An Overview on Sci-technological Aesthetics in the Age of Artificial Intelligence

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Art implies the dialectics of necessity and contingency. From mechanical reproduction to intelligent technology, science and technology tries to integrate art into the chain of necessity. This integration brings about many realistic problems, such as aesthetic control, ethics and discrimination. Sci-technological aesthetics holds that art should be fused with science and technology and that intelligent technology, such as artificial intelligence, should be guided and developed through aesthetic rationality.

Keywords: sci-technological aesthetics, aesthetic reason, artificial intelligence, contingency

In the 21st century, “sci-technology”\(^1\) has become the most important dimension in the human world. Technology tries to obtain the necessity of science, which has changed the natural causality and established a set of technological causal chain. Heidegger regards technology as a “Gestell”, in which human beings live and conduct themselves according to technological criteria. After being separated from technology, art still maintains the dialectical combination between “contingency” and “necessity”. Art will be locked in the framework of necessity when industrialized technologies are applied into art. Many new aesthetics believe in such kind of necessity. For example, information aesthetics holds that aesthetics and art can be informationized and computerized. Experimental aesthetics believes that beauty, ugliness, emotion, etc. can be quantified through experiment. Neuroaesthetics tries to confirm the dominant position of human cranial nerve in aesthetic activities through neuroscience. Those necessity-oriented aesthetics can indeed become the forerunner of “sci-technological aesthetics”. However, this aesthetics is not only a discussion on the application of sci-technology to art but also a study on the reaction of art to sci-technology and a reflection on the necessary sci-technological framework by artistic dialectics.

Brief Introduction of Sci-technological Aesthetics

Science, technology and art serve as three kinds of human practical activities. Their transition from chaos to separation and their reunion in the age of intelligent technology signifies that the dialectics on human activities has entered the stage of “synthesis”. Having distinguished between science and technē (tekhnē), Aristotle (1925) believes that tekhnē is “a state of capacity to make” (p. 1140A). Different from the necessity of science, Aristotle argues that tekhnē contains both chance and necessity. This kind of making includes not only

\(^{1}\) Sci-technology is not just the juxtaposition and simple combination of science and technology, but a special combination of science and technology disciplined by the necessity of science, so it is called Sci-technology.
the manufacture by practical technologies including handicrafts but also the “poetic” (Poiēsis) (Heidegger, 2000, p. 35).

With the differentiation of social classes and division of labor, art and technic have gradually gone separated. Kant (1974) thinks that art itself is a technique opposite to theory. Therefore, he makes a clear differentiation between “art” (free art) and “handwork”. Art is different from handwork. The former is a kind of “game” that is enjoyable in itself while the latter is just a kind of “labor” that is not enjoyable but mandatory in itself (pp. 237-238). In short, the fundamental difference between art and technic lies in the fact that art contains a purposeless purpose. Artistic activities are accompanied by a kind of human freedom; art embodies human culture and spirit and has social-historical dimensions. On the contrary, technic contains a practical purpose, which lacks freedom and therefore reflects necessity; it lacks social-historical dimensions. Contingency mentioned by Aristotle mainly refers to making things that are not permanent. Kant believes that aesthetic activities have a subjective universality while artistic activities are rules provided by genius for art. Therefore, art contains necessity and contingency. In fact, contingency in art should also include uncertainty, irregularity, ambiguity and individuality. Stiegler (2011) holds that the characteristic of modern technology is that science is integrated by technology and becomes “technoscience” (p. 190). According to this paper, technology is also being integrated by science as technology pursues the inevitable certainty of science, loses the dialectics of necessity and contingency, and finally becomes the “sci-technology”.

After being disciplined by the necessity of modern science, technology has developed into the foundation of industrialization—sci-technology. The first integration by this kind of sci-technological force toward art is the mechanical reproduction mentioned by Benjamin. After witnessing the shocking experience brought by photography and camera shooting technologies, Benjamin (1991) points out that technology, art and human life share the same rhythm—reproduction. Benjamin believes that mechanical reproduction art, such as photography (including film and photography), embodies the mutual penetration between art and science, and the consistency of their application. He has also mentioned, “The goal of technology is a specific art form” (Benjamin, 1991, pp. 499-500). Different from Benjamin’s view that this mechanical reproducibility has liberation potential, Adorno has pointed out that it is a kind of “cultural industry”, the industrialization of art by science and technology. “The art of integral imagery was inscribed in their techniques of positivist science. In fact, it is becoming a world once again, an ideological duplication, a manageable reproduction” (Adorno & Horkheimer, 2003, p. 34).

