

*The Undeniable Artistic Connection
Between Science, Technology, and Nature*

By Jill Caturano

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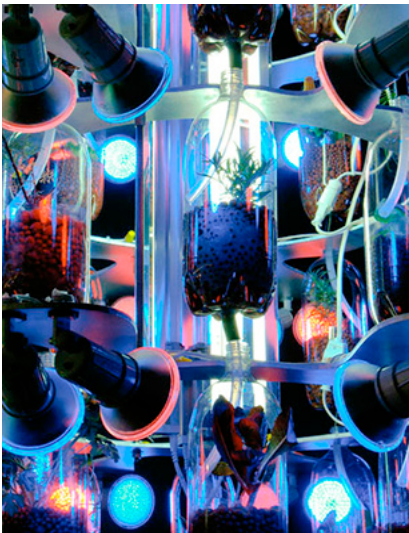
The Undeniable Artistic Connection Between Science, Technology, and Nature

All artists strive to hold onto a sense of self when creating their original work, but within every artist, there is almost always a connection to his fellow artists. Two artists who are no exception to this concept are Ken Rinaldo and Brian Knep. Both are interactive, new-media artists, who explore the connection between technology and the organic nature of this world. While Rinaldo refers to his work as an exploration of the confluence and co-evolution of organic and technological cultures; similarly, Knep calls his work a combination of science and technology that explores the worldly concepts of change, healing, struggle, and acceptance. Both artists present interactive works of art, or art installations, that explore the ever-present connection between the apparent influences of technology on our natural world. While most artists carry a strong sense of self and originality throughout their work, both Rinaldo and Knep's interactive, new-media work can be closely compared to one another.

Ken Rinaldo refers to his work as an intersection between the natural world and technological systems. His work holds a seamless integration between organic and electro-mechanical elements, which lead to a co-evolution between living and evolving. His work is generally comprised of materials with a technological component. It is through Rinaldo's work that one may realize that the majority of peoples' idea of intelligence and autonomy are actually modeled from their current

conceptions of the natural world. These current conceptions are what Rinaldo feels influence human kind's struggle to evolve technological systems. Rinaldo states himself that he is greatly "influenced by theories on living systems, artificial life, interspecies communication, and the underlying beauty and pattern" in it all. It is through this personal concept and his interactive pieces that Rinaldo demonstrates the influence of nature, the organization of matter, energy, and information on him as a new-media artist. It is his focus on expressing his concern for ecological issues that makes Rinaldo a unique artist, as ecological issues are not commonly paired with works focused on technological and cultural progress. It is this sense of determination to break the common boundaries between natural and technological systems, which makes Rinaldo a noteworthy artist.

One of Rinaldo's more recent pieces from 2008 is an edible ecosystem



sculpture. On his website, he describes *Farm Fountain* as a system for growing edible and ornamental fish and plants in a constructed, indoor ecosystem. Using aquaponics, Rinaldo worked collaboratively with Amy Youngs to create a hanging garden attached to a fishpond that runs on a pump. Along with gravity, this pond pump flows

nutrients from fish waste through the plant roots. Every four minutes water is sent from the bottom of the fish tank through tubing that then cascades through the

bottles. The plants and bacteria purify the water, while the trickling down water oxygenates the environment for the fish. Plastic 2-liter soda bottles are used as planters for food such as lettuce, tomatoes, parsley, chives, and basil. Rinaldo states that he “creates a symbiotic relationship between edible plants, fish, bacteria, and humans.” Viewers moving or working in the



space experience a healthy environment of flowing oxygen and light that emits from the installation. *Farm Fountain* is not only an experiment in local, sustainable agriculture and recycling, it is a technologically advanced way of farming and displaying art. The entire structure is driven by a pump, which simultaneously connects the animal world to the plant world to the human world. Technology combines these three parts into a living and breathing sculpture that is designed to become an alternative to buying vegetables grown on distant, petroleum-powered farms.

Brian Knep is a new-media artist who carries similar concepts as Ken Rinaldo throughout his artwork. But, so as not to undermine his originality, Rinaldo’s works will not be re-mentioned at this time. Knep considers the focus of his interactive artwork to be on change, healing, struggle, and acceptance – all ideas that constantly affect this world. He presents these concepts through the

combination of science and technology, never forgetting that the world environment is ever changing. With this in mind, Knep is sure to allow his pieces to remain dynamic while carrying the ability to respond to changes in their environment. Some pieces have an awareness of the passage of time. Some carry that interactive piece, with a sense of and reactivity to the people around them.

