The Research on the Characteristics of AI Application in Art Field and Its Value

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Abstract. AI art refers to art forms that use artificial intelligence technology to create, express and display. It can achieve the creation and processing of various media forms such as images, audio and video through machine learning, natural language processing and other technologies. The development of these technologies has provided strong support for AI art. With the continuous development of society, people's needs for artistic expression forms are also changing. Traditional art forms can no longer fully meet people's needs for novelty, diversity and personalization, while AI art can bring people a more colorful art experience. This paper takes AI in the fields of art and music as the research object and uses literature analysis and practical methods to summarize the current status and trends of research in AI art-related fields. It aims to explore the impact of artificial intelligence (AI) on traditional art and its significance to human art creation. First, this paper will introduce the applications of AI in the field of art, including AI in art creation, music and painting. Second, this paper analyzes the impact of AI on traditional art and some of its current limitations, concluding that the limitations of AI in art creation are lack of creativity and artistic depth, as well as lack of emotion and subjectivity, while other limitations are related to moral and ethical issues and copyright ownership. Finally, the paper will summarize the significance of AI for human art creation and discuss how to promote synergy between artists and AI.

Keywords: Artificial Intelligence · Traditional Art · Impact · Value

1 Introduction

The development of artificial intelligence (AI) in various fields has gradually accelerated in recent years, and it has also started to enter the field of art. Compared with the traditional manual production method, AI can not only greatly accelerate the production efficiency, but also bring unprecedented novelty experience. 21st century, with the development of AI deep learning technology, AI search has entered the golden period of application, intelligent voice interaction, machine recognition, virtual reality based on AI technology and other human-computer interaction technologies have advanced by leaps

and bounds, computer hardware technology and painting software technology updates and advances, the creative forms, techniques, means of expression and stylistic features of AI painting art are gradually diversifying and rapidly developing [1]. Thus, the rise of AI in the field of art is inevitable. In particular, AI painting breaks through the limits of human beings themselves and brings painting into a broader public view, opening up a new field of painting art with humanistic spirit as the starting point and anchor point. However, the current AI painting not only has the characteristics of mystery, splendor, depth, complexity, strong sense of the times and extraordinary imagination that people perceive, but also has many problems that cause some people to worry.

What is the principle of operation of artificial intelligence art? What impact does it have on traditional art? What are the limitations of artificial intelligence art at present? How can the ethical dilemma of copyright ownership be solved, and how should AI and human artists get along? Will artificial intelligence replace human creativity? It is becoming questions of anxiety for some people. The emergence of AI art has forced people to confront and reflect on its connection with traditional art, first of all, the inevitable impact on traditional art, which is comparable to the efficiency and quality of human artists in terms of creation methods, speed, style and art market, which inevitably weaken the status of human artists. These inevitably weaken the status of human artists and lead to the decline of traditional art. Although AI paintings can imitate the artist's style and even artistic atmosphere without limit, the real art is the human artist's long time of copying, practicing and thinking to build up the subject matter and style with personal recognition, and what AI can do is just a mechanical copy of technology [2]. They lack real creativity and depth of thought because they can only generate works based on predetermined algorithms and data, and can not create new artworks from their own imagination and life experiences as humans do. The desire to have human emotions is a difficult obstacle for AI to overcome, while art, itself, requires the creator's own experience and emotions as support. It is based on life experiences, from life encounters and inner emotions, and is based on the whole life and the whole world in which people live [3].

AI art in the continuous development, ethics and copyright attribution issues can not be ignored. Countermeasures to Improve the Character of AI Painting Art With the development of the AI painting art market and the further expansion of the regulatory scope, it makes the content regulation face a severe test, in this case, it is difficult to cope if people continue to follow the old laws of traditional art management. The diversified communication mode of the new media art market needs a diversified management system to regulate. Therefore, relevant departments should study the corresponding management system to ensure the rapid and healthy development of AI painting art industry. Further establish a sound industry self-regulatory mechanism, create a benign cultural atmosphere, improve relevant laws and regulations, and strengthen intellectual property protection [4]. It is undeniable that AI has positive implications for human art creation in many ways. AI can provide artists with new creative tools and techniques, expand the art field and improve creative efficiency, as well as integrate knowledge and skills from different fields to promote cross-border cooperation and innovation, and through more convenient ways such as digitization and networking, it can make art accessible to more people and make personalized recommendations according to different audiences'

needs and preferences for personalized recommendations. In addition, AI technology can help preserve, restore and pass on cultural heritage, and promote communication and understanding between different cultures.

