Fostering Athletes' Mental Resilience: Artistic Innovation and AI in Sports

Quan Xia[1*]

Abstract

As artificial intelligence (AI) technology rapidly advances, the world of artistic innovation in sports paintings encounters both unprecedented challenges and exciting opportunities. AI's capacity to learn pushes the boundaries of traditional creative thinking within the realm of sports art, introducing a more diverse and intelligent approach to the creative process. However, the actual ecosystem for creativity and its application within this context lacks a robust management model, necessitating fundamental theoretical innovation and standardized discipline.This exploration embarks on a journey to elucidate the practical applications of AI technology in the creation of sports art. It delves into the pivotal roles played by AI professionals, creative artists, and viewers in shaping the future of sports art innovation. It paves the way for an innovative approach to sports painting and decorative art, grounded in AI intelligence.Emphasizing the symbiotic relationship between human and AI capabilities, intelligent product development, artistic creation, and the constraints on creative behavior, this inquiry dives into emerging application areas. Through this lens, it seeks to gain a deeper understanding of the essential cycles of innovation in the field of sports plastic art, driven by the transformative power of artificial intelligence

Keywords: Artificial intelligence era; sports painting creation; painting applications; Athletes'; sports

1. Introduction

In the ever-evolving world of sports, athletes face not only the physical challenges of competition but also the mental hurdles that can significantly impact their performance. Mental resilience, the ability to withstand pressure, bounce back from setbacks, and maintain focus in high-stress situations, is a critical component of an athlete's success. Recognizing the importance of mental resilience, the sports community has been exploring innovative approaches to enhance this aspect of athlete development. Artistic innovation and Artificial Intelligence (AI) have emerged as two distinct yet interconnected domains that offer promising avenues for fostering athletes' mental resilience. These fields have the potential to revolutionize how athletes prepare for and cope with the demands of competitive sports. Artistic innovation in sports involves the incorporation of creative and expressive elements into training and performance. It recognizes the power of art and aesthetics in not only enhancing the visual appeal of sports but also in promoting emotional and psychological well-being among athletes. Through artistic endeavors, athletes can explore their inner worlds, express their emotions, and develop a deeper understanding of themselves, ultimately contributing to their mental resilience (Ji et al., 2022).

Artificial Intelligence (AI) stands at the forefront of modern technological advancements, encompassing theories, methodologies, technologies, and software management systems designed to simulate, augment, and expand human intelligence. The global surge in AI has permeated various aspects of public life, revolutionizing production processes and daily existence. In the context of sports and mental resilience, the profound impact of AI extends its reach to the art of sports painting and modeling (Ji et al., 2022). AI's influence on traditional painting and modeling is unmistakable, transforming the landscape of artistry. AI-driven innovations in art, particularly in sports-related domains, are reshaping the traditional paradigms of aesthetics and human anatomy. By harnessing the power of the internet and AI, individuals from diverse backgrounds are participating in the world of sports artistry. Pioneering artists are at the forefront of this movement, continuously pushing the boundaries of creative expression (Chen, 2022). Notably, the emergence of AI-driven sports painting tools and platforms such as Google's AutoDraw, Microsoft's Little Ice, and Photo Andy has accelerated the integration of AI into the creative process. These tools have given rise to a multitude of AI-generated sports art pieces. As a result, a growing community of artists, software developers, marketers, and literary critics is closely following the evolution of AI art in the sports sector. However, the rise of AI art has sparked contentious debates. Discussions now revolve around the evolving practical value, ethical considerations, professional implications, copyright issues, and marketing dynamics in

[1] Department of Global Fine Arts,The Graduate School, Kyonggi University,Suwon 16227, Gyeonggi, Korea
*Corresponding author: Quan Xia, Email: shawn20221108@163.com

AI-generated sports art, compared to traditional forms of artistic expression (Becker, Eigenfeld, & Kerpes, 2023).

2. State of The Art and Analysis

2.1 Wavelet-based Visualization Techniques for Enhancing Athletes' Mental Resilience through Artistic Innovation and AI in Sports

Artificial Intelligence (AI) has emerged as a groundbreaking technological field, reshaping our understanding of human intelligence and its applications in modern society. The global surge in AI has permeated various aspects of our lives, from production processes to daily interactions. In this evolving digital landscape, AI's influence extends into the realm of sports psychology, particularly in enhancing athletes' mental resilience and performance.

AI's foray into the world of sports psychology represents a paradigm shift, challenging traditional approaches and offering new avenues for innovation. This transformation parallels the impact of AI on art, particularly in the domains of sports painting and modeling. AI-driven advancements have not only democratized artistic expression but have also revolutionized the way we perceive traditional art forms.

In recent years, notable AI-driven applications such as Google's AutoDraw, Microsoft's Little Ice, and Photo Andy have given rise to a plethora of AI-generated artworks, catalyzing a transition from mere novelty to a full-fledged creative production. This surge in AI art has garnered attention from artists, software developers, marketers, and literary critics, sparking intense debates on its practical value, societal implications, professional standards, copyright issues, and marketing strategies in comparison to traditional art.