In the era of Artificial Intelligence, the application of artificial intelligence (AI), big data and virtual reality (VR) technologies in the literature and art is a new attempt to integrate art with intelligent technology and a new form of cultural industry. This mandatory integration by sci-technology toward art really enables art to enter ordinary households in a more convenient way. However, it also regulates art at the same time. Art seems to be democratized by the masses but controllability has actually been directly implanted into the eyes and cerebral cortex of the masses. Many new schools of aesthetics have unconsciously become the helpers of controlling forces. Their attempts to crack the art mystique is not wrong. As Benjamin has mentioned in the Works in the Age of Technological Reproducibility, the mystique of art will lead to a totalitarian tendency. However, if one only regards art and beauty as inevitability and tries to find unchangable laws for them, he will obviously lose the dialectical significance and vitality of art. Both Benjamin’s “dialectical image” and Adorno’s “artistic dialectics” show that the inner essence of art is dialectical and concerns the truth vs. illusion, the necessity vs. contingency, and the individuality vs. universality. Art provides infinite possibilities for human beings. Stiegler
has pointed out that art concerns a certain kind of therapy and can invent positive “pharmaceutical technique”
together with technology, thus saving this era. He holds that the re-integration of technology and art is the basis
to resist the control. “Art must once again become an ars, namely what the ancient Greeks called tekhnē”. It’s
necessary to invent an “ars of hyper-control” in order to break the control of automation and realize
de-automation (Stiegler, 2016, pp. 118-120). Adorno attaches great importance to the form and rationality of art.
He thinks that art is a dialectical synthesis of the rationality and irrationality, and the identity and negativity.
“Art is such a kind of rationality that it criticizes rationality but does not give it up” (Adorno, 1970, p. 87). Therefore, he puts forward the concept of “aesthetic rationality”. He believes that, on the one hand, aesthetic
rationality pursues certainty and it “requires every artistic means to determine itself and its functions as far as possible” (Adorno, 1970, p. 59). On the other hand, rationality itself needs to be aestheticized and to absorb
mimesis-expression elements in art so as to rectify the traditional instrumental rationality. Adorno hopes to
realize the reconciliation between sensibility and rationality, and between science and technology and art
through “aesthetic rationality”.

Therefore, the combination among science, technology and art should be a non-violent fusion. While
pursuing their necessity, sci-technology should also leave room for the non-identity, contingency and
marginality. That is not only a kind of rectification to sci-technology by “aesthetic reason” but also the
ultimate goal of sci-technological aesthetics.

In short, the sci-technology aesthetics includes two aspects. One is the rationalization of aesthetics; that is,
in the face of the art integration by sci-technology, sci-technological manners are adopted to unveil the
necessity in the art field, such as what AI aesthetics, information aesthetics and experimental aesthetics are
pursuing. The other is the aestheticization of rationality, that is, to view and guide sci-technology from aesthetic,
intuitive and dialectical angles.

Problems Arising From Science and Technology Integration

With the development of neural network, deep learning, man-machine integration and other technologies,
the new generation of intelligent technologies has been increasingly applied into the field of literature and art.
Artificial intelligence can generate music, poetry, design and paintings. Big data has been widely applied into
audience profiling and accurate push. Virtual reality (VR) has promoted the sensory experiences of audience to
a new high of immersive experience. 5G communication can support remote high-definition transmission and
augmented reality (AR). Those technological innovations have brought changes to art as much as mechanical
reproduction has done. They have expanded the boundaries of art and given birth to many new art forms but
they may shrink art to an appendage of technology. Benjamin holds that mechanical reproduction separates art
from religion and dissociates its aura. B. Groys proposes that image reproduction and dissemination can
relocate the aura. Nowadays, intelligent technologies can recreate scenarios for art, thus counterfeiting another
aura. The authenticity of art lies above the virtuality co-founded by technologies and media. The immediacy
between art and human being has been mediated by that virtuality. An inauthentic society can only produce
fictitious art as T. Adorno and H. Marcuse have said. Therefore, the dialectical truth of art in a virtual society is
suspicious naturally.

2 Nietzsche mentioned “Poetic Reason” ([Germany] Dichtender Vernunft), Adorno first put forward the concept of “aesthetic
rationality”, and the author developed “Aesthetic Reason” on this basis.
The application of sci-technology into the field of literature and art will not only bring about the tragedy of domination but also directly cause some social problems, such as privacy, copyright, discrimination and technological gap. For example, with Deepfake technology (the so-called face replacement technique), a “face” is cut off from each individual person so that human faces become randomly spliced materials and even a commodity for sale. In addition, with the assistance of affective computing technology, the facial expressions of human beings can also be designed. Thus, the affective recognition, the personal identity verification and the mutual recognition mechanism (common sense) among humans are all disrupted. Writing and drawing through AI are achieved by deep learning after numerous inputs of precedent works. For example, after learning from a large number of Qi Baishi’s paintings, who do these paintings generated by Daozi intelligent painting system belong to on earth? The seemingly neutral big data actually contains and aggravates some inherent human discrimination, such as the discrimination in female, race and other aspects. While intelligent technologies seem to transform everyone into an artist, artistic forms and rules are actually monopolized by a few technologists. The public are just players to participate in a well-formulated art game. Art is neither a tekhnē nor a direct human life experience but a medium-based art. Human beings no longer create art directly but become tool and data overwhelmed and coerced by media.