A number of industry experts said that the future is the era of "human-machine symbiosis", artificial intelligence will indeed liberate humans and improve efficiency, but its identity is "assistant" rather than "master", similar to A fine camera is a tool for fine art photographers. In this case, the human artist can still determine the purpose of the art. For those who use AI art generation programs, their own cultural backgrounds, education, and personal histories influence their choices and modify the initial "draft" of the images generated by the generator. Based on the above, this paper is divided into four chapters, which are about the operation principle of AI art, the impact and limitation of AI on traditional art, the transcendence of AI on traditional art and its value, and the significance of AI on future human art creation.

2   The Operation Principles of AI Art

In order to explore the characteristics of AI in the art field and its creative value, the author firstly intervenes from the operation principle of AI in the art field, taking AI drawing software as an example, and explores the generalized operation principle of AI combined with art behind it.

(1) Data collection and processing: AI art requires a large amount of data for learning and creation, which can be in the form of pictures, audio, video and many other forms. In the process of data collection, data needs to be processed such as cleaning, labeling and classification for subsequent analysis and application.

(2) Machine learning algorithms: The art of artificial intelligence usually uses deep learning algorithms for model training and optimization. Deep learning algorithm is a neural network-based machine learning method that can be used to continuously adjust the network parameters by back propagation algorithm to improve the accuracy and generalization ability of the model.

(3) Feature extraction and conversion: Before machine learning training, the raw data needs to be feature extracted and converted for processing by machine learning algorithms. Feature extraction can be implemented by methods such as convolutional neural networks, which convert the raw image or audio signal into a higher-level feature representation.

(4) The creation process: After the model is trained, AI art can be created by techniques such as generative adversarial networks (GAN), a generative model based on game theory ideas and consisting of two parts: a generator and a discriminator. The generator is responsible for generating new samples of artwork and continuously optimizing itself by fighting against the discriminator. The discriminator, on the other hand, is responsible for evaluating the authenticity of the samples and guiding the generator to improve them [5].

(5) Application and promotion: Finally, AI artworks can be applied to various fields, such as entertainment, education, and healthcare, and promoted through exhibitions and performances. Many museums and galleries are starting to hold AI art exhibitions to showcase this emerging art form to the public. Some companies have also started

to apply AI artworks in commercial fields, such as advertising and packaging design. Some schools are also actively incorporating AI art into their curricula to foster students' understanding of AI technology and creativity. High-end auction houses are auctioning AI artworks, launching digital collections, and seeing prices climb, indicating the market's recognition and acceptance of this emerging form. In short, as AI technology continues to develop and be applied, AI art will also be more widely promoted and used.

(6) Evaluation and adjustment: During the creation process, the generated results need to be evaluated, and the model parameters and creation strategies need to be continuously adjusted based on feedback information. Evaluation metrics can include image quality, style consistency, diversity, and other aspects.

In summary, the principles of AI art operations involve multiple components and technical means that require specialized knowledge and skills at different stages. The basis for the operation of these AI software is the vast number of published artworks and images in its database from ancient times to the present. Through continuous machine learning and deep learning, the AI forms algorithms that link the presentation of the images of these works with the corresponding textual descriptions and thus runs to generate the images depicted by the user's instructions.

