
Beyond Boundaries: Can Artificial Intelligence Be Aesthetic?

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1. Introduction

The thinking power of Homo sapiens made the human being the lord of all creation. The ability to reason is also the premise of human existence. However we, as humans, know that this does not confine only to human but also to Artificial Intelligence. In the history of humankind, it is not difficult to find attempts to create an immortal being that surpasses us and to complement our inferiority. Why has human wanted to develop something perpetuating? This desire seems to be the steadfast commitment of only human beings. AI is studied, researched, and enhanced to become superior to human being.

The artificial intelligence created by humans, who are themselves the subject of creation, has often been imprinted as human-like beings in science fiction novels and movies. In this respect, I would like to discuss whether we can talk about the aesthetical aspect of AI. The issue of aesthetics is one of the human characteristics. Above all with artificial intelligence, the questions arise as to what humanity and existence mean. That is because now AI pervades in human life, forms new relationships with us, and acts the same as human beings.

Living with AI, culture and the way we think toward our society and human are changed. Today, we live in an information-oriented, media-resistant society and face a sort of de-realization of reality and material in every area of life. It is because communication technologies replace direct contact with the physical environment and because the mass media form their own world, the hyper-reality.

In this hyper-real world, the gap between image and reality disappears because all of the information we obtain from the mass media is a simulation of the original event. We are hardly exposed to the physical actuality of unedited actual events and information. The actual events transform into images, messages, and symbols in the information network of the whole society, and the actuality eventually disappears.

If there is no significance for the substance in our highly developed civilization, what will be the fate of our kind, Homo sapiens? Will our bodies which are seemingly useless in the net

society be the burdens to set free from our limitations? Now with those questions, we are making something immortal and transcendent which are different properties from our own. Similar to what Prometheus did, humans are attempting to share their legacy with another presence.

This study suggests the states of human beings living in the technological symbiotic life established with AI which may be a clue for us to profoundly recognize ourselves and what we have been achieved and should accomplish in the coming future.

2. What We Think as Humane

What is humane? Unlike AI, a human being is born from biological parents and belongs to somewhere from the moment of birth. Despite their apparent differences, Claus Emmeche(1956~) points out the similarities between human and digital organisms, describing human organisms as made with carbonaceous materials and consuming energy from the sun to organize matter, and digital organisms as consumers of the device of main computation, the central processing unit, CPU, in computers.¹

If we look at human and machine in the broad sense, we can find fundamental similarity in their energy consumption. Also on a general level, the fact that they now coexist is also the similarity. Human beings and most natural materials are kinds of synthetic carbon materials, and artifacts are also composed of materials such as silicon, stainless steel, or plastic.

What, then, is the most fundamental difference between real life and artificial life? When today's biologists compare real life with artificial life, what distinguishes artificial life from real one is that artificial life is life without death. In other words, the death of artificial life is a clinical, artificial, digital, and momentary change of state from on to off, with no resemblance to biological end. Computer organisms do not die at all in a biological sense; they just cease to exist.

The actual death of an organism is a process of slowly erasing the boundaries of its environment. It is the process of allowing the substrate, nutritional salts, moisture, and other substances that make up the organism to be released into the environment and recirculated to the ecosystem. Theodor Roszak implies that human beings attempt to create a distinct presence because they feel fear, compassion, and hatred in their physical situations.

Human has wanted mechanical cleansing but it is natural for the existence of life to involve odors and traces of living in a way very different from mechanical cleansing. Is this the reason humans have made the perfect, better beings; AI? I think there must be another reason that is the message from the new era of digital media to generate a new creature.

1. Claus Emmeche, *The Garden in The Machine-The Emerging Science of Artificial Life* (New Jersey: Princeton University Press, 1994), p. 40.

3. Message from Digital Media

As founding civilizations, human beings have produced devices, and the evolution of machines is understood as the evolution of humans. In the 21st Century, the digital media environment established by computers and the Internet has connected to all media centered on computers. Through a global network, various types of digitized and integrated information are distributed apace.

To clarify the relationship between these media and human societies, Marshall McLuhan (1911-1980) argues that through interaction with the human senses, media initiate the interaction, and, by transcending the mere means of information transmission, media act as the power that determines the communication structure and patterns of human perceptions, or more broadly, the nature of the entire social structure.² The new medium is not just the conscious and mental extension, but the extension of human beings, that is, the expansion of real human capabilities.

In the age of electronic media, as we move toward mechanical expansion of consciousness, we become aware that we gradually become the form of information. It has enabled the human being to be further transformed into other forms of expression that surpass his or her own abilities.³ Unlike what we experience in the real world, we go through these data experiences in a digitized state of information. The changed perception by this new medium is shaking the roots of our thoughts about fixed and immutable beings. Digital media allow us to experiment with humanized media by dreaming up a human-like machine and constructing technical infrastructure so that human beings can exist as the information itself.

4. Nomadic Self as Information

A virtual self broadly refers to a being that works in cyberspace and refers to a surrogate self-working in cyberspace on behalf of a user of the physical world. AI is not a substitute for any one of our virtual selves or those derived from someone else. It is a synthesized entity generated by accumulating data and experiences of the researchers who produce it and of various people rather than one person.

AI is an implementation of universal and ordinary human model. To the contrary, the self from a person is dominated and developed in the physical environment to which we belong. The difference between the physical world and the cyberspace is that the identity of our experience unfolds differently. That is, the time and space are relatively experienced in the physical area, and this relative experience cannot be separated from the subjects of the experience. The space and time of cyberspace, however, deviate from such attachment and, in many cases, depend on our

2. Marshall McLuhan and Eric McLuhan, *Law of Media: The New Science* (Toronto: University of Toronto Press, 1998), p. 37.

