Application Research of Landscape Sculpture Based on Computer-Aided Technology

Ke Zou¹*, Bingxin Xue²

¹Academy of Arts, College of Humanities & Sciences of Northeast Normal University, China
²Changchun International Sculpture Research Institute, ChangChun Songshan Han Rong Africa Art Museum, China

*Corresponding author e-mail: zouke@nenu.edu.cn

Abstract. With the development and progress of science and technology, computer technology has made great progress, and digital technology has made great progress with the continuous progress of computer technology. Computer technology has been widely used in various industries, for the development of various industries brought great convenience. Nowadays, computer technology is also used in landscape sculpture, and digital technology has greatly promoted the development of art field. The application of computer technology in sculpture industry has brought great contribution to the development of sculpture industry. It has opened up a new field for ancient sculpture art.

Keywords: Digital Technology, Modern Art, Computer Technology, Sculpture Art

1. Introduction

The application of computer technology in the field of sculpture saves time and cost for the development and creation of sculpture industry. The application of computer technology makes the sculpture industry more efficient. In this article, we introduce the relevant contents of digital sculpture in detail. We can analyze the coordination of the relationship between sculpture and environment. Through this method we can come up with a solution in time. I also hope that this study can provide theoretical and practical reference significance for the creation of large-scale landscape sculpture in the future [1]. We all know that the creation of traditional large-scale landscape is often to make a corresponding plan, then use a certain material to make a small model, and then according to this model to enlarge, forming the final large sculpture. All this needs to be done manually step by step. This whole process takes a lot of manpower, material resources and time. With the continuous development of information technology, naturalization technology is also improving. The application of computer technology to sculpture field brings new opportunities for the development of sculpture industry. Sculpture has a unique spatial and physical nature, so he has a more stylish advantage to reach life. So the development of digital sculpture has great advantages. Although the emergence of digital technology has promoted the development of sculpture creation, sculptors often only pay attention to the digitization of landscape sculpture, and sculptors only simulate and build a sculpture
model in digital software. The model is then printed with D3 printer. From the point of view of design and modeling, digital technology is very important. In many large landscapes, sculpture creation needs the support of many disciplines, which generally need digital technology. This paper shows the necessity of digital large-scale landscape sculpture creation by telling many practical cases. It is hoped that this paper can help the creation of large-scale landscape sculpture [2].

2. Purpose of research
Nowadays, society is progressing, digital technology has been widely used in all aspects of life, digital technology has a very large space for development, digital technology has been applied in industry. With the acceleration of urbanization, people are more strict requirements for urban construction, sculpture industry has been greatly developed, so many places need landscape sculpture, traditional sculpture has been gradually eliminated, digital technology accelerated the development of landscape sculpture industry. Sculpture cannot achieve certain modeling by traditional means, the combination of digital technology and sculpture has become possible, which has epoch-making significance in the history of landscape sculpture creation [3, 4]. Today we see landscape sculptures everywhere in our lives, as shown in Figure 1 below:

![Figure 1. Landscape sculpture under computer.](image)

3. Current situation of overseas research
Digital technology was first popular in western countries, and domestic digital technology started late, compared with many developed countries abroad, there is still a big gap. Foreign digital technology started early, first of all in the game, animation, virtual reality and other fields have been widely used, this application has brought people unprecedented visual experience. Although some well-known big games and sci-fi movies use digital technology to present visual effects. The characters in the game and animation also belong to one kind of spatial form shaping, its language and technique are very different from sculpture, which can only be called digital art. Landscape design should follow certain principles, especially the landscape sculpture of the park must follow certain data, as shown in Table 1:
Table 1. Park landscape design specification.

| name                          | New Trees | Present status of Arbor | Frutex |
|-------------------------------|-----------|-------------------------|--------|
| Measuring level points        | 2.0       | 2.0                     | 1.0    |
| Ground pole posts             | 2.0       | 2.0                     | 1.0    |
| earth-retaining wall          | 1.0       | 3.0                     | 0.5    |
| a building of two or more storeys | 5.0   | 5.0                     | 1.5    |
| bungalow                      | 2.0       | 5.0                     | 0.75   |

