Application of AI-Assisted Painting Creation Based on AIGC Background

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Abstract: Image generation in generative artificial intelligence has become a hot AI technology in today's new media era. With the civilian development of AI drawing, AI painting is widely used for painters, helping them improve their production efficiency and product quality, and providing them with more design materials and design ideas. But at the same time, the original ecological market environment of art painting has produced confusion, resulting in a substantial reduction of the threshold of the art market, followed by a large number of contradictions and difficulties. There are still a lot of problems waiting to be solved in the auxiliary application of AIdrawing, and there are multiple voices in the definition of its contribution to art, but the development potential of AIdrawing in the AIGC environment is undoubtedly huge. This paper will start from all aspects of its auxiliary application, through examples to help us continue to learn positively, promote its auxiliary application, and promote the faster and better development of the art field.

Keywords: Generative artificial intelligence, art painting, Traditional painting, AI painting, auxiliary application

1. Introduction

AIGC (Artificial Intelligence Generated Content) is currently in a phase of rapid development, and it has become a major innovation in the field of content creation, not only increasing the efficiency of content production but also creating creativity and quality beyond human capabilities. AIGC is particularly outstanding in news writing, social media content generation, and art creation. However, it also faces challenges such as copyright, ethics, and quality control.

In the new media environment, technology has become a hot topic focused by the world today. In 2022, a digital oil painting work named "Space Opera" won the prize in the art competition at the Colorado Fair. The work was completed with the painting tool Midjourney, which caused great controversy because of its unique creative method. It also makes the AI painting of generative artificial intelligence once again cause a lot of discussion. In the same year, domestic and foreign Internet giants including Google, Microsoft, Tencent and Baidu all participated in the business development and acquisition financing of AI painting, which revealed the potential value of AI painting in the digital era [1]. AI painting, that is, the use of artificial intelligence technology for image creation and graphic design. Compared with traditional painting, painting relies more on algorithms and deep learning technology, and its creation process is more rational, showing unified, standardized and diverse characteristics. The value of the work is mainly reflected in the aspects of

technological innovation, data quality, algorithm level and computing power consumption [2]. Nowadays, the development of AI painting has gradually separated from the popular understanding of "copy collage". For example, if the past painting is from hundreds of people separating a part to form a new person, the current AI painting has increasingly to find a fixed drawing law in hundreds of millions of pictures, and then take a pixel from each picture to splice and develop the direction of innovation.

Since the deep learning technology that supports most of the operation process of AI painting has been replaced by programs, for users, there is no need for complex operation processes such as drafting, drawing and coloring in previous paintings to directly generate images. Therefore, the professional barriers of art practitioners have been broken by artificial intelligence, more and more people are trying to flood into this market [3], and the threshold requirements for art have been greatly reduced. For example, in the AI incident at the China Academy of Art, three people in the oil painting department generated an AI painting with AI painting for multiple generations, printed the original drawing directly, copied the painting on it, and then filled in the corresponding color. It claims to be its own original work, and after gaining a certain amount of attention on the network, it carries out commercial behavior. After being found by netizens to apologize, it caused people to discuss "the students of the National Academy of Art are painting with ai, where is the future of art in the end". AI painting, which was born as a technology, should have changed from assisting creation to leading creation, causing chaos in the art creation market.

2. Analysis of AI-Assisted Creation Application of Painting

2.1. The Improvement of the Ability to Think in Artistic Creation and the Quality of Works

The emergence of AI painting has lowered the threshold of artistic creation to a certain extent, allowing more people to participate in the creative process, by simplifying complex painting skills, AI drawing users more focused on the creation itself, rather than technical details. According to the data given by China's intelligent AI community, the characteristics of users are young, more than 46% are college students and graduate students, and even 18% are junior high school and high school students. In the industry distribution of painting users, art and design workers only account for 24.2%, ranking second, ranking first is the offline industry, accounting for 26%, and ranking third is the Internet industry, accounting for 24%." Painting can provide inspiration, help different users to explore different artistic styles and visual expression methods, and stimulate users' creativity through the analysis and reconstruction of imitating existing artworks so that everyone has the ability of artistic conception and artistic design. More and more interested users are using artificial intelligence to realize the transition to professional user groups [4], and a large number of ideas are truly presented to people, making the creative ideas in the art world more colorful. The quality of the work has also been greatly improved.