3. Marshall McLuhan, *Understanding Media* (Cambridge: MIT Press, 1994), p. 57.

own intentions. It is because, from the beginning, the time and space of cyberspace operate only by human manipulation.

However, the virtual self cannot be entirely established from virtuality or fiction. Cyberspace and the real world are inter-penetrating and overlapping, even though both are heterogeneous. Now, human beings can exist as an information body in cyberspace. Rather than an identity embodied by the human body, people regard this new human identity as a flow or patterns of the information. It lets people visit everywhere they want to go because, without bodies as encoding being, people can go beyond their physical boundaries.

Besides, as people can accumulate far more information together in one place that we call net society, they have learned how to use the information and attempted to apply it to AI. Absorbing the whole data in the net, AI tries to generate things humans consider as art. In human's case, we may call it as displaying human's creativity.

5. Accumulated Processed Information as Art

Recently people in the lab are attempting to make inventive AI, an artist that generates seemingly 'real' artworks. A research team from Rutgers University in New Jersey proposed a system, which is named CAN: Creative Adversarial Networks for generating art with creative characteristics. The team demonstrated a realization of this system based on a novel, original adversarial network. Their proposed system possesses the ability to produce innovative artifacts because the interaction between the two signals that derive the generation process is designed to force the system to explore creative space to find a solution that deviates from established styles but stays close enough to the boundary of art to be recognized as art. This interaction also provides a way for the system to self-assess its products.⁴

AI autonomously evaluates its products. Does it mean it can discern aesthetic attributes of things and people or it 'express' something? An essential component in art-generating algorithms is relating their creative process to art that has been produced by human artists throughout time. The team thinks this is important because a human creative process utilizes the prior experience of and exposure to art.⁵ With the exposure, the system accumulates information of artworks and learned about their features. The system was evaluated by human subject experiments which showed that human subjects regularly confused the generated art with human art, and sometimes rated the generated art higher on various high-level scales.⁶

4. Ahmed Elgammal, Bingchen Liu, Mohamed Elhoseiny, Marian Mazzone, "CAN: Creative Adversarial Networks Generating "Art" by Learning about styles Na Deviating from Style Norms", the extended version of a paper published on the Eighth International Conference on Computational Creativity (ICCC, 2017), p. 20.

5. Thus, the system is trained using an extensive collection of art images from the 15th century to the 21st century with their style labels. For the training, they used 81,449 paintings by 1,119 artists in the publicly available WikiArt data set.

6. Ibid.

Moreover, to generate artworks that seem to be created by human artists, the researchers have applied to “Arousal Concept” that is the psychophysical concept having great relevance for studying aesthetic phenomena.⁷ When respondents were asked to rate how intentional, visually structured, communicative, and inspiring the images were. They rated the images generated by CAN higher than those created by real artists.

However, what the system generates is the accumulated and processed information of human artists. Of course, what human artist produces can be seen as information that has been experienced by human artists, but human artists feel, sense, and filter with their sensory systems such as eyes, ears, nose, and hands, etc. Artworks are not the numerical information. Even the “Fountain (1917)” by Marcel Duchamp or “Brillo Pad Box (1968)” by Andy Warhol is what resulted from their sensory reactions toward life experiences, art history, Aesthetics, and artworks from their predecessors. Those daily objects make viewers ponder why those artists introduce them as art. However, the paintings generated by CAN are the calculated and combined information that was not from sensory reactions nor based on aesthetical perception. Although one of the main characteristics of the proposed system is that it learns about the history of art in its process to create art, however, it does not have a semantic understanding of art behind the concept of style.

CAN does not know anything about the subject matter, or explicit models of elements or principle of art. Learning the art and experiencing art is beyond enumeration of what an artist has learned. Empathy is the critical aspect. It occurs when we are aware of the context of the producing artwork. The background is more significant than the resulting artworks. Even though the subjects of the experiment rated the artworks by CAN higher than those by human artists, still the historical context of producing artwork is crucial and meaningful.

6. Conclusion: Further Questions

Accepting the digital media and its sub products, humans can exist as encoded being in the cyberspace and net society. Living and interacting in the net world, people can build up enormous information which becomes the seed of AI. Humans have attempted to raise something immortal and transcendent which are different properties from our own. As becoming a kind of numerical being, humans can be omnipresent as long as they can employ the appropriate technology as if they did not have flesh and blood. This new way to exist makes us think about the definition of presence and see things differently. Humans are attempting to create ‘beings’ that can generate art, take care of weak human beings, talk and discuss human issues, and even fall in love with the human. As our minds can run beyond the boundaries created by the limitations of our bodies, we would like to infuse our creativity into AI. No human, however, knows what will happen next. It can go beyond our imagination because we, humans are mortal and tied down to our physical limitations. Is it

7. Daniel Berlyne, “Arousal and reinforcement”, in *Nebraska symposium on Motivation* (NE: University of Nebraska Press, 1967)

possible for the mortal to make the immortal thing? Hardly ever can the human be aware what it is like to be immortal and perfect. What can we do with this evolving humanlike being? Maybe, in my opinion, AI can be the tool for us to reflect ourselves. Like the program CAN that leads to think over the definition of art and creativity, it could help people to find the right way to know what can be humane and how we can make a better relationship with one another. That must mean what we could possibly learn from humanlike AI, and I believe that is the reason humans have been making AI. I hope we will learn how we can coexist with AI and regain what we have lost, what is humane, and what is love. It is because art comes from those things.

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