**Necessity to Study Sci-technological Aesthetics**

Sci-technological aesthetics is an interdisciplinary study on science, technology, art and philosophy. In the past, related aesthetic studies, such as technological aesthetics, design aesthetics and medium aesthetics, attached importance to science and technology as auxiliary means and tools to art. Nowadays, sci-technology has been changing the intrinsic essence of art so a new study on sci-technological aesthetics is necessary indeed.

Philosophical reflections on science and technology include the philosophy of science and technology, the cognitive philosophy, etc. Relevant studies include the history of science and technology, the STS (a research on science, technology and society, or the scientific and technological research), the ethics on science and technology, etc. Those studies place emphasis on the essence of science and technology, and attach importance to the reflections in the relationship among science, technology and human beings. The aforesaid information aesthetics, experimental aesthetics, neuroaesthetics, etc. pay excessive attention to the analysis and discipline of art by sci-technology but ignore the dialectical characteristics of art itself.

The above disciplines can become the ideological basis and research resources of the sci-technological aesthetics with no doubt, so as to identify its theoretic source. With its detached emphasis, sci-technological aesthetics really looks into the development of science and technology from the angle of art and aesthetics. Some scholars may argue that the perspective of artistic aesthetics is probably exaggerated in this great change in science and technology. However, the fact is that many thinkers have pinned the ultimate redemption of human nature on artistic harmony and aesthetic rationality according to B. Croce’s viewpoint that “everyone is an artist”, H. Bergson’s intuitive theory of duration, M. Heidegger’s viewpoint that artistic language is the home of being, Adorno’s “aesthetic rationality” and artistic redemption, or G. Deleuze and Stiegler’s “ars of hyper-control”. That is only because art and aesthetics are related to the best ideals and values of human freedom, harmony and equality. Artificial intelligence, gene editing, cloning technology and surrogacy technology are changing the causality between human beings and nature. Sci-technology created by human beings are releasing huge energy. It not only concerns management, ethics, and philosophy on science and
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technology but also should be reflected through aesthetics whether human beings can control those technologies or not and how to develop them. Very often, the science and technology and the art are changing each other in the same way. Many technologies are first applied to the art and then benefit people’s livelihood. The poetry composition by AI is designed to improve the affective computing and the natural language processing technologies while AI painting is designed to train the image recognition capability of machines. Science fiction and movies are also thought experiments time and time again by human beings on future development in science and technology.

Sci-technological aesthetics is more of an attempt to develop “aesthetic reason” in art in order to restrict, standardize and guide the development of rationality, sci-technology than a direct participation in social and technological governance. Aesthetic reason emphasizes the dialectical combination of rationality and sensibility, and of necessity and contingency. This combination is a limit on rationality itself where the value of irrationality and uncertainty in art is reflected. Aesthetic reason realizes an equal integration of the subject and the object. Rationality has developed to the stage of aesthetic reason in the true art. We should attach importance to human art and guide the development of AI technology with this equal and free rationality. We should not forget but cherish the real art of human beings and rethink the essence of human art and even of human beings.

Let’s turn our eyes from the past and the present toward the future. The rise of intelligent technologies, such as AI, indicates that the “Anthropocene” may be about to come to its end and mankind is entering the “post-human” era. We can regard the emergence of AI as an opportunity to challenge “anthropocentrism” and “subject-centrism” while preventing it from becoming a new oppressive subject. AI can become “the other” of human beings. It can illuminate human history and rationality. Human beings are no longer the measurement of all things but all things (including artificial objects, such as AI) are the yardstick of human beings instead. Humans should learn how to live in harmony with all things on earth. It’s not AI but human beings that threatens people themselves. The foundation to prevent AI from replacing human beings and human beings from being alienated by machines still lies in human beings themselves. It requires humans to reflect on and criticize the rationality itself, the relationship between the subject and the object, and the relationship between the master and the slave. In the future, human beings may be in a state of man-machine symbiosis. They may also completely enter the media and virtual space and time, and become data and virtual beings. At that time, how much of human biological nature will be preserved? What defines human beings? Art develops from the instinct activities of life to the condensed humane spirit and then to the science- and technology-based artificial art, during which the human world has been completely artificialized. If human beings still want to reserve a certain degree of individuality, humanity and humanism, they must not lose the “techne” derived from their surviving experiences. This is also a faint cry from the sci-technological aesthetics.

References

