

Author Taeyeun Kim

Source *NJP Reader #7 Coevolution: Cybernetics to Posthuman*, pp.377-382

Publisher Nam June Paik Art Center, Yongin

In Search of Virtual Life Images

Colophon

Editor Sooyoung Lee

Translation Seong Eun Kim, Eunjoo Sung,
Sangeun Lee, Sohye Lee,
Hyungju Woo, Semin Choi

Designer Ahju Kwon

Published on 27 December 2017

IN SEARCH OF VIRTUAL LIFE IMAGES

377

TAEYEUN KIM

Taeyun Kim
Artist

She paints and sculptures, visualizing virtual life images. She believes that life consists of microscopic algorism which is hidden, and that the relationships consisting of such algorism express themselves in shapes, revealing themselves to the outside world. Therefore, she has been interested in the process of visualizing artistically the diverse yet invisible microscopic world of life. For the past few years, she has involved in interdisciplinary

projects coworking with architects and scientists. Especially, she injected and cultivated her DNA in a plant called Arabidopsis. This work visualizes what is common between plants and humans through the circulation of green liquid, reflecting the way blood circulates in human body. In 2017, she participated the exhibition Strange Sense of Colors: the temperature of blood and had a solo exhibition at Youngeun Art Museum.

The efforts are being made to analyze the origins of life and the forms of living organisms in various disciplines. My recent work aims to create 'virtual life images' which are situated on the boundary between artificial and natural, by borrowing the process of genetic expression inside living organisms or life images.

With the term 'life images' I mentioned above, I intended to indicate external genetic expression which is realized by the relations among numerous systems operating at the scale of atoms, molecules, proteins, and even further cells or bacteria, under the microscopic gaze on these organisms. One of the attempts to analyze the life images is taxonomy, a system separating living organisms and inanimate beings, which can be subdivided into; nomenclature of organisms by from Aristotle in Greece 2,000 years ago to Carl von Linné (1707 – 1778) who built its first principles; evolutionary taxonomy arising with development of Charles Darwin's evolution theory in the 19th century, and others. The taxonomy has been developed while observing and recording external forms of organisms such as biological systems, shapes, and growth, as well as their chemical compositions, components, physiological and ecological conditions. This observing and recording the conditions of external characteristics has led to the taxonomy, on an expanded view because it is based on the premise that we can analyze the unseen system of an organism by its external properties, that is, morphological characteristics visually expressed. And this is where we can find the origins of taxonomy. It is only recently that gene's DNA sequence is being analyzed and referred. Methods to analyze organisms adopted by molecular biology, developmental genetics, evolutionary theory and other forms of studies now have been capable of analyzing and classifying even on their ontogenetic or generative stage before their morphological expression is revealed as result. Thus, endeavor of analyzing living and nonliving things has continued on, and is approaching a step further toward the origin and genesis of life images by trying to carry out analysis on the mystery of life, based on scientific data.

While examining living organisms around us as considering the way they are being formed, which I mentioned above, we find out that there exist various sources of different forms in organisms, which differ according to the properties of each species. Why does certain organism appear as a specific shape? Why does a frog look

like a frog, and a man look like a man? And among human beings as a species, what causes them to look different from each other? Also, my work has been focused on what kind of forms taken by living organisms make us recognize them as living entities. The difference among various organisms can be revealed distinguishably large or insensibly subtle. This subtle difference brings up the question what is the fundamentals creating morphological differences which are externally expressed even among the entities of the same species. It is well known that the fundamentals forming these differences are due to genetic information carried by living organisms. Also, differences of DNA (Deoxyribonucleic Acid) holding genetic information express traits differentiated among entities from protista to plants, animals and humans. It has become possible to identify the genetic differences among species or individual entities, by analyzing and comparing genetic information with extracted DNA sequence. However, although we can finally find out the generative principles of life, it doesn't lead us to a conclusion of ontological argument on why certain entity must be shaped in its particular form. Thus, the question arose as to why a living organism should take a specific form which is different from others and from when are created what we call 'life images.' To begin with, I picked this concept of 'emergence' out of generative principles of life images, then experimented it to see if it is able to creat images of a new entity.