Within the field of sports psychology, AI's integration offers novel opportunities for fostering athletes' mental resilience and well-being. The intersection of AI and sports psychology presents a dynamic landscape, enabling personalized interventions, data-driven insights, and enhanced mental conditioning for athletes.

This paper explores the multifaceted relationship between artistic innovation, AI technology, sports psychology, and athletes' mental resilience. It delves into how AI-driven artistic innovations can inform and enhance the mental fortitude of athletes. By leveraging AI's capabilities, athletes can benefit from tailored mental resilience programs, data-driven performance analysis, and innovative approaches to psychological well-being.

As we navigate this evolving landscape, it is essential to recognize the transformative potential of AI in the context of sports psychology and athletes' mental resilience. By embracing the synergies between artistic innovation and AI, we can unlock new frontiers in optimizing athletes' psychological preparedness and achieving peak performance in the realm of sports (Chen et al., 2019).

The process of sketching wavelet moments is shown in Figure 1.

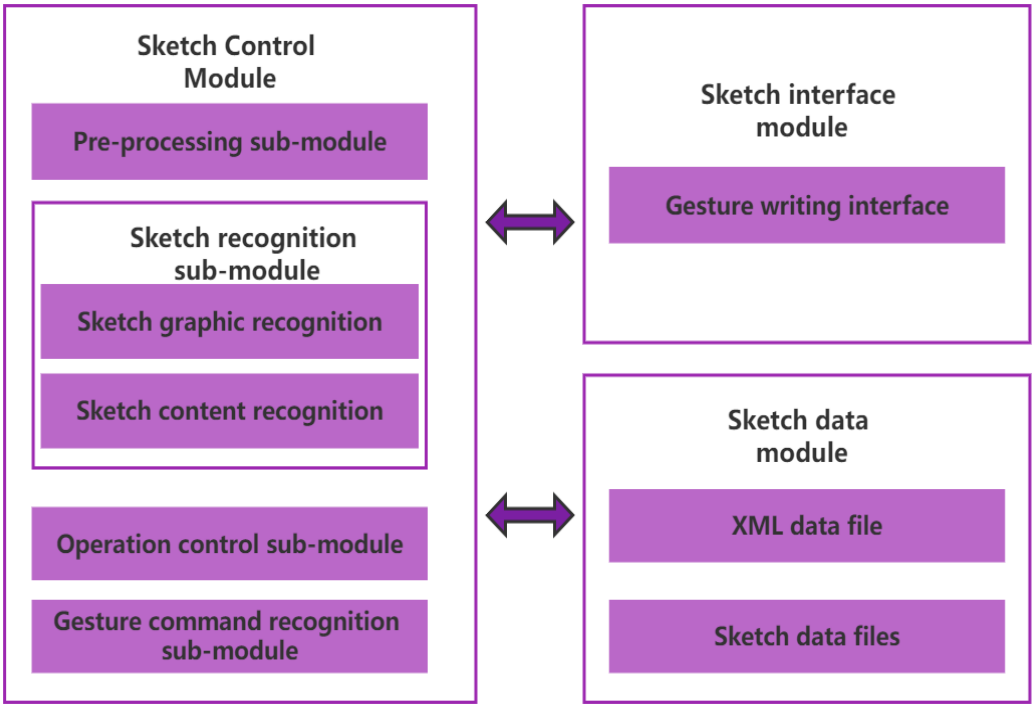

Figure 1. Wavelet moment sketching process

2.1.1 Basic theory of invariant moments

A two-dimensional chromaticity spread over f (x,y) indicates 1 manuscript and the function f (x,y) indicates the luminance value of the sketch pixels at the point (x,y). Let f (x,y) be the luminance function of the sketch and define its (a+b) order moment function as follows:

$$T_{ab} = \iint_{v} r_{ab}(x,y) \int (x,y)\, dx\, dy, a, b = 0,1,2,\cdots \quad (1)$$

where: υ is the region of the sketch in the x-y plane used to represent the interval of the domain of definition of the f (x,y) function; rab (x,y) (the power kernel of the moments) represents the continuous function associated with (x,y) in υ; a,b are integers (Chu & Wu, 2018).

2.1.2 Wavelet invariant moments

The wavelet transform enables effective extraction of local features from sketch images, as its use in extracting image features provides a window in the frequency domain alongside a window in the time domain. Let ja (m) be the basis function and the sub-wave function be expressed as:

$$r_{p,q}(m) = \frac{1}{\sqrt{p}} j_a\left(\frac{m-q}{p}\right) \quad (2)$$

where p and q are the stretch and translation factors respectively.

Wavelet invariant moments are obtained by replacing the basis function ja (m) with the wavelet basis function rp,q (m). Using the 3 times B spline wavelet function as the mother wavelet r (m), describe it as:

$$r(m) = \frac{4p^{i+1}}{\sqrt{2\pi(i+1)}} \vartheta_z(\cos 2\pi f_0(2m-1))$$
$$exp(-(2m-1)^2/[2\vartheta_z^2(i+1)]) \quad (3)$$

where: the order i of the B-sample is 3; the scale factor p, the modulation factor f0 and the amount of deviation ϑz2 are 0.706 569,0.397 917 and 0.605 412 respectively (Newall, 2021).