3 The Impact of AI on Traditional Art and Its Limitations

3.1 The Impact of AI on Traditional Art

AI technology, when it first appeared, was a challenge to traditional art around the world, and there were many scientists and artists who said it was detrimental to the creation and development of art. Although earlier AI creations were usually crude, in many cases, low cost and speed overcame high quality and fine workmanship. so, this has become a point of criticism for many artists. As more and more people start to use AI-generated artworks, it will certainly make it more difficult for traditional artists to be employed and face greater competition and pressure. Even due to the rapid iteration of technology, game modeling, scene modeling and other highly skilled professions have also appeared to be replaced. In many people's opinion, AI art creation based on digital technology has completely broken those rules and conventions of art that are taken for granted, and those aesthetic meanings and values that are taken for granted. In the traditional view of aesthetics and art theory, AI creation goes against the "essence" of art creation [6].

Artistic creation has always been an advanced form of human spiritual activity. Since ancient times, it has been believed that only human intelligence can truly comprehend the profound meaning and unique charm of artworks, and the subtle artistic style can only be understood but not communicated. In recent years, the development of machine vision and artificial intelligence is pulling art down from the altar, and almost all human fields are being parsed and reconstructed by artificial intelligence [7]. In terms of creation method, AI art can generate artworks through algorithms and programs, while traditional painting and music requires artists to create their works by hand. For example, Feng Zikai spent 50 years to publish 450 paintings, Monet spent 7 years to finish the world-famous painting "The Great Water Lily", and Hayao Miyazaki penned the manga manuscript of "Valley of the Wind" for 13 years… Most painters need great talent and long training to achieve a commendable level, but today people can actually use only 10 s to complete

a beautiful painting! People do not even need to have drawing skills, just type in a few keywords, choose favorite style, and a painting close to the customer's needs will appear in a matter of seconds.

Although AI art can replace human artists to create more and more detailed works, it will also significantly weaken the position of human artists and lead to the decline of traditional painting techniques, such as the traditional academic school, realism, etc. They have too much emphasis on concepts and techniques, and some of them are still concerned with "school" style or doctrine. In the process of creating AI paintings, there is no need to consider the traditional refinement, such as classical painting, which requires multiple layers of overpainting or transparent painting techniques. With the support of powerful software, young creators are no longer willing to spend a lot of time learning traditional art techniques, and more and more art creators rely on AI to complete their creations, and then perhaps the traditional Chinese art techniques will become "unavailable", for example, the five colors of ink and the eighteen drawings [8]. The AI-generated works of art are now available in large quantities. In the face of the large number of artworks generated by AI, human artists may be inspired or influenced, but they may also lose their unique style and creativity.

3.2 Limitations of AI Application in the Art Field

3.2.1 Artistic Creation Aspect

3.2.1.1 Lack of Creativity and Artistic Depth

Although AI art can generate various forms of artworks, they lack true creativity. This is because they can only generate works based on predetermined algorithms and data and cannot think from their own imagination and life experiences to create new artworks like humans do. AI artworks tend to have similar or repetitive elements, for example, some Ai-generated paintings may have the same colors, shapes, or textures. AI art requires a large amount of data to train models, and without enough data they cannot generate high-quality artworks. Therefore, they are often limited by the data set, and it is difficult for them to go beyond the existing patterns and styles. Although AI has the ability of deep learning, most of their works cannot escape from skill stacking and stitching [5].

The lack of experience and depth in AI art and the shift in the contemporary aesthetic paradigm of the masses are closely related to the lack of time due to the acceleration of society. When the world of life accelerates, so does the world of art, and the aesthetic experience of art is always accelerating.

AI can objectively create more artwork, but it also attracts/distracts more of the viewer's attention and time, so almost every piece loses depth, and the thickness of interpretation tends to "flatten". As a result, the faster it is produced, the shallower the depth of the AI artwork, the more its value is diluted, and the more people lose patience [9]. In an age of rapid development, art is like a dessert: too much of it becomes boring, but people are happy to taste everything. Even if it is only a fleeting experience or memory. Indeed, when AI artworks are accused of lacking depth, they may be seeing only one side of the coin - in an era of accelerated development, depth can also be a barrier to appreciation and circulation [9].