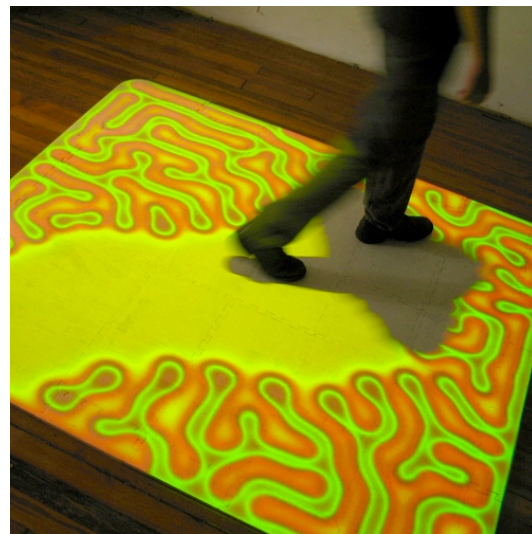
Knep's *Healing* series is one of the best examples of how he incorporates technology and interactivity into his artwork. Using a video installation, camera,



and custom software, he projects different organic patterns onto the gallery floor. When a viewer walks across the “glowing carpet” the pattern pulls away, creating a wound. Knep describes the piece on his

website by saying, “When the foreign body leaves, the pattern heals itself and the wound closes but the sides of the wound never actually touch.” The scar that

remains in the piece relates to a few of Knep's common themes: change, struggle, and healing. Like a scar on the body or mind, the movement of a viewer through the space leaves a permanent effect on the pattern's growth. What is fascinating about the



Healing Series is the exploration between interaction and integration. Movement

is constantly happening and ever changing, but the patterns only pull away when something interferes with it. The most dynamic component of the piece is its ability to respond along with the combined time element it takes to seal itself up. Viewer interaction leaves a memory between the visitor and the mat, while visitors quickly understand how the pieces react to them.

The aforementioned commonality between Rinaldo and Knep is apparent through each artist's focus on evoking thoughts about the way one views the world, or the earth in its present state. While Knep does focus on the impermanence of this world, both artists carry a common theme throughout their work, which is the interconnected nature of the world, as well as the presence of technology within it. Both men are exploring the integration between living and evolving technological material. Another similarity between Knep and Rinaldo is that they are working with new media interactive art. As Knep describes, many of their pieces and installations "encourage active, self-determined relationships and points to a co-evolved coupling between human, machine, nature, and culture."ⁱ This interactive quality helps the viewer connect to the work, the space, and even back to them. People can come face-to-face with each other, while getting up close and personal with the ever-changing high technology and cutting-edge science. As both of these artists straddle the line between organic and inorganic, it's interesting to imagine their natural systems eventually fusing with their technological systems to create a world that is "symbio-technoetic." This idea

addresses the role of science and technology in our lives, and accepts that they are here to stay.

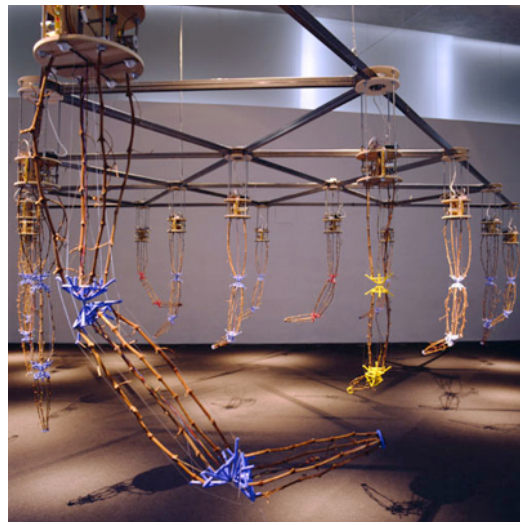
While Knep and Rinaldo definitely work with different materials and in different ways, some of their pieces are extremely similar in theme and concept. Knep's *Deep Wounds* installation at Harvard University is a piece where he explore feelings of change, healing, struggle, and acceptance, at the same time using technology to transform environments into interactive spaces. Housed at Memorial Hall, this installation is dedicated to the 136 Harvard Students who died



-serving the Union army in the Civil War. *Deep Wounds* is projected on to blank marble tiles, and “when a visitor walks across the floor, the milky, cloudy, film is disturbed and the floor ‘blisters’ open.”ⁱⁱ Holes in the film reveal pieces of text in the same font and color as the names carved on the wall. But instead of names,

relationships are in its place such as son, friend, or roommate along with the site of death. At closer look, the viewer realizes that the battle location confirm these are the men of the Confederate dead. What is interesting and important about this installation is the way the words are obscured until the viewer walks over them. “To read it closely we have to intrude and involve ourselves.”ⁱⁱⁱ The interaction the viewer has with the piece creates a type of transformative experience. *Deep Wounds* has such significance because there are so many aspects the viewer can relate to. It’s an interactive piece that people don’t know they are part of until they are already in it. This surprise quality gives a feeling of interruption when they intrude on the calm, serene tile floor. The viewer then must decide how to respond, how to process, or how to understand the piece for themselves. This reactive quality can be emotional, and also engaging as the viewer tries to make sense of it all. Knep tries “to use humor, interactivity, or science as a way in, so people can jump in and re-engage and hopefully a little bit more of a meaning will slip in on a subconscious level.”^{iv} One theme in particular Knep tries to draw out with *Deep Wounds* is unfinished healing. He believes that we need to open up and clean out unhealed things in our life so that the real healing can begin. Dealing with the external to talk about the internal is another outcome of this visceral piece.