In the wavelet basis function in the choice of 3 times the sample wavelet to carry out svm algorithm, because it has a relatively finite smoothness, symmetry and its Gaussian function close to the performance characteristics, in the time domain frequency domain in the part of the information advantage is relatively large, the way and Zernike algebraic moment similar, can make similar to look like a body of recognition image local features of more durable and more efficient acquisition.

The discretization process of the subwave function is:

$$\begin{cases} p = p_0 u \\ q = q_0 vu \end{cases} \quad (4)$$

u,v are integers.

The parameters p,q are generally chosen as discrete values. The size of the control image is in the range m≤1. Let the parameters p0,q0 be 0.5, then p,q are:

$$p = 0.5u, q = 0.5v \quad (5)$$

where: u=0,1,2,...;v=0,1,2,...,uv+1.

Then the wavelet function basis is:

$$r_{u,v}(m) = 2u/\left(2r(2u_m - 0.5v)\right) \quad (6)$$

2.2 Technicality in the creation of sports paintings

2.2.1 Technicality is formed in long-term sports painting creation

Every artist embarks on a journey of creative exploration, honing their skills and developing a distinctive artistic style. From the early stages of learning to paint to the creation of individual masterpieces, artists traverse a path marked by the acquisition of technical expertise. This journey encompasses various aspects, including the study of subjects, composition design, color theory, and the intricate use of lines and contours. A hallmark of an artist's development is the establishment of a unique sports painting design style, informed by their technical prowess. This technicality in sports painting is not achieved overnight but demands dedicated practice and refinement. It encompasses nuances such as mastering the interplay of light and shadow, the arrangement and fusion of lines in sketching, and the intricate handling of color palettes. Each master artist follows a distinct creative process, characterized by its own rationale and methodical approach. This process encompasses numerous considerations, from the selection of canvas size and background color solubility to achieving the desired level of smoothness in the finish. It dictates the sequence of color application, the modulation of spacing, the use of various media, the delicate balance between translucency and opacity, and the final application of varnish (Zhang, 2020).

Attaining a classical sports painting style necessitates specialized training and extensive practice. For instance, in the realm of watercolor sports painting, creators often employ innovative techniques to enhance the materiality of their subjects and create visually striking compositions. Some may incorporate wood shavings to create unique textures, while others opt for sand or coarse cloth to add tactile depth. The 'additive and subtractive' painting method is another technique, involving the layering of shadows and highlights to achieve the desired contrast and luminosity in the artwork. These technical challenges in sports painting, whether in capturing the dynamic energy of athletes or the intricacies of sports scenes, underscore the importance of technical mastery in artistic innovation. The fusion of technical expertise and creative vision is what allows artists to push the boundaries of sports sports painting, creating compelling works that resonate with audiences and capture the essence of athletic excellence (Zhang, 2020).

2.2.2 Technical problems in the use of the palette

The palette is crucial to the painter's creative process, and the perfect painter will apply a palette with an orderly colour sequence and a fixed point of relativity in colouring. In the process of sports painting, the painter uses a palette with a range of warm tones, a range of cool tones, with fixed areas for different types of colour in terms of contrast and purity. The palette used by experienced painters will become an ordered chromatographic analysis table. At this stage, there are some young painters who use palettes, usually adjusting a full palette and then changing to another palette, and there are even some painters who use several palettes together, which then reveals the technical difficulties of applying palettes.

2.2.3 Technical problems in printmaking

In woodcut printmaking, from the use of hand carving tools to the application of wooden plates, there are many technical difficulties involved. For example, there are dozens of carving knives, some of which can carve fine filigree, some thick lines, some small dots and some slanted dots. Wood engravings also vary in their application, with knives that are either straight or slanted, flat or spade, all of which can only be grasped through long-term practice. For example, the concentration of chemical liquids used in copper engraving, the size of the etched surface and the application of protective layers all need to be appropriate. It is only through constant observation, training and experience, and through the specific guidance of the teacher and their own long-term practice, that the students can master the main points of the technique.

2.3 Mapping Cluster Analysis Method and Results

In the attribute clustering analysis link of user portrait, fuzzy clustering theory using matlab data processing method for attribute factor clustering analysis. tatham & anderson et al. felt that the number of clustering algorithms is 3 to 6, then the study showed that it will be easy to solve and communicate with communication. The number of clustering algorithm types c=3 was set during the project to communicate with the business side (Toribio, 2018). The clustering centre priming matrix of the 3 class clustering prototypes measured according to the genetic boosting FCM optimization algorithm is tabulated in Table 1.