3.2.1.2 AI Art Lacks Emotion and Subjectivity

AI art lacks the emotion and subjectivity to convey deep feelings and ideas. For example, some AI-generated music may sound robotic, cold, or lifeless. Some AI-generated photography may lack the photographer's own understanding and expression of the subject. They fail to express human emotions and experiences and fail to create a true emotional connection and empathy with the viewer. While AI art can generate various forms of artwork, they cannot replace human artists. This is because human artists can create unique and valuable works from their own experiences, emotions, and imaginations, while AI can only generate works based on pre-determined algorithms and data, making it difficult to adapt to different scenarios and needs, to cope with the complex and changing real world, and to produce works that are truly creative and imaginative. For example, in the design field, AI generators may not be able to meet customer needs and provide unique and compliant design solutions, and current AI technology has many limitations, such as handling complex scenes and identifying hidden objects in images, which need further improvement. These technical limitations can also affect the application of AI in the art field.

Artificial intelligence represents the forefront of the development of technology, but in the future for a long time, want to have human emotions, it is difficult to cross the barrier of artificial intelligence, and art, itself requires the creator's own experience, emotions as a support, in a stroke of the outline, into their own personality, the temperature of the story, or show the characteristics of an era, to cause more resonance, not just to "Technology" embodies. At present, AI technology is not yet perfect, it is not yet able to feel beauty based on personal emotions, and naturally, it cannot form independent judgment on art. For example, in the face of a cold winter, Chinese poets can write poems full of mood and shape a romantic mood, but when AI creates, it can only associate winter with cold and snow, drawing a sky full of snow and singing icy lyrics. AI can repair and store memories, but it can never have human emotions. What AI art lacks is not only emotion, but also the embodied feeling of the world that is necessary to produce emotion and the sense of life that is closely related to it [6]. In terms of form, humans may not be better than AI, but AI cannot compare to humans in deeply connecting form to life experience and creating more beautiful and impactful works. This is the irreplaceable nature of human creativity, the true dignity of human creativity [3].

3.2.2 Other Limitations

3.2.2.1 Ethical Issues of AI Art

The social complexity of human beings can also be expressed in their artistic creations. Ethical issues are very closely related to race, time, society, politics, culture, etc. As a tool, artificial intelligence is obviously not currently so socially and politically complex, let alone having the awareness and ability to understand and discern ethical issues [10].

AI art creation algorithms and datasets can be biased and discriminatory. If there is a lack of diversity or inequality in the dataset, then the AI algorithms will reflect these biases and discrimination. For example, a face recognition algorithm trained on a dataset containing only white faces may not accurately identify non-white faces. ai art creation may also be used to spread racial or other forms of discrimination. If an artist were to use an AI algorithm to produce racially charged artwork, this would have a negative impact

on society and could lead to controversy and protests. Sexism or gender stereotypes may also be present in AI-generated artwork. For example, in images generated by GAN (Generative Adversarial Network), female figures are often depicted as curvy, petite and soft, and other traditional gender role stereotypes. Therefore, these ethical and moral issues need to be taken into account when developing and using AI art creation techniques, and steps need to be taken to avoid or reduce them. For example, data sets should be constructed with a focus on diversity and equality and algorithms should be revised, and AI algorithms should be used to create works that avoid discriminatory connotations. At the same time, regulatory mechanisms need to be put in place to ensure that the creation of AI art does not have a negative impact on society.

3.2.2.2 AI Copyright Attribution Issues

After AI painting exploded in social media, some original painters reflected on Weibo that many of the pictures generated on an AI painting platform were completed in the form of puzzles with his works. Does this constitute an infringement of the original painter's rights? Recently three international artists have filed lawsuits against StabilityAI and Midjourney, the developers of the AI art creation tool Stable Diffusion and Midjourney. The plaintiff artists, Sarah Andersen, Kelly McKernan and Karla Ortiz, claim that these organizations have infringed on the rights of "millions of artists "by grabbing 5 billion original images from artists on the web "without their consent" to train their AI tools.