Similarly, Rinaldo's *Autopoiesis 2000* is a piece that also interacts with the public and communicates within itself. "This artificial life robotic series has



fifteen musical and robotic sculptures that interact with the public and change their behaviors based on both the presence of participants, and communication between each separate sculpture," Rinaldo explains on his website. Talking to each other through a network, the robotic sculptures use telephone tones as their language. *Autopoiesis* literally means self-making or self-creation. This idea explores the relationship of structure and function, and helps to explain the nature of living systems. The interactivity of *Autopoiesis* engages the viewer/participant who in turn affects the system's evolution and emergence. Smart sensors sense the viewer and the robotic sculpture can then respond in an intelligent way. The long arm-like pieces hang from a structure above the viewer's head, and their movement is almost like a dance. The four sensors at the top of the arm know when someone is located near it, and the arm moves in that direction and comes to within inches of the viewer. "This allows the sculpture to display both attraction and repulsion behaviors. Furthermore, in *Autopoiesis* the robotic sensors compare their sensor data through a central-state controller, so the viewer is able to walk through the sculptural installation and have the arms interact both individually and as a group." ^v

In an interview, Ken Rinaldo discusses his work pointing out that art and science cannot be separated, as science has always been necessary for the making of art. He observes that interactive art engages many different levels of participation, extending the role of the viewer; the viewer can determine the behavior of the sculptures directly. Although museums and similar institutions have not been as receptive to interactive art as the public, he believes that this attitude is changing, and that institutions will accept interactive art as a legitimate art form. There is a lot of potential for the intelligent art installation to expand the conscious mind.^{vi} Interactive artworks have the power to evoke feelings and emotions in the viewer through bodily movements. The combination of science and technology can not only create a synthesis between ideas of the physical-material world, but also of a higher, spiritual dimension with new possibilities of knowledge.^{vii} Knep and Rinaldo are both making art that is closely related to science, and their creativity and imagination allow them to deliver their ideas to viewers through interactive experiences. Existing and new information from both physical and non-physical fields of intelligence presented through the creation of an advanced symbolic form experience activates the whole system of the human processing of consciousness from body to mind.^{viii} Intelligent art installations such as *Deep Wounds* or *Autopoiesis* are spaces that allow for the expansion of the conscious mind. The viewer is engaged and consumed by these pieces whether they choose to or not. They may have a reaction to it on a conscious and/or

subconscious level. No matter the viewer's feelings, they are confronted with the piece because of its interactive nature.

With the uprising of new media art, it's interesting to consider the future of this genre and even how it can be taught in the classroom. The interaction between art and the electronic media is inevitable in the art room, and teaching with multimedia will only become more useful and available. Introducing artists such as Ken Rinaldo and Brian Knep into art lessons can transform the way students think about art and also bring in an interdisciplinary element. The field of technology sets up an attraction that is seductive and compelling,^{ix} and combined with math and science it can be rewarding. Teachers play a role that is just as important as the students when it comes to preparing new-media lessons and being knowledgeable in the field. Collaboration among teachers of different disciplines is key to implementing this concept. The success of Knep and Rinaldo has paved the way for the introduction of new technology and the exciting future that it brings.

ⁱ Brian Knep, <http://www.blep.com/>.

ⁱⁱ Lauren B. Paul, "Links Science and Art," *The Harvard Crimson*, April 6, 2010.

ⁱⁱⁱ Lauren B. Paul, "Links Science and Art," *The Harvard Crimson*, April 6, 2010.

^{iv} Anita Overcash, "A Transforming Experience with Brian Knep," Creative Loafing Charlotte, http://charlotte.creativeloafing.com/gyrobase/a_transforming_experience_with_brian_knep/Content?oid=571091.

^v Ken Rinaldo, <http://kenrinaldo.com/>

^{vi} Kathrine Anker, "Exploring the Intelligent Art Installation as a Space for Expansion of the Conscious Mind," *Technoetic Arts* v. 6 no. 3 (February 2009): 251-8.

^{vii} Kathrine Anker, "Exploring the Intelligent Art Installation as a Space for Expansion of the Conscious Mind," *Technoetic Arts* v. 6 no. 3 (February 2009): 251-8.

^{viii} Kathrine Anker, "Exploring the Intelligent Art Installation as a Space for Expansion of the Conscious Mind," *Technoetic Arts* v. 6 no. 3 (February 2009): 251-8.

^{ix} Nancy Macko, "A View of the Intersection of Art and Technology," *The Art Bulletin* v. 79 (June 1997): 202-5.

Images

Page 2 – Ken Rinaldo. Farm Fountain 2008 closeup, JPG, <http://kenrinaldo.com/>

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Page 4 – Brian Knep. Healing Pool, JPG,
<http://www.blep.com/healingPool/index.htm>

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