Emergence is one of the properties that are crucial in the course of an organism's morphological development. Professor Ilha Lee explains the emergence of living organisms as follow.

When amino acid units are connected in different orders and arrangements, proteins of different functions are produced. These various proteins produce cells of different functions following their internal constitution and arrangement, and these cells arrange themselves according to certain rules and interact with each other to form living organisms. Everytime moving to the next higher level, it sees the emergence of new properties which didn't exist on the lower level, and eventually occurs a magical phenomenon in which living entities are being created out of inanimate beings. The emergence is very well illustrated by this common expression that the whole is not the sum of its parts, but may be greater than the sum.¹

As pointed out above, the remarkable aspects of generative principles are interaction and constant process of emergence. The microscopic world witness in every second these ceaseless actions and emergence of relations. My drawings and paintings, by borrowing this principle of emergence explained above, aim to show that each part contributes to build relations and that the sum of those parts doesn't correspond to a simple whole but it creates something greater, which is the birth of life images. As its method, I created module images which conceptually parallel the units of a living organism. Then I worked with these module images in the same way how the units of a living organism reduplicate themselves, divide and spread, until I stopped when these images start to show some external characteristics. And I decided to name these created images as 'virtual life images', as instead of representing their images, they only 'expose' the feature of living beings. In sum, I created new virtual life images, by applying the system of biological emergence to the method of production of images in painting.

Before 2015 I focused on painting and drawing to create virtual life images, and then expanded this work to sculpture and installation. Since then, I have tried to come up with a new work which can show these images in a more intimate way with biology as well as the actual process of emergence. Recent work, *Virtual Life : Artificial and Natural* aims to discover the origin of images on the boundary between artificial and natural life through microscopic method. To realize it, I tried to deal with virtual life images by borrowing moving images, photos and images of microorganisms which are actually cultivated. Dealing with virtual images includes the following steps: The first is to focus on the phenomenon of emergence at the moment when a life is being born. I collected various materials to obtain information of observation data on emergence. Secondly, I made some drawings of the process of cellular division, all the while observing this continuous expansion of life which works far beyond disconnection or deletion,. And third, I finally photographed the images of virtual life, then converted them into moving images. And in order to capture these virtual life images as photographs, I focused

1 ILha Lee, *A Biological Promenade*,
Kungree Editions, 2014

on cultivating actual microorganisms which I then converted into the forms of art pieces, and eventually examined the gap between real and virtual.

Island of A-Life, exhibited at Nam June Paik Art Center, is composed of thale cresses, chloroplasts of plants, computer codings, motors and glass tubes. It visualizes the question about the boundaries between artificial and natural as well as how genetic information of life can be converted into a substance, then expressed visually. I obtained mutated thale cresses by cutting out my DNA sequences concerning the control of muscles with 'DNA scissors' technology and adding it to normal thale cresses. The idea of injecting DNA controlling muscles came from my curiosity to see if it makes any morphological difference when the properties inherent in humans meet those of plants, to which were added some outrageous imaginations such as the question about the possibility to replace animal testing with testing testing. I placed these mutated thale cress in a way to let viewers can blow their breath through a straw. They transfer the temperature of their breath through a straw, and a web camera senses the temperatures and visualizes it so that we can see it on the monitor. The reaction of plants is so spontaneous that even the temperature of a viewer's simple exhalation changes that of these plants only in a few seconds. This change of temperature is sensed and captured by the camera, which converts the heights of temperature into color data then sent to the monitor. Again, the images on the monitor are converted as digital data to send signals which activate the water circulating machine. This machine makes the mixtures with extracted from chloroplasts circulate through the large glass tubes. Thus, the acts of viewers influence the living organisms, and the process is converted to data and transformed into a visual piece.

I tried to illustrate the virtual life images through the approaches of both painting and biology, and to suggest a new method of creating images applying the principle of emergence to the process. Escaping from painting's conventional method creating representations or illusions, I intend to present a new methodology which lets images 'emerge' and begin their life by using life's information.