In a blog post announcing the lawsuit, Butterick described the case as "an important step in advancing AI's adherence to fair and ethical principles. He explained that AI art creation tools like StableDiffusion are able to "train themselves with an almost unlimited number of infringing images, quickly producing knock-offs and causing permanent damage to the market, the artwork and the artist." These AI art creation tools have been a real hit over the past year, and the art world has reacted strongly to them. Some people think the tools are really useful, much like previous generations of revolutionary software such as Photoshop and Illustrators, but many more object to the idea of using the material they use to make a living to train these commercial systems. Generative AI art creation models rely on billions of images collected on the Web for training, often without the knowledge or consent of the material's creator. AI art creation tools can then quickly produce works that mimic the style of a particular artist, but whether these systems infringe copyright law or not is a truly complex question.

The central issues in the debate over AI-generated artworks, in a broad sense, are authorship and ownership (i.e., who is the author and who owns the output), the (un)legitimate use of input data to train and teach AI, and liability for AI-induced copyright infringement, and can be categorized as follows: (1) AI-generated artworks are not always easily traceable to humans, thus raising the (2) the core "artistic creation" process is more or less independent of humans, thus challenging traditional notions of creativity and originality (3) the input data may represent copyrighted content, thus raising issues of copyright infringement and certain special rights (e.g., database protection), which in most jurisdictions must be committed by a "human", which AI certainly is not. Therefore, the questions of who the author/copyright owner can hold liable and how to bring claims for AI-induced infringement deserve more exploration and research.

4 The Transcendence of AI to Traditional Art and Its Value

When photography was invented, "technophobic humanists" considered it an insult to the technology of painting. However, according to Walter Benjamin, this banal conception of art, which is exclusive rather than inclusive, is destined to be abandoned [11]. AI art comprehensively surpasses humans in terms of capacity, accuracy, and speed, and consequently brings great convenience and unprecedented favorable conditions for art creation [12]. Some AI artists use AI technologies to generate images, sounds, animations, 3D models, and other diverse forms of expression. In addition, some AI artists also use AI technology to reinterpret traditional works to create new works with new ideas. For example, "AI restored images of old Beijing 100 years ago", "AI restored terracotta warriors and horses of Qin Dynasty", etc. Take the restored images of old Beijing: in the images, people can see the streets of old Beijing at the end of Qing Dynasty, traditional rickshaw drivers, lively temple fair scenes, and the recently introduced four-wheeled carriage. In the images, people can see the streets of old Beijing in the late Qing Dynasty, traditional rickshaw drivers, lively temple fairs, and the recently introduced four-wheeled carriage. There is also a scene in front of the gate of the old courtyard, where several people greet each other with different manners depending on their ethnicity and gender, which can be considered a real demonstration of the etiquette of old Beijing. Just by restoring this small section of footage, so many historical details are restored. Looking at this content, it is as if time travel, allowing the viewer to see the same and different between the present and the past, and to feel the necessity and importance of the existence of AI. in July 2019, Huawei Fang released the ancient music score of "Spring River Flower and Moon Night" restored using technology, which was precisely restored using AI technology. Bringing ancient music from more than 1,000 years ago back to life, it showed the charm of traditional music from the Tang Dynasty, the heyday of China, so in recent years, many artists and scientists have gone from being all negative to being critical and tolerant today. The following paper will show readers some of the attempts made in this paper by exploring the two fields of art and music separately.

4.1 The Transcendence of AI to Traditional Art

4.1.1 Painting Field

The interconnection of technology and art has brought many new opportunities and challenges to the art world. On the one hand, the development of technology has provided artists with more creative tools and media, such as digital painting, virtual reality, 3D printing, etc. These new technologies allow artists to express their ideas and creativity more freely, and at the same time bring viewers a more colorful visual experience. It has changed the process of painting creation and expression, resulting in new artworks that are different from traditional painting forms. Through the huge data analysis and fine text instructions to complete the work with the traditional digital art, now the artificial intelligence software for drawing, has been popularized to the public users, such technology allows users with no art foundation to get an artificial intelligence generated work through text input, image, etc. In the past two years, AI painting has become more and more popular among young people in China, such as the "Big Painter demo" and "Dream Thief" AI painting.