Unlike CG (Computer Graphics) painting, which takes the artist as the leading role and uses the computer as the main tool for manual visual design and production, AI painting has a unique underlying principle [5]. Take Midjourney as an example, as an AI painting artefact that automatically generates pictures for text descriptions, its high quality, high speed and simple usage make it quickly popular all over the world. In Midjourney, you only need to use text to express the picture you want to express, then select the desired style and environment, and wait a few seconds to generate the first version of the drawing. If you are not satisfied, you can continue to refine the description generation, and select the most satisfactory picture among the generated images and redraw iterated until a satisfactory drawing appears. This makes the phenomenon that we used to say that because we can't paint and can't express our thoughts and thoughts will no longer appear.

2.2. Enhance the Efficiency of Artistic Creation

Alibaba's artificial intelligence designer Lu Ban, during a "Double 11" shopping festival, created 170 million accurately displayed advertising materials (8,000 pieces per second), equivalent to 300 designers working non-stop for 100 years [4]. AIdrawing in the context of AIGC has an incomparable production rate, although its production rate depends on a variety of factors, including existing technology, the complexity of the algorithm, the amount of training data and other factors, but compared with people, we are still unable to compete with it.

AI painting tools can replace or assist designers to complete these complex, time-consuming and labour-intensive steps in their work, effectively improving the creation efficiency and speed of artistic design. For example, designers can save the time of collecting materials, and on the basis of determining customer requirements, they can save a lot of time for drawing drafts, etc. The reduction of repetitive work can make more time on the creative production that really belongs to the creation [6].

2.3. Break the Traditional Mode of Artistic Creation

AI painting challenges the traditional definition of "artist" by allowing anyone to generate a work with a click and special instructions. Through big data analysis and learning, it integrates various styles to create many works, transcending the artistic cognition of its creators, thus creating new art forms and styles, and breaking the traditional solid aesthetic needs.

On March 7, 2023, Coca-Cola released the creative advertisement "Masterpiece". The short film used StabIe Diffusion technology to transform the static famous painting into a dynamic video picture with the background of the art museum, artfully connecting several world-famous paintings. The characters pass around a Coca-Cola bottle to help a student in need of inspiration and a pick-me-up opens it [7]. Starting with Andy Warhol's iconic Coca-Cola, the Coke bottle passed through paintings such as William Turner's The Wreck, Edvard Munch's The Scream, Van Gogh's Bedroom in Arles, and eventually Vermeer's Girl with a Pearl Earring. This short film not only shows the creative appeal of Coca-Cola but also shows the application potential of AI technology in the field of art. In this, art creators provide innovation in thinking, and how to achieve it is handled by AI, fully demonstrating the integration of art and technology.[7]

AI art is not to copy paintings for profit but to think about the new artistic inspiration and artistic thinking brought to us by AI painting, just as the Gome graduation exhibition "rhino+", the work generated by mid-journey, using the story of Durer's painting of rhinos, with an anonymous manuscript and a paragraph of text to iterate 200 times to "revive" rhinos. Although the painting should not be put in the painting exhibition, it is undeniable that the artistic thinking displayed by it really invites serious thinking, and the technological progress brought by new things has new implications for the painting industry. In the new era, the full use of new technologies to dig deeper into art and create more possibilities. AI provides artists with ideas, but the specific expansion of ideas still requires solid painting skills and painting display to fully use all the ideas brought by AI.

