* event linked Chicago and Rio de Janeiro in 1990; another, *Ornitorrinco in Eden*, connected the Internet to physical spaces in Seattle, Chicago, and Lexington, linking these three nodes of active participation with multiple nodes of observation worldwide. Other important telepresence artworks by Kac include *Rara Avis* (1996) and *Uirapuru* (1996-99), which received an award at the Inter-Communication Center Biennial, Tokyo, that year.

Transgenic art is an art form based on the use of genetic engineering to create unique living beings. Kac is conscious of the fact that this must be done with great care, with an acknowledgment of the complex issues raised, and, above all, with a commitment to respect, nurture, and love the life thus created. In the case of his *GFP Bunny* (2000), Kac insists that the formal and genetic uniqueness of the animal (the green-glowing rabbit named Alba) is not the only component of the artwork; the artwork also includes at its core the social presence of the bunny, and the multiple dialogues and debates it engenders.

Kac is an artist whose works deal with issues ranging from the mythopoetics of online experience to the cultural impact of biotechnology, from the changing condition of memory in the digital age to distributed collective agency, from the problematic notion of the "exotic" to the creation of life and evolution.

In 1980, after creating a performance group focused on public interventions that undertook regular performances on beaches,



Genesis (1999)

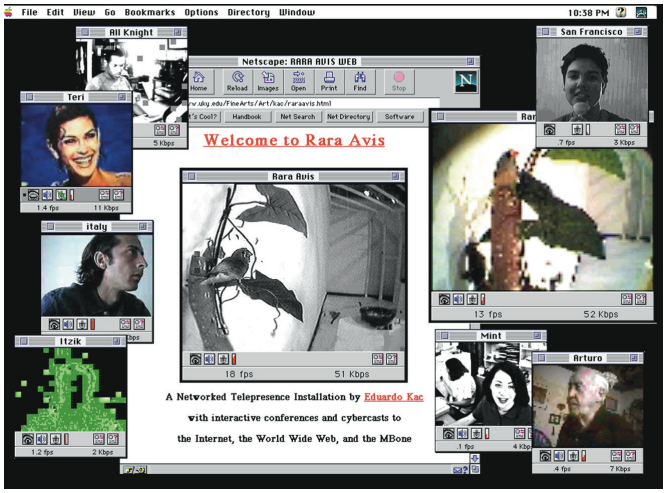
Uirapuru (1996)

in squares and on television, as well as in theaters, Kac conducted experiments with multiple media and processes, including graffiti, photography, and visual poetry. This led in 1983 to his invention of holopoetry. Kac's holographic poems are essentially holograms that address language both as material and subject matter. These holograms do not rest quietly on the surface. When the viewer starts to look for words and their links, the texts transform themselves, change in color and meaning, coalesce and disappear.

From 1994 onward, Kac expanded telematic art into the biological domain, creating an art form that he calls biotelematics. His first biotelematic work was *Essay Concerning Human Understanding* (1994). This was followed by *Teleporting an Unknown State* (1994), a classic telematic artwork, and *Time Capsule* (1997). This latter work required considerable courage, since the artist implanted in himself, subcutaneously into his left ankle, a microchip with a programmed identification number, at an exhibition that took place in São Paulo, Brazil. Kac placed his leg into a scanning apparatus, and Internet participants activated the scanner by clicking in their browser. In other words, Kac's ankle was scanned through the Web. He subsequently registered himself with a Web-based animal identification database, originally designed for the recovery of lost animals. It was the first time a human was implanted with a microchip, and the first time a human was added to the animal database – Kac registered himself as both an animal and its owner. The event was shown live on television in Brazil and on the Web.

In 1997, Kac created the term "Biorobotics" in the context of the artwork *A-positive*. Biorobotics proposes that in the future, robots will have biological elements inside their bodies in order to perform specific functions. This project was followed one year later by the coining of the phrase "transgenic art." In 1999, Kac first presented his transgenic artwork *Genesis* at Ars Electronica in Linz, Austria. This work explores a synthetic gene created by translating a sentence from the biblical book of Genesis into DNA base pairs. The biblical sentence reads: "Let man have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moves upon the earth." On the Internet, participants could mutate bacteria that contained the gene, thus changing the meaning of the biblical sentence.

The next year, Kac created the revolutionary transgenic artwork *GFP Bunny*. A strong biological commitment is at the heart of this work. The green fluorescent protein (GFP) rabbit, named Alba, was created in 2000 with EFGP, an enhanced version of the original wild-type green fluorescent gene found in the jellyfish Aequorea victoria. The *GFP Bunny* artwork also includes an ongoing dialogue between



Rara Avis (1996)

GFP Bunny (2000)

philosophers, scientists, lawyers, and others – debates about concepts such as normalcy, purity, and the social integration of the rabbit through the *Free Alba!* campaign (which included photographs, T-shirts and an Alba flag, among other items). Although this work can be seen as belonging to a long historical current that seeks to merge art and life, a more precise connotation situates it as an event founded on biological factors.

Kac's transgenic artwork *The Eighth Day* (2001) provides the public with the unique opportunity to experience a spectacular ecology of glowing green creatures, and thus to critically reflect on the social and cultural implications of biotechnology. *The Eighth Day* brings together a biological robot (biobot) linked to the Internet, GFP fish, GFP mice, GFP amoeba, and GFP plants, along with video footage and sound of the ebb and flow of moving water. In order to approach the transgenic ecology, the viewer "walks on water." Gentle, recurring sounds of waves emanate from the four corners of the room. In the center of this tranquil environment, a fluorescent ecology of living creatures emerges. The living creatures and the biobot are enclosed in an environment under a ventilated, clear, Plexiglas dome, thus rendering dramatically visible what it would be like if these creatures in fact coexisted in the world at large. As a self-contained artificial ecological system, it resonates with the work's title, which adds one day to the period of the world's creation as narrated in the scriptures. All transgenic creatures in *The Eighth Day* express the gene that produces GFP. By enabling local and online participants to experience the environment inside the dome from the point of view of the biobot, *The Eighth Day* creates a context in which participants can reflect on the meaning of a transgenic ecology from a first-person perspective.

The impact of Kac's transgenic art – and in particular his daring creation of new animals – on the contemporary art scene has been considerable. Looking at his works as a whole, one can see the artist's audacious inventions and achievements as a decisive contribution to an expanded definition of art in the 21st Century. Kac's works introduce a vital meaning into what has been known as the creative process, while also investing the artist-inventor with an original social and ethical responsibility.

Frank Popper is Professor Emeritus of Aesthetics at the University of Paris. His books include *The Origins and Developments of Kinetic Art* (Littlehampton Book Services Ltd, 1968), *Art Action and Participation* (New York University Press, 1975), *Art of the Electronic Age* (Thames & Hudson, 1993), and *From Technological to Virtual Art* (MIT Press, 2005). He has organized numerous exhibitions and written several catalogues, including *Kunst-Licht-Kunst* (1966); *Lumière et mouvement* (1967), and *L'art virtuel* (1998).