Take the dream stealer as an example (generating pictures with text) AI bridges the gap between text and images. As long as a text description is entered, AI can present the picture imagined in the user's mind. The bolder the text entered by the user, the more the AI-generated picture breaks through the human imagination, just like stealing a gorgeous painting from a dream. It belongs to the branch of AIGC (AI-Generated Content), which is an AI platform that can generate pictures based on input text ", the first author of the NLP natural language processing field - Dr. Zhenzhong Lan led the research and development. It was finally launched by the Deep Learning Lab of Westlake University and Westlake Xinchen Technology Co., Ltd (an AIGC startup incubated by the Deep Learning Lab of Westlake University). The program is divided into two sections: AI drawing and AI video, and the AI drawing is divided into dreaming drawing board, wishing drawing board and ControlNet drawing board. They are finely designed for different scenarios of user needs. Dream painting board (exclusive Wenshengtu model) write key words in the picture description box, for example: "tulip bouquet, vivid color, high detail, visual art, pop art" and slide down the operation page and there are 24 painting styles to choose from - in addition to In addition to the basic oil painting, watercolor, anime style, and secondary painting categories, it also includes special styles such as cyberpunk (as Fig. 1 Shown), vaporwave, pixel art, Ghibli, and CG rendering. If there is a style that the user clearly wants, it can also be matched with 11 world-class masters such as Monet, Van Gogh and Paul Cezanne. Wish Board (secondary editing of images through text) allows users to upload images to be edited and enter editing instructions, such as: change the scene to night, change the background to a meadow. ControlNet Board (customizable reference pose, edge, depth, line drawing model to generate images) can automatically recognize the lines and colors drawn by the user and generate images with an artistic sense of the image. Compared with other countries' AI painting platforms, the operation of the Dream Thief is more convenient and user-friendly, without the need to download any third-party applications, and more importantly, each work generated here, the copyright will be entirely owned by the user who generated it, and users can use these AI products to play social platforms, use them as material for artistic creation, or create greater value.

Fig. 1.   Dream stealer, "Suzhou garden, cyberpunk, style psychedelic, color". (from: printidea.art)

In addition to Chinese AI painting software, this paper also made various attempts, such as using foreign StableDiffusion, Midjourney, NovelAI, StableDiffusion, Dalle2, NightCafeCreator, Tiamat, etc. The following are some representative examples of works (as Fig. 2, 3, 4 shown).

As people can see, there is no shortage of excellent and creative AI work. The accuracy and detail of the instructions determine the completeness and controllability of the output, as Jason Allen, the winner of Space Opera, said in an interview. As Jason Allen, the winner of Space Opera, said in an interview, authors who use artificial intelligence to generate incredible work are often excellent designers or artists in their own right [13]. This paper argues that artists can use the text-to-image platform as a tool at all. By entering their intentions through text and then evaluating the possible generated images, as shown above [1], they can adjust the text multiple times. The image examples included here using similar language cues show how text can be translated into images in different ways. Artists can select the images they prefer to generate and modify them.

Fig. 2. DALLE 2 images, "Apaintingofafoxin the style of StarryNight" (Photo credit. Chat GPT DALL-E 2 images)

Fig. 3. StableDiffusion, "Dark girl with rabbit ears, Beauty and the Beast. Sitting towards the right, arms crossed in the lap." (Photo credit. StableDiffusion StableDiffusion)

Fig. 4. Midjourney, "amightpirateintricate, hyperdetailed, finedetails, styleofRonGilbert, hdoctanerender, 8k-s5000" (Photo credit. Midjourney)

The use of AI can powerfully enhance the divergent and generative parts of the creative output, which the artist will evaluate. Artificial intelligence will be a powerful addition to the artist's creative toolkit.

4.1.2 Music Field

In terms of music track creation, for example, how does AI recover the score? In fact, the basic content is big data analysis plus external algorithms, AI composition has a combination of the use of a variety of algorithmic models, including artificial neural networks, Markov chains and genetic algorithms. For example, the author is currently studying a course in the use of teaching software, the method of creating AI music. The first one is to open the interface, select the type of instrument needed, record a blank track, and then choose the step recording method to input the notes which want to play one by one. If it is a complex chord, then people can choose multiple instruments and record multiple tracks. The final AI chord is finished (as Fig. 5 shows). The second method is that if the experimenter is a professional pianist or a good pianist, people can choose to start recording directly and play the composed score on the piano, and the AI music piece is finished.