3. Reverse Reflux of Aipainting Auxiliary Creation

The generation principle of AI painting is simply based on the learning ability of computers and neural network algorithms, by analyzing a large number of image features learning the rules, and then generating a new pixel map from tens of millions of pixels and gradually refining it into a completely new and unique painting step by step. In the learning process of the computer, it will read a large number of pictures, which may read some unauthorized works on the Internet, but because the generative adversarial network provides the key core model support for generative artificial intelligence, many poor-quality pictures have been screened out in this first step. This is also an

important reason why AI graphics can produce high-quality work. Although AI painting generates new paintings based on previous image data, it does not simply piece together the elements of multiple pictures but generates completely independent new images through the analysis of image data and convolution operations. [8]

With the rapid development of AIGC, the auxiliary creation of AI painting has presented many challenges and opportunities for the art world, but it has also led to many limitations, resulting in many dilemmas and contradictions.

3.1. Aidrawing Deception

"Trump arrested", "Musk became a steel worker", "the clarification video of the British princess", etc., all have AI drawings, and the "deep camouflage" of AI drawings makes people insist that "pictures are the truth" into a joke, if there is no later interpretation and clarification, this picture makes people believe it is true. This is enough to see the enormous deception that AI painting can bring.[9]

The picture itself is deceptive, the information he wants to show you is the information that the sender wants to show you, such as the photo of Prince William of Britain getting out of the car, changing the Angle, and being abused by 10,000 people. Painting is the same truth when one cannot distinguish its type, whether it is an original painting, taking photos and uploading, or computer drawing, or AIdrawing, when uploaded to the same social platform, only a picture cannot define its creation environment, and now social media as an indispensable software for everyone, as the most important software for communication. Its impact is so rapid that it is impossible to resist in a few words in reality. The benefits brought by the rapid popularity on the Internet are also the fastest fame and fortune scene brought by AI painting to some people.

3.2. Ethical Risks of AI-Assisted Creation

Whether the artistic creation of AI is truly creative and perceptive, this is to touch the core of art, that is, whether art is just the display of art, or must include human emotions and souls. The boundary of art cannot be defined, and many people like to use this emerging mode of art creation in social media platforms, in which AI painting has a tendency of randomness and entertainment, which separates the formal beauty from the value judgment and also weakens the ethical dimension of art. [10] When art created by AI is almost indistinguishable from the work of human artists, it damages the rights of the original artist and leads to copyright disputes.

But for many people, they are art laymen, and their interpretation depends more on surface analysis or the text explanation given by the author combined with the picture to reflect it, and when you give the drawing drawn by the AIto the AIand ask him to analyze the work, the AI may give a work interpretation idea far beyond your thinking, and with the "art" with pictures and pictures issued, An entertainment platform will attract a large number of people to watch, and now, AI is mixed in a large number of artworks, and it is easy to avoid recognition. At this point, the AI is perfectly hidden under the body of an "artist", and for the training of the AI, the "artist" will produce more works of the same style from this painting. But at the same time, the process of painting still lacks the emotional involvement and life experience of human artists, which leads people to question the value and meaning of the artwork.

3.3. Artistic Cycle of Aidrawing Assisted Creation

After all, the generation of AI is based on learning various works of art, and all its theoretical logic and creativity are framed by the existing art. Although the rapid development of AI has brought dividends at the technical level, it cannot go beyond the peak development of art. Through the multi-

level imitation of art levels, it makes everyone an artist, but artists are ultimately divided into different levels. The introduction brought by AIdrawing is still unable to break through the existing artistic height, which is an inescapable repetitive closed loop for the innovation of the art world. A steady stream of people enters the art market, but the limitations of technology cause aesthetic convergence, and the mainstream art style of society is defined by AI, but AI is based on the learning of people, and people learn from AI. In this process, the artistic talent required by art is gradually ignored, and personal style is difficult to discover, resulting in the saturation of the basic art market, but the development of the high-end art market is slower or even stagnant.[11]

