Questions of Technology-What Is the Design of the Era of Artificial Intelligence

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Abstract: The development of technology has always been one of the driving forces driving the development of design. In the era of artificial intelligence, will the development of technology completely mechanize human design work? How should design respond? This paper reveals the terrible consequences of the unrestricted rapid development of technology in design through theoretical analysis and practical examples, emphasizing the importance of the balanced development of humanistic and scientific spirits in design. Try to answer some questions that confuse contemporary design. For example, should design continue as an adjunct to technology, or should there be more humanistic care and moral bottom line. In today's severe separation and imbalance between technology and humanities, it is particularly important to question technology and refocus on design responsibilities.

The development of design has been accompanied by the development of technology, especially the professional design after the industrial revolution design. The mass production caused by the machine makes the division of design more professional and refined, and the dependence on technology is also more obvious.[1] In the contemporary era, the impact of technology on design is more severe than before. In particular, the advent of the information age has transformed the carrier of design, and the relationship between design and technology is no longer a pure dependence. In the era of artificial intelligence, design is in danger of being replaced, and even people themselves can be replaced. Faced with this crisis, we have to think: "In this era, as a design, what kind of responsibility should be taken and what kind of response should be made?"

1. Design before Artificial Intelligence

Artificial intelligence-AI is a branch of computer science, which broadly refers to the simulation of the information process of human consciousness and thinking.[2]

Before the emergence of artificial intelligence, we can divide the development of design into three stages. The first stage occurred before the Industrial Revolution, and a large amount of machine production had not yet appeared. The designer plays the role of a craftsman. They are both the designer of the product and the producer of the product, and may also make a post-use statement as a user of the product. At this time, nature and utensils are in a harmonious and unified relationship. The second stage is from after the industrial revolution to before the consumer society. At this stage, as the main driving force for production, the social division of labor occurs, the industry classification is refined, and the designer is differentiated into a specialized occupation. The issues discussed at this time mainly revolve around whether form determines function or function determines form. The problem to be solved by designers is how to transform science and technology that people do not understand into industrial products that people are familiar with and easy to use.

And in the third stage, it is the stage of consumer society criticized by Jean Baudrillard. At this time, the design has deviated from its essence. After the outbreak of technology in the early 20th

[1] Lewis Mumford, The Conduct of Life, Shanghai Sanlian Bookstore Press, Translate by Zhu Ming , 2016,p44

[2] Patrick Cavanagh, “The artist as neuroscientist”, Nature, Vol 434, 17 March 2005.p. 9-12

century, there is no technology that can change every day. The design at this time is an empty signifier, waiting for something to fill the gap, making it a design. In the context of a consumer society, driven by commodity profits, human desires and various consumer symbols have filled this gap. In this process, designers have become true market followers from the initial design participants. Through design, they put various consumption symbols and human desires into the *empty* skin, making the design a design. The development of these three designs is basically limited to the substitution and extension of human eyes, ears, hands and feet and other capabilities, but it is the human brain and intelligence that artificial intelligence will simulate and replicate. "New technologies, such as functional magnetic resonance imaging (FMRI), are about to change the moment when we understand the structure and organization of the brain."[3] If the development of the first three designs brought about human assistants, then artificial intelligence might bring a thrilling challenge to human self. It is Baudrillard's *self-referential* of human beings.

The tremendous driving force of artificial intelligence on human society has caused many people in the industry to worry and remind. Before his death, Stephen William Hawking had great influence on the most famous advice of future generations. He believes that: comprehensive artificial intelligence may mean the end of human beings, which is limited by the long biological evolution process. Humans cannot compete with them and will eventually be replaced. At first glance, this may seem a bit unfounded, but when we vigorously develop artificial intelligence, we plan ahead and proactively guard against all risks involving human security from the top-level design and regulations, which is beyond doubt.

When artificial intelligence comes, what can design do? The first thing to consider is how should design and technology get along in the age of artificial intelligence?

2. The Relationship between Technology and Design

Throughout the history of design, it seems that the progress of design and technology are closely related. Every change in design style is caused by the creation of new technologies and new materials. [4]This is not exactly the case. The earliest human wisdom and impulse, the earliest creative behavior is *design*-that is to find problems and solve problems. Although the word *design* did not exist at that time, science was not born at that time, and art did not have a carrier. The so-called science is to express the principle of objective things clearly and emotionally with numbers and formulas. It is to explain the *things* created by *God* and did not do things. But doing things requires design. It is often heard that technology determines the parameters, and the design gives the parameters a shape. The design should be based on the researcher's needs under different time, environment, and conditions, and after the definition and parameters of the design are proposed, the evaluation criteria and the problems are given to the technology, and the technology will tackle the problem and the technology will complete the parameter. Therefore, design should not be attached to technology, and design should be proactive. The designer should have the responsibility and the right to choose what kind of design.[5]

In the last century, Europe and the United States faced the design of the consumer society, Victor Papanek put forward the point of view of Green Design, a key issue that his thought emphasized from beginning to end: to design for *needs*, not for *desires*. Papanek once said: "Designing for people's needs rather than desires" is the main purpose of the book *Designing for the Real World*. In fact, it is also the root of the exploration of Papanak's life. Papanek believes that *need* is an important aspect of the design's function. He pointed out: "A lot of recent designs are just to satisfy some short-term desires, but people's real needs are often overlooked. Fashion can satisfy people through careful manipulation of *desires*, but a person is economically, psychologically, Various spiritual, social, technical and intellectual needs are often more difficult to obtain, and meeting