Secondly, in terms of music teaching, music tasks that used to be done with synthesizers or music teachers can now be left to the computer due to the phenomenon of artificial intelligence music software applied in modern music teaching. This not only improves the efficiency of music teaching, but also breaks the traditional and inherent teaching model. In addition, through artificial intelligence, it is possible to adapt the contents of poems and other poetic texts into musical compositions. Instrumental, vocal and other scores can also be played directly in the classroom, teaching and learning.

Due to the development of AI composing technology, AI music has gradually started to be commercialized. The current stage of AI technology development people can see the field of short video background music, game soundtrack, film and TV drama theme
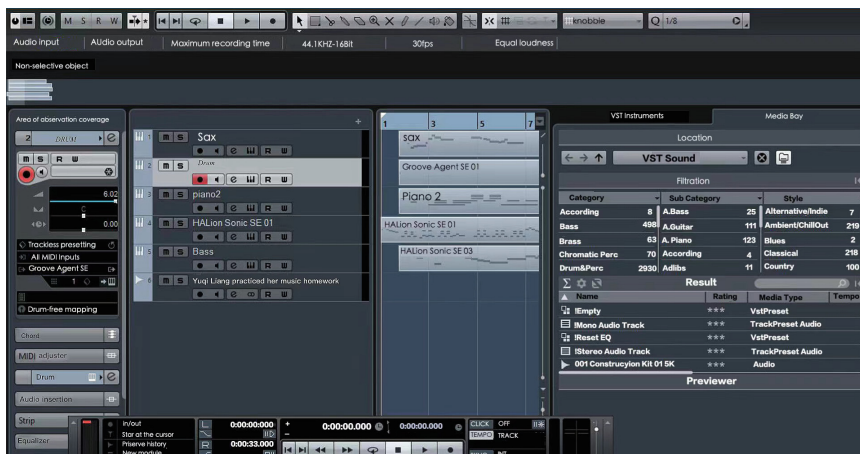
Fig. 5. Cubase software creation exercise (Photo credit. New.steinberg.net)

song and background music of the launch. Because AI music does not require a high degree of originality, the originality of background music for ordinary art scenes such as conferences and commercials is also not high, so for those who are more concerned about the cost and price, using AI music is undoubtedly a better solution. Virtual singers are now making their presence felt, such as AI singers like Lotte, Microsoft Ice, etc. The application of AI technology in the music market is already moving in a more advanced direction. For people, AI technology is a challenge and an opportunity. Although AI music has caused many artists to argue, it is undeniable that AI technology is definitely very beneficial on a musical level, although it will lead to a series of related problems for human musicians. Therefore, humans have reason to believe that the future of AI music is bright, and its application will have a broader prospect, and the music industry will use AI technology more often.

4.2 The Significance of AI for Future Human Art Creation

4.2.1 Significance to the Artist

First of all, the significance of AI for human art in the future era of "human-machine co-ownership" cannot be denied; the development of AI is making up for or even surpassing human limitations, and people should not reject or deny it, nor should they blindly follow the trend or worship technology, but where will AI lead art to? "Art will become purer in the future, and AI can help us filter out the real artists." In Zhai Zhenming's view, this technological element of innovation will lead artistic originality to a higher position. AI can provide artists with more creative inspiration through big data analysis and machine learning, change the way artists think, help them rethink problems, and explore new ways of expression. According to Song Ting: AI will never replace the light of the most precious spiritual creation of human beings, but AI provides a new medium and way of thinking for contemporary art expression. With the help of emerging information technology, artists can break through the limitations of two-dimensional paper and paint

in more dimensions, even allowing AI to paint and exhibit and sell in their own hometown, the world of code [5]. Science and technology as the driving force of social development is achieved through wide application and integration with human society.