Table 1

Clustering centre priming matrix for the 3-class clustering prototype

Clustering prototype	User samples
Clustering Prototype I	18, 27, 29, 19,30,25,8,22,2,11,14,13
Clustering Prototype II	4,5,9,12,15,24,16,23,17,26,28
Clustering Prototype III	1,3,6,10,7,20,21

Calculation of the fitness function, the implementation of selection, crossover, genetic variation operational process, save the integration of individuals with high rates to produce the next generation, as shown in Figure 5 for the adaptive capacity curve graph conclusion, from the graph to see the mean value iterative update 30 times can start adaptive capacity tend to the best, 100 times can stop the calculation. The iterative mean update graph is shown in Figure 2.

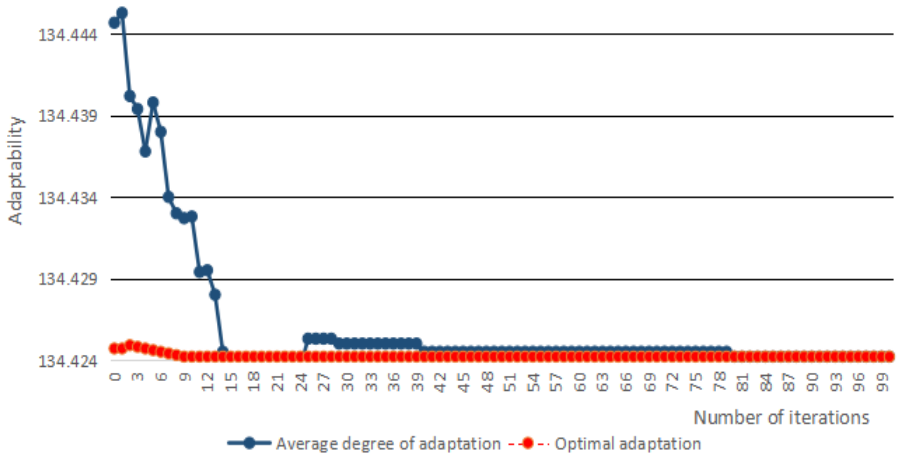

Figure 2. *Iterative mean update graph*

Classifying 30 consumer samples according to larger affiliation objects, the sum of the affiliation of each sample to the three clustering algorithm prototypes being 1,finally Figure 3 was obtained as a tree diagram of the clustering algorithm. The tree diagram shows a high degree of similarity in the structural areas within the group chats, with significant differences in the middle of the group chats (Ueda et al., 2021). Table 2 shows the layout of the 3 class clustering protoforms and their matching characteristic attributes.

Table 2

class clustering circular layout diagrams and their matching characteristic attributes

Factor serial number	1	2	4	11	12	15	16	17	21	24	26	27	29	32	35
Clustering I	3.1	1.2	0.3	0.5	0.6	0.7	0.6	0.7	0.5	0.7	0.6	0.4	0.6	0.5	0.6
Clustering II	2.6	1.6	0.9	0.4	0.4	0.8	0.6	0.5	0.6	0.7	0.4	0.3	0.4	0.5	0.6
Clustering III	3.3	1.8	0.6	0.6	0.5	0.8	0.5	0.4	0.7	0.6	0.5	0.4	0.5	0.6	0.4

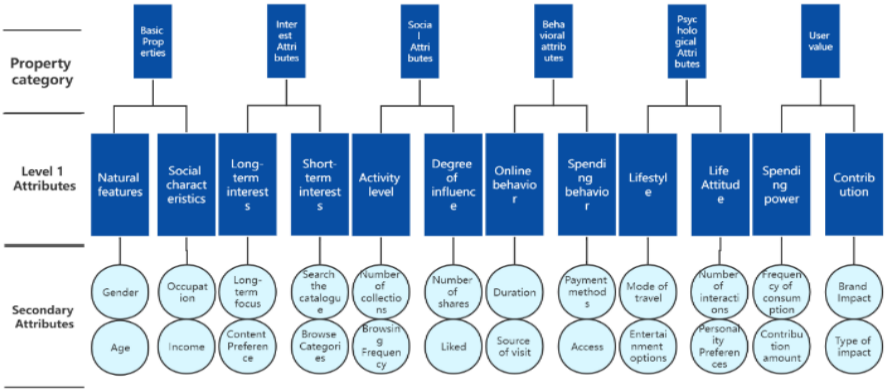

Figure 3. Tree diagram of the clustering algorithm

2.4 Human creative work will not be replaced in the professional work of intelligent mapping

2.4.1 Artistry in the creation of sports paintings

2.4.1.1 About the language of art

Fine art sports painting involves the artistic language of point, line, surface, composition, proportion, size, perspective, hierarchy, light and darkness, three-dimensionality, colour, layering, texture effect, etc. The selection and application of each artistic language are inseparable from the subjective design conception of the creator. Each work of art is a combination of different artistic languages, for example, the composition of dots, lines and surfaces, the visual contrast of black, white and grey, all these. The creator, according to the concept and emotion he wants to express, can take the form of overlooking, side view, looking up, wide, flat and long-term composition, and the visual effect produced by various ways is different. Western sports paintings focus on focal point compositions, and Da Leonardo's The Last Supper has a strong visual effect of a focal point on the stage of a performance. Traditional Chinese sports painting, on the other hand, focuses on scattered perspectives, as in Zhang Zeduan's Qingming Shanghe Tu, which has a moving visual effect of a walking horse. The effect of composition in sports art painting.