Many developed countries have symbolic sculptures, which are very regional and famous, such as the Statue of Liberty in the United States and the mother of Russia. These sculptures are huge and old. In those days, without the application of digital technology, the proportion of digital technology is not as large as it is now, so these sculptures are very hard-won. The application of digital technology to sculpture creation can be traced back to 1990. At the sculptor association held in the United States, scholars put forward the concept of "digital sculpture" for the first time. Five years later, France held a special exhibition on digital sculpture, when the concept of digital sculpture was initially established. Because the computer hardware technology and software technology were backward at that time, most of the works were geometric abstract, but these sculptures pioneered the digital sculpture. Digital sculpture is gradually rising, 3D printing equipment is also gradually on the market, in 1986 [5], Aerican scientist Huer invented the first Guang Min resin printer, since then printers have gradually become popular.Different local design principles of landscape carving design are different, and the slope is different for different places, as shown in Table 2:

Table 2. Slope of different landscape settings.

| Surface type     | Minimum grade | Maximum gradient | Appropriate slope |
|------------------|---------------|------------------|-------------------|
| meadow           | 1.0           | 3.3              | 1.5~10            |
| Sports grass     | 0.5           | 2                | 1                 |
| Planting grass   | 0.5           | 1.0              | 3~5               |

4. Status quo of domestic research
At present, the development of digital technology in China is relatively mature, but China lacks knowledge of digital theory, and domestic knowledge of digital theory is relatively small. When we log on to China, we can find that there are very few articles on digital theory. Although a number of sculptors have emerged in China to create digital sculpture, there are also some cases of digital creation of landscape sculpture in China, but there is a lack of digital landscape sculpture creation methods in China [6].

In 2008, China began to really study the field of digital sculpture. After years of development, Chinese digital sculpture has been greatly developed. At present, China has formed its own unique digital sculpture teaching system and landscape sculpture creation method. This year China held a digital stone carving exhibition, China also carried out roving exhibitions in many places, the works in the exhibition are processed through digital technology. These exhibitions also symbolize the progress of digital technology in China.In 2010, the famous professor of our country published "the importance of digital sculpture in the teaching of sculpture" professor mentioned the concept of digital sculpture into the classroom, which also laid the foundation for the later development of digital technology. The next year, a famous researcher put forward the importance of digital sculpture in art modeling training.
course. The 2017 Xi'an Digital Sculpture Exhibition has promoted the research and practice of digital sculpture art teaching, and the school has also launched inter-school cooperation and exchange. The Chinese Academy of Fine Arts and the Guangzhou Academy of Fine Arts are the first art colleges to set up digital sculpture courses in China, and the other art colleges have also included them in the undergraduate study courses one after another.

5. Concept of digital technology
China's digital technology has made great development, these progress cannot be separated from the progress of computer technology in China, how to produce digital technology? Digital technology is to transform image, text, sound and other information into some binary numbers through certain devices, which are then calculated and processed. Digital technology is also called digital technology. Digital technology takes computer and software as the core. Digital technology is one of the greatest inventions in human history. Its appearance has changed the way of human life and opened the door to enter the digital age [7].

6. Concept of landscape sculpture
What is landscape sculpture? Landscape sculpture does not have a very clear concept. Landscape sculpture mainly refers to some sculpture works placed in public. Many people think that landscape sculpture is public art, in fact, they are different. They are interrelated and different. Digital sculpture technology has a very large space for development, the future digital sculpture must be very bright, digital sculpture and traditional sculpture, digital plastic art has a very great advantage, first, digital sculpture creation is very rapid, second, digital creation saves raw materials and can greatly reduce costs. Digital creation can accurately express what artists think, it can improve our sculpture creation. Digital sculpture has a great impact on the sculpture industry. Nowadays, digital art is gradually applied in various industries, digital sculpture is an important part of it, digitization is the use of tools, it can not change the essence of sculpture, sculpture will never change. Sculptors should actively embrace digital sculpture, traditional sculpture and digital art only combined use, sculpture development will be better and better. This may be the future of the sculpture we expect. The prospect of digital modeling sculpture is more and more open, and the author thinks that the development direction of digital plastic arts is getting better and better. In sculpture creation, we should grasp the spirit and connotation of traditional sculpture, so as to create excellent sculpture works.

7. Conclusion
After the elaboration of this article, we have a deeper understanding of digital technology and sculpture, and the current digital technology in China has made great progress, combining digital technology with sculpture. It promotes the development of sculpture industry in China, and it also shows that digital technology in China is very mature. I believe that in the future development, digital technology will have a lot of room for development[7]. The combination of computer technology and landscape sculpture has a very large development space to speed up the development of landscape sculpture industry.

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