Technological advances have not only not brought the history of art development to a halt, but have further stimulated human creativity, whereby human art can continue to burst forth in new forms. The current application of artificial intelligence synoptic digital technology and the emergence of digital network platforms have changed the concept of artists' creation, so that their creative thinking is not limited to a specific historical period or a certain subject matter but has laid the foundation for enriching artworks because of the richness of creative subjects [7]. At the same time, it makes the artist's creative thinking more free and more conducive to the transformation of the direction of the play of imagination and creativity, further broadening the artist's vision. With the continuous development of science and technology, the innovative application of artificial intelligence technology not only enriches and updates the art language, but also makes the creative thinking of artists more contemporary and makes the visual experience of painting enter a new field. People's demand for visual experience has progressed and improved, and paintings are no longer satisfied with the effect of two-dimensional pictures. Artificial intelligence technology enhances the interaction between human and art, it breaks people's understanding of the art of painting and deepens their perception of the visual experience of painting. Along with the exponential progress of AI technology, human society will most likely step into the era of strong artificial intelligence, and the creative practice of AI art will certainly move toward the development situation of high integration of human and technology [14].

4.2.2   Implications for Artistic Creation

Compared with traditional art, AI art has a broader connection with people's lives, so AI painting art is moving towards the mainstream art form. AI painting can convert two-dimensional or three-dimensional graphics into computer-displayed painting art through computer mathematical algorithms. With the update and progress of computer hardware technology and painting software technology, the creative forms, techniques, means of expression and stylistic features of AI painting art are gradually moving towards diversification and rapid development. The perfect combination of digital technology and traditional painting forms is what facilitates the innovative development of art and the sustainable development of technology and humanities [4]. This is because AI art can improve the quality of art by automating the processing, optimization, and enhancement of images, and it can generate a large number of artworks quickly and improve the efficiency of creation. More importantly, AI art can also help artists explore deeper artistic issues. For example, how to define "creativity"? How to evaluate the "sense of beauty"? These questions have always been debated in the fields of philosophy and aesthetics, and through the use of AI technology for creation and analysis, some new answers may be found. As the technology and social environment change, AI art will also continue to develop and grow, and bring more surprises and revelations. In the future, if AI wants to make new breakthroughs in the field of art, it will have to improve even further in the deeper technology and perfect it, so that the quality of the created art works will be even better.

5   Conclusion

This article focuses on the characteristics and value of AI applications in the art field and discusses four aspects: the operation principle of AI art, the impact and limitations of AI art on traditional art, the transcendence of AI on traditional art in the field of painting and music, and the significance to human art creation. The article argues that although the continuous development of AI art will produce huge disruptions to the traditional art industry, it is like the emergence of the Jenny spinning machine and the camera during the industrial revolution a hundred years ago, which will disrupt many industries and make some people lose their jobs, but this is also a historical inevitability. The development and progress of an era needs to sacrifice the interests of some people in order to give birth to more emerging, more in line with the development of the times of the industry, so as to promote society to move forward. People do not need worry too much about AI, perhaps should dialectically look at its advantages and disadvantages. It can bring artists and even ordinary person extraordinary creativity and infinite inspiration, and in another way constantly remind people which direction they should go, constantly breaking the boundaries of art and human beings themselves.

Although AI still has many limitations, such as lack of creativity and artistic depth, lack of emotion and thought. It is still an impossible task to get AI software to independently draw works that fully meet the client's requirements, especially when the more specific the requirements are, the more likely it is that AI will have problems in creating them. Nowadays, AI painting software is actually more suitable to do some preliminary creative support work, providing some interesting directions, while human artists continue to improve their creations to make their works more creative and valuable. Because this paper only refers to the characteristics of AI applied to the field of art and music, but not to other fields such as film and television, literature, etc., future scholars can pay more attention to the research characteristics of AI in other fields to continuously enrich the relevant content. At the same time, the theoretical research on AI art, copyright ownership and ethical issues should also be continuously improved. It is believed that in the future, with the continuous innovation of technology, AI will definitely become the best assistant for artists, and artists should keep their original intention and enthusiasm for art, and with AI to make art more free, diversified and creative.

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