[3] Onians,John, European art:a neuroarthistory;Yale University Press.New Haven.USA.2016;preface.p.2
[4] Martin Kemp, From science in art to the art of science, Nature, Vol 434,17 March 2005.p. 14-16
[5] Nigel Whiteley, Design, London:Reaktion Books, 1998, p. 98

these needs is not as profitable as fashion. "[6] In his view, the significance of the designer is not to design the 'adult toys' that are popular among the rich, not to satisfy the wealthy people's pursuit of reputation, status and sex, but to serve the real needs of those who are ignored. . In other words, the life of the rich is already very rich, and any real needs of them have already been met. Most of the designs based on this are to satisfy their desires. However, in the *real world*, there are many helpless people, neglected but extremely meaningful to the public need to design, but no designer to pay attention to these. Therefore, Papanek believes that to design for human needs, not to design for human desires or manufactured desires, is the only meaningful direction now.[7]

In the history of modern design, the affirmation of *need* and the denial of *desire* created by business can be traced back to *News from Nowhere* by William Morris. Why is Britain still maintaining a unique, isolated, and arrogant rural appearance? It may be the seeds of desire suppression sown by Ruskin, Morris and others a hundred years ago. [8]Now, in the face of the various conveniences brought by artificial intelligence, should we also think, what will it bring us in the end? Is it the alienation of man, or the combination of man and machine? And is this the design we want?

3. The Design We Need

After the Double Eleven in 2015, Taobao Design Division, Taobao Technology Department, search recommendation algorithm team, and IDST (Institute of Data Science&Technologies) jointly established the *Lu Ban* project to replace posters with AI robots for poster production. In the Double Eleven in 2016 and 2017, Lu Ban produced 170 million and 400 million posters in sequence. Up to now, Lu Ban has designed one billion posters in total, and the project has also developed into *Ali Intelligent Design Lab*. This greatly reduces the design costs of businesses and enterprises, and the price of each design drawing is 10% of the manual design. In addition to the simple poster image display, Alibaba also cooperated with Zhejiang University to prepare an AI robot that can automatically generate short videos of graphic content: Aliwood.

Figure 1. Luban-designed robot

Someone can't help but ask: "Will the profession of designer be replaced by artificial intelligence work? How should we respond to the invasion of artificial intelligence into the design industry?" In fact, the threat of technology to mankind has already appeared. In the 20th century, machines replaced humans; in the 21st century, software replaced our brains. But so far, the brain work that software can replace has been limited to conventional computational work. And this kind of logic ability and computer-like ability is what our left brain is good at. "Plato taught us that the complex attributes of the brain came from God, and later Europeans insisted on this flattery view until

[6] Victor Papanek, Design for Human Scale, New York: Van Nostrand Reinhold Company, 1983, p. 11-12
[7] Design for the Real World: Human Ecology and Social Change, 2nd ed., Chicago: Academy Chicago Press, 1984.p.20
[8] Lewis Mumford, Lewis Mumford Reader, Shanghai Sanlian Bookstore Press, Translate by Song Junling, Song Yiran, 2016, p66

Darwin proved that they were just the essence we inherited from animal ancestors." [9] Scientists also knew a long time ago that there is a nerve *Mason-Dixon line* in the brain that divides it into two halves, but the strange thing is Until recently, scientific research institutions believed that although the two halves of the brain are separate, they are different in primary and secondary. They believe that the main position of the left hemisphere of the brain is the key to human beings; the right hemisphere is only auxiliary and subordinate, and some even think it is a relic of early human development. The left brain is rational and good at logical thinking and analysis, which is in line with all our expectations of the brain. The right brain is speechless, good at nonlinear thinking and intuitive judgment, and is a degenerated human organ.

In the past 500 years, the dissemination of knowledge through the linguistics of language and text means that the area of the human left brain responsible for language processing has been well trained; the right brain, which is responsible for spatial reasoning, symbol analysis, and graphic interpretation, is seriously ignored. "We need to further understand the performance of the brain's organs, knowing that there must be continuous feedback between the neural resources seen by the eye and the viewer's establishment since birth. This may not produce a powerful effect, but at least it can bring more the discussion will raise more reasons for optimism. "[10] Over the past few decades, neurological evidence of selective hemi-brain processing has accumulated and has gained momentum. In 1980, in *Psychophysiology* magazine, James Dabbs proposed that English majors and architecture majors differ in the direction of cerebral blood flow. The blood flow of English majors is more to the left brain, while the blood flow of architecture students is more to the right brain. In 1975, neurosurgeon Joseph Bogen emphasized in a published paper that the acquisition of language skills and the development of analytical thinking processes neglected important non-verbal progress. He believes that this greatly limits the development of the right brain and underestimates the potential of the right brain to contribute to the whole person. John Onians also mentioned in *Neuroarthistory*: "The artist noticed that different areas of the brain deal with different attributes, so they will restrict themselves to a specific area, such as color, form or dynamic. "[11] To illustrate that different parts of the brain have different functions.

And now it seems that the part that we can't be replaced by artificial intelligence is precisely the area where the right brain is good at-artistic sense, common emotion, creativity and overall thinking ability. This is exactly what other contemporary designers should have in addition to the skills that artificial intelligence can easily replace.

Poster design, packaging design and other specific design work may be replaced by artificial intelligence. However, the artistic sense, creativity, the common life experience of designers and consumers, the ability to control the overall situation of the design process, and the ability to think about the future of design cannot be easily replaced. Just like the famous contemporary French designer Philip Stark believes, he feels that the design he made is a creation, not a modification of the appearance of the product, but directly creating something that has never been done before. Future design should also be such a design.

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[9] Onians,John;European art:a neuroarthistory;Yale University Press.New Haven.USA.2016;introduction.pp.8

[10] John Onians. Neuroarthistory: From Aristotle and Pliny to Baxandall and Zeki. Translated by Mei Nafang. Nanjing: Phoenix Fine Art Publishing.LTD, 2015: 217

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