УДК 74: 004.896

APPLICATION OF COMPUTATIONAL MEDIA ART IN FASHION DESIGN

WU Simiao[1,2], YEZHOVA Olga[2]
[1]Beijing Technology and Business University, Beijing, People's Republic of China
[2]Kyiv National University of Technologies and Design, Kyiv, Ukraine
wusimiao@hotmail.com, oyezhova70@gmail.com

This paper explores computational media art and its applications in innovative design in the fashion field, focusing on algorithmic creativity in digital fashion design. Computational media art provides a new perspective for exploring and expressing cultural and national aesthetics, from element-based inspiration extraction to algorithm-based generation and hybrid design exploration. From the perspective of computational aesthetics, research on the evolution of artists, works of art, and emerging art styles is a significant trend and direction of contemporary fashion design research.

Key words: *digital fashion, algorithmic creativity, computational media art, national culture aesthetics.*

INTRODUCTION

Modern digital technology allows artists to use computers, various algorithms, and real-time processing of various types of data to create innovative art forms. Many meaningful contemporary design practices have emerged, as well as creative thinking and new design creations based on "generative" changes and impacts from the path in the application field. Computational media art will make us rethink the relationship and influence of art, technology, national culture, social life, and many other aspects. Computational media art opens up possibilities for new interpretations of national culture and national aesthetics.

PURPOSE

The purpose of the article is to discuss the impact of computational media art in fashion creative design on nationalized and localized design, combine algorithmic creativity and designer case analysis of cultural gene composition, and summarize research methods and research paths for future design trends.

RESULTS AND DISCUSSION

Computational media art in fashion design has a relatively short history dating back to the 1990s. Developments in digital technology are beginning to impact the creative process in the fashion industry, as the use of computer-aided design (CAD) software has become common in the fashion industry, allowing designers to create and edit digital patterns, textures, and style garments. In 2010, Alexander McQueen featured digitally printed fabrics and incorporated elements of computational media art, such as animated projections on the runway. In 2013,

Chinese fashion designer Ying Gao designed a series of interactive clothing using light- and sound-sensitive materials to create an immersive sensory experience for the wearer. In 2017, Amazon announced they would start using "AI Fashion Designers," aiming to "replace" designers with artificial intelligence, believing that algorithms could outperform humans in responding to customer needs [1]. In fashion design, mathematicians, computer scientists, or fashion designers with programming skills are pushing the boundaries of professional fields and driving more innovative designs. It is an important research paradigm and method in social science research methods to research the evolution of artists, artworks, and emerging artistic styles.

Dr. Aaron Hertzman, a researcher at Adobe, believes that computers do not create art, but people use computers to create art. We consider human artists as authors, acknowledging that humans are always the masterminds behind the work and that computers are just simple tools [2]. Computational media art in typical fashion design is based on the cultural genes and aesthetic consciousness in Chinese traditional culture and national culture, from various cultural symbols such as architectural shapes, paintings, sculptures, murals, ethnic costumes, decorative patterns, and other functions Starting with the form, interpret the semantics of decorative art patterns, colors, crafts, and the relationship between cultural worship and design in the artistic semantics of fashion design, and combine this relationship with fashion to evolve. The study of cultural genes is mainly through events, habits, art forms, and other ways to achieve the purpose of conveying culture through the form of cultural genes. This type of design trend satisfies the social identity of minority cultures, conforms to modern fashion trends, and improves the public's aesthetics of life.

Chinese designers Huo Kaidong and Cui Jingyi created and carried out the costume design (fig. 1, a) with the theme of "Guoerluosi". inspired by the legend of the beautiful Mongolian goddess "Chagangaowa". This beautiful folklore serves as the inspiration for our clothing design. Through clothing, more young people can understand our Mongolian culture and the concept of harmonious coexistence between man and nature that has been followed for generations.

a b

Fig. 1. Fashion Design: a – Huo Kaidong & Cui Jingyi; b – Gaia Xiong Ying

The dress design (fig. 1, b) of the high-end Chinese women's clothing brand "Legend of Gaia Xiong Ying (heaven gaia) perfectly reflects Chinese aesthetics, and Chinese elements are used just right. Dunhuang culture and art, also known as Mogao Grottoes culture and art, is known as the art of the oriental world Museum.Professor Huang Mingfen believes that the value of aesthetic computing has been expressed in many ways in history, the most important is: aesthetics can inspire computing in concept [3]. In 2019, the brand's spring and summer series launched a fashion show with the theme of "painting the wall at a glance for a thousand years." The style design combines classic elements such as Bodhisattva and flying Apsaras in Dunhuang murals and uses traditional crafts such as silk and Suzhou embroidery. The beauty of contemporary Dunhuang, which combines ancient mystery with elegance and magnificence, is presented to people.

The latest "generative art" project of German new media artist Golem Klon VIII - "Brass Braided Dress," wrote a computer program called "weaving algorithm," and then the program created the above work with unique details. It is the creation of fashion design using algorithms. "Generative art" refers to algorithmic art. However, artists can also use chemistry, biology, mechanics and robotics, intelligent materials, manual randomization, mathematics, data mapping, and other creative methods — the dresses designed by the artist and created by algorithms present to the audience as pictures.

Digital artists can also use "hybrid design" algorithms. It relies on processes involving the segmentation, juxtaposition, and superposition of multiple media elements, often obtained from digital sources such as photographs, scans, and digital drawings. Stitch Fix uses a "hybrid design" algorithm for clothing design. From a 30- to 80-piece jigsaw puzzle, clothing can be generated by color, fabric type, collar shape, and button count. However, this "hybrid design" still relies on human designers to design the actual garments based on guidance provided by algorithmic analysis.

CONCLUSIONS

Digital fashion expression based on computational media art is the integration and innovation of tradition and trend through the "process" and "mode" established by technology. While preserving traditional clothing elements as much as possible, it meets the social needs of sustainable development and is an organic combination of technology and environmental protection, inheritance, and innovation.

REFERENCES

1. Knight W. Amazon has developed an AI fashion designer. 2017. URL: https://www.technologyreview.com/2017/08/24/149518/amazon-has-developed-an-ai-fashion-designer

2. Hertzmann A. Can Computers Create Art? *Arts.* 2018. Vol. 7. № 2. P. 18. doi:10.3390/arts7020018

3. Huang Mingfen. The Rise of Aesthetic Computing. *Journal of Chongqing University of Posts and Telecommunications (Social Science Edition).* 2011. Vol. 23. № 04. P. 90-94.