The rapid development of new things and new ideas is the common discussion and creation of many participants, based on generation after generation of progress and breakthrough and sustainable development, if the indiscriminate use of AI is too widespread, human art will always be in an existing closed loop. Although there are more and more "artists", if everyone relies too much on technology and ignores the training of their own art foundation, skills and skills, their innovation and ability will eventually fail to break through themselves [12], and their aesthetic and thinking will gradually be solidified by AI. Such people are not enough to achieve the "conditions" of artists, no matter in terms of painting skills or artistic thoughts. They have neither the ability to draw, nor the ability to create, nor to experience the spiritual world of art, and more knowledge is only a superficial pursuit of "art is priceless".

But there may also be a gradual closed loop. AI painting brings a new art form and style to high-end artists, breaking the traditional solid aesthetic, so that high-end artists break through all the ceilings, thereby broadening the walls of the art field. But these are only a few people, and it takes a longer period of progress to promote all aspects of the art industry to bring progress to the entire art industry.

4. Conclusion

The rapid development of AIGC has brought many rapid changes to the society. In the future, with its continuous progress, the "six fingers" that people laugh at will not exist, the fixed law of human painting will be more deeply applied by artificial intelligence, and artistic creation will be more deeply combined with artificial intelligence. AI painting, as an auxiliary creation tool, provides a new perspective and possibility for human art creation. Although there are still many challenges and issues worthy of discussion, its potential to promote artistic expression, improve creative efficiency and promote the popularization of art cannot be ignored. As various problems and disputes are gradually revealed in front of us, we still need more ways to cope with the underlying data of AI, regulate their behaviors, and improve legal copyright issues, and young artists should use AI drawings as auxiliary tools, rather than as generative software that can be directly used. AI painting is the future, but AI painting will not dominate the future.

References

[1] ZHAO Ruizhui Li, Research on the Value, Dilemma and Countermeasures of AIPainting on the creative side in the context of AIGC, Beijing Cultural Creativity, 2023.10.30,44-46

[2] Guan Xinran; Xu Jifeng, AIPainting: A New Path for Intelligent Exploration of New Media Art Design in Newspaper Industry, Media, 2024-04-25,77,79-80

[3] Yang Yuhe, Evolution, Influence and Speculation of AIPainting, Media, 2023-09-10,52-54

[4] Zhang Xiuqiong, Opportunity and Crisis under AIPainting, Cultural and Creative World, 2024.1.25,87

[5] Zhao Xin, Front High Energy, AIPainting Coming -- Taking Midjourney Creation Application as an example, ART AND DESIGN, 2023-11-14,14-15

[6] Zhang Zeyu; Wang Tiejun; Guo Xiaoran; Long Zhilei; Xu Kui, Overview of AIPainting Research, Computer Science and Exploration, 2024-03-29,4

[7] *Yang Ao, Application of AIPainting Technology in the Context of Media Convergence, News Outpost, 2023-07-25,9-10*

[8] *DAIHongduo, Ethical Reflection on Artificial Intelligence Generative Art -- Taking AIPainting as an example, Research on Dialectics of Nature, 2023-10-18, 143*

[9] *Wu Hongliang, Fei Jun, Tang Keyang, Gou Mengyuan, Painting in the Age of AI: Are artists the Last line of defense between humans and machines? Fine Arts Observation, 2023-08-05,6-7*

[10] *Ma Lixin; Yang Dongni, Identity, Property rights, Competitiveness - Understanding the three basic dimensions of AIpainting, Fine Arts, 2024-03-08,16*

[11] *Yuan Zixin, From AIPainting to AIMeitu: The aesthetic alienation of "anti-reality", Journal of Shenyang Institute of Technology (Social Science Edition), 2024-04-15,27-28*

[12] *Wenxuan Zhao, Peng Shan, Anran Sun,Will AIArt Make Human Artists Obsolete, Art and Design, 2024-01-01,40-41*