2.4.1.2 On three-dimensionality

Layering is an important way to achieve three dimensions in two dimensions. sports painting, if it is to represent primarily a sense of volume, must apply artistic expressions that reflect a decent ground connection, such as the illuminated surface, the backlit surface and the backlit surface. The vast majority of artworks that want to mainly express deep and distant scenes, with the actual effect of the depth of the region, need to flexibly use the law of "parallel perspective, near the real and far from the virtual"; want to mainly express the actual effect of light and darkness, need to scientific research gloss and "three sides of the five tones ".

2.4.2 Artificial intelligence in sports painting

A sense of subjectivity is an important distinction between the creation of professional classics and the creations of others. The AI neural network algorithm is not capable of confirming that it can understand the true meaning of traditional aesthetics; it lacks the essential sense of subjectivity and works in a unconscious environment, capturing some of the artistic characteristics of the artist's original work and applying them to the latest work. The process of combining the work of the creator with that of the AI is shown in Figure 4, and thus the AI lacks the capacity for technological innovation, as it should be the source of data and information generated by the accumulation of many classical works, without subjective reasons of aesthetic conception, and ultimately because of its limitations in literary aesthetics (Wan, 2020). Artificial intelligence is therefore lacking in the ability to innovate on its own; it should fundamentally be the data and information generated by the accumulation of many writings, without the subjective factor of aesthetics and therefore depending on its limitations in artistic aesthetics.

The structure of human knowledge is capable of being very all-encompassing and of possessing the consciousness to do as it pleases, and the fire that strikes during this time cannot be replaced by equipment. It cannot, therefore, produce works of art in the true sense of the word, but it cannot completely replace human work.

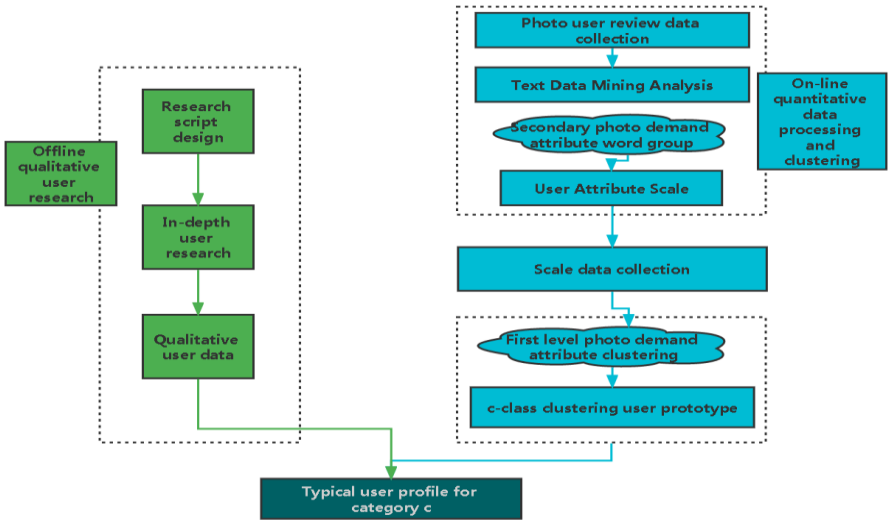

Figure 4. The process of combining creator and AI work

3. Solutions and strategies

3.1 Intelligent interactive art creation mechanisms and their responses

Interactive experience painting has made great progress in the field of painting and fine painting. The theme of interactive communication has changed, and traditional sports painting and fine painting system software have also been endangered. This chapter discusses the application of intelligent sports painting in the painting sketch, the organic relationship between many elements in intelligent interactive creation and the actual operation effect, so as to better understand the creation system software of interactive sports painting and better grasp the periodicity of sports painting creation. Intelligent interactive art carries out the art creation process as shown in Figure 5.

Figureg 5. Intelligent interactive art for the sports art-making process

3.1.1 Cognitive mechanisms of intelligent interactive drawing and their response

Artistic creation is the way and method for artists to express their personal thoughts and communicate with others, which reflects her ideological process in artistic aesthetics, logical thinking ability, artistic expression techniques and emotions. The emergence of all new technologies can bring more tools and media to artists, and can also change their thinking skills and knowledge system. On the one hand, the birth of network media provides artists with a good opportunity to try unprecedented artistic creation methods and innovative thinking abilities. Such breakthrough practical activities can provide new perspectives and concepts; On the other hand, the application of Internet media has expanded the artist's sense of happiness and body, touched the past work experience, and created norms for exploring a wider range of material and spiritual worlds. Unlike the previous creative media, AI technology has the ability to learn and explore independently and create artistic creation with special aesthetic acceptance. Although they can't grasp the whole process of creating plastic arts videos with artificial intelligence technology, these distinctive art and design concepts can make artists better understand design ideas (Scalera et al., 2022).

The theoretical understanding of interactive communication art is the precondition and foundation of interactive art creation. If there is no certain basic knowledge of interactive communication art, the creation of interactive communication art cannot be carried out. With the application of artificial intelligence in the field of art, many artists feel confused and uneasy, and their creation lacks the application of the most basic theory. Because of changing such things, improving the teaching and research of interactive communication art can become an important measure. Government agencies, universities, research institutions and relevant enterprises should work together to create an interactive art education and research system software, taking the innovation of artificial intelligence as the core content (Ye & Wang, 2022). In general, it can start from the following aspects: first, complete the permeable core courses of artificial intelligence and interactive art, set up corresponding technical majors, set up courses, and cultivate professional talents who understand both artificial intelligence and interactive art; Second, carefully study and refer to the interactive art research and practice achievements between the new releases, and grasp the development direction of the AI art writing method path; Third, promote the theoretical basis of scientific research on interactive communication art, and explore the internal relationship between artificial intelligence and interactive communication art; Fourth, immediately explore the original intelligent interactive art, discover the regularity, and thus produce an all-round thinking system. The updated Smart Interaction System is shown in Figure 6.

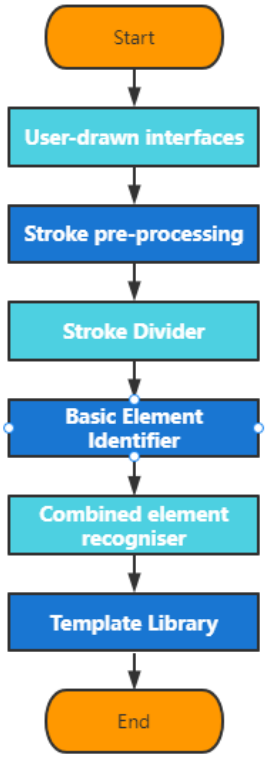

Figure 6. The updated Smart Interaction System

3.1.2 Innovative mechanisms of intelligent interactive sports painting and their response

In the art of AI interactive communication, it is far from enough for artists to cooperate with leading experts and experts in the field of AI, but it is also very important to immediately introduce new and efficient development and work experience in the AI industry so that we can better integrate the intelligence technology into the artworks, which will give artists a higher demand. Intelligent interactive art is an exciting art (Bellia, Fragliasso, & Stefanizzi, 2020). This process requires everyone to master a wide range of cutting-edge technologies, test and operation processes, innovative thinking ability and procedures, as well as innovative artistic methods and core ideas. The technical composition of artificial intelligence artworks must be based on cutting-edge science and technology, so as to facilitate the design and production of intelligent system software according to intelligent perception system, human-computer cooperation and integration. In essence, intelligent interactive art is the close connection between artificial intelligence and human intelligence. Therefore, the high-quality development closely following the latest release of AI is the main prerequisite for the art of writing, interaction and communication.

The art of interaction and communication is not only a major performance art, but also an art of social practice. Only by promoting the essence of the innovative spirit of art practitioners and encouraging the interactive exchange of artistic creation, can we truly develop and innovate in a practical way. At the same time, we should also expand and use public places, and closely combine interactive communication art with public art, so as to enhance the audience's motivation, concept and imagination to participate in artistic creation. In addition, it is also possible to formulate systems, establish an innovative comprehensive service platform, stimulate the application and innovation of interactive exchanges of art, and reward those who have made outstanding contributions to the production and dissemination of interactive exchanges of art (Wang & Zhang, 2022).

3.1.3 Collaborative mechanisms for intelligent sports painting and their response

Art and science belong to two understanding industries. Although they are different in content and form, they all strive for the same overall goal, exposing the core and regularity of the objectivity problem, and promoting everyone to advance in his era. On the one hand, science has created a new research content and added a new working method to art; On the other hand, art creates a

sense of picture for science and improves people's thinking. From the perspective of art, every prosperity of art and the occurrence of new art methods are the result of scientific and technological innovation. Therefore, artists should not ignore the development of science and technology, but should track and apply the conclusions of the cutting-edge technology market. The mechanism of collaboration between intelligent interactive systems and companies is shown in Figure 7.

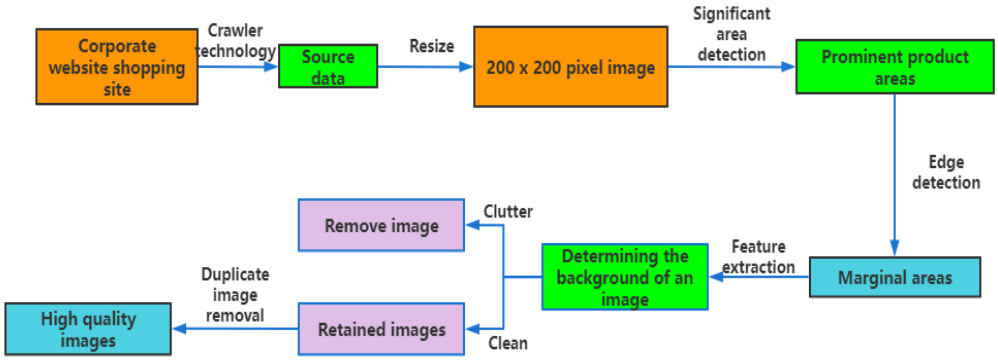

Figure 7. Mechanisms for collaboration between intelligent interaction systems and enterprises

With the rapid development of artificial intelligence technology, machine equipment is more intelligent software, and the integration of man-machine combat cannot be delayed. As human perception, mind and body broadening, AI news media can expand human energy and intelligence, and at the same time, people can also help AI get sensory cognition. Once the cognition expressed by the intelligent monitoring system on personal behavior is similar to that of human beings, it will become a means to help artists create works, especially when creating works. At this time, the interactive communication artist has long been trying to use artificial intelligence to create his works (Zheng & Su, 2021). Artificial intelligence is the result of cross-discipline, infiltration and combination. It is also the result of natural science and social science, including accurate measurement science, information science, mathematics teaching and philosophy theory. Interactive art is a comprehensive plastic arts from home and abroad, with high scientific and professional ability. Therefore, the creative logical thinking of artists must be subject to intellectual and technical constraints. Therefore, in the practice of interactive art, artists should form alliances with experts and professors in the field of artificial intelligence to exchange, interact and cooperate.

3.1.4 Behavioural constraints on intelligent sports painting and their response

The use of AI in plastic arts writing will lead to risk prevention and control methods and ethical issues. For example, can AI replace artists' subjective harm? Is it plagiarism for artists to copy AI works? In the field of intelligence, artificial intelligence does not cause a certain degree of ideological and emotional thinking, so artists only regard intelligent products as a creative special tool media. The core of plastic arts writing is still the most basic person with human nature. However, once the efficient pace of scientific and technological progress enters the period of strong artificial intelligence or even very artificial intelligence, artists will have to face the dilemma of testing artificial intelligence agents. It is only a matter of time before this stage comes. Therefore, we must consider the rapid development of professional ethics to define AI and artists' actions. At the individual level, we must improve the artists' sense of value responsibility, post-modernism and ethics; In terms of innovation, we must closely link artificial intelligence with the principles of dialectics, improve technical exchanges and cooperation, etc., so as to create a positive future development for a positive and psychologically healthy aesthetic ecological environment.

4. Applications and Results

4.1 Artificial Intelligence in the Art and Design Creation Basin

The vast majority of artificial intelligence is still at the level of weak artificial intelligence. Artificial intelligence has gone through a process from "shallow learning training" to "deep neural networks", and with the flourishing of "deep neural networks", artificial intelligence has gradually begun to improve its cognitive ability to see problems, to grasp the meaning of words very efficiently, quickly and precisely, and to take out all the information. The ability to see the problem cognitively, to grasp the meaning of words very efficiently, quickly and precisely, and to take out all the information explicitly, was a very big development in the ancient history of AI (Sarkar, 2022). Computers get empirical

learning based on database methods, due to the ability to use databases to quickly enhance, the high efficiency of the level of cloud computing technology, as well as stronger optimization of computing methods, to promote the flourishing development of artificial intelligence continues to accelerate. In addition AI is slowly switching from supervised learning training to unsupervised learning training. The unsupervised thinking of artificial intelligence is an improvement to our bottom line of technological innovation. The following are examples of art sketches, production animation and film directing, respectively, to illustrate the use of AI in drawing creation writing and how to collaborate with everyone in drawing creation. The weight values and associated ratings for AI for creative writing are shown in Table 3. The weight value sampling data is shown in Table 4.

Table 3

Weighting values and associated ratings for creation by artificial intelligence

Topic word summarisation (after treatment)	Weighting values	Validity rating (%)					Valid and above (%)	Number of related comments
		Invalid	Somewhat effective	Effective	Very effective	Extremely effective		
Share	0.0129	0	20%	20%	40%	20%	80%	35678
(Change) Looking good	0.0141	20%	0	40%	20%	20%	80%	30243
Records	0.0134	0	20%	0	40%	40%	80%	26121
Emoticons	0.0138	0	20%	20%	20%	40%	80%	18746

Table 4

Sampling data for weighting values

	Serial number	User samples													
		Factors	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Photographs Track	1	Proportion	7	3	5	2	6	7	9	4	2	5	2	1	3	2
	2	Filters	3	1	1	2	3	3	4	1	0	2	1	0	1	1
	4	Stickers	2	3	3	5	5	2	0	5	6	2	1	6	0	2
What to shoot	11	Selfie	1	0	1	1	1	1	1	1	0	1	0	0	1	0
	12	Pets	1	0	0	1	0	1	1	1	0	1	1	0	1	1
	15	Gastronomy	1	0	1	1	1	1	1	1	1	0	1	1	1	1
Photographic needs	16	Writing	1	0	1	1	1	1	0	1	1	0	0	1	0	0
	17	Layout	1	1	1	1	1	0	1	0	1	1	0	1	1	0
Why Shoot	21	Share	1	1	1	1	0	1	1	0	1	1	0	1	0	1
	24	Records	1	1	1	0	0	1	1	1	1	1	1	0	1	1
	26	Travel	1	0	1	1	0	1	1	0	1	0	0	1	1	0
When to shoot	27	Eating	1	1	1	1	0	1	1	1	1	0	0	0	1	1
	29	Night view	1	0	1	1	1	0	1	0	1	1	1	1	0	0
Where to shoot	32	Street Photography	1	0	1	1	1	1	1	0	0	1	0	1	0	0
	35	Topics	1	0	1	1	1	1	1	1	1	0	1	1	1	0

4.1.1 Artificial intelligence in the field of sports painting creation

In July 2019, the artificial intelligence service robot Microsoft China's "qq 小冰" held its first solo exhibition, "Maybe the World", at the Art Painting Exhibition of the Central Academy of Fine Arts, which was also the result of qq 小冰's use of GAN digital models to learn from 236 famous painters from around the world over the past 22 months. After studying 236 famous painters from all over the world, he developed his own independent art sketches, which were distilled into six personality traits, covering the late Faustian style, the abstractionist style, and the Bonnard and Vial design style (Galli et al., 2022). In 2014, generative adversarial networks (GANs) began to achieve breakthroughs in our technological innovation, generating a way that many templates are learned and trained from a library of samples, based on which a generative adversarial network can transform text into images, which is also formed in an artificial intelligence way. In addition, artificial intelligence can also transform text into images. In this way, people can use the expertise of artificial intelligence to quickly transform some images into the aesthetic creations of some master artists, or even several master artists, in an unusual design style.The AI painting process is shown in Figure 8.

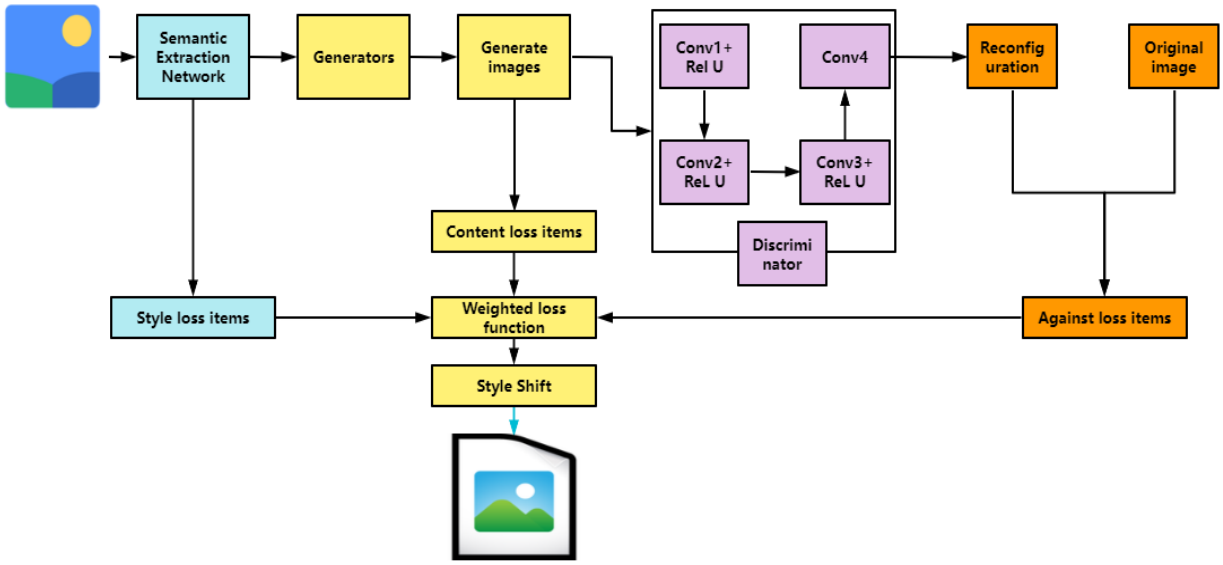

Figure 8. Artificial intelligence sports painting process

4.1.2 Artificial intelligence in the field of animation creation

Artificial intelligence can be used to great advantage in the creation of decorative arts with a high degree of accuracy. For example, in the creation of traditional animation, it is important that the original drawing designer carry out the basic drawing draft production, but also to carry out the development of such original drawing draft colouring, and the general animation of 12 frames per second need to produce personnel to make out one by one, 20min animation then need to produce the upper book of art painting to complete, which is a production of a large amount of engineering projects. The use of artificial intelligence common tools, can make the animation production efficiency further improved, using the most cutting-edge artificial intelligence common tools, efficiency can be increased by tens of thousands of times, to carry out an episode of animation only must be several hours (Guo & Gao, 2019). The information and content required for the artificial intelligence painting are shown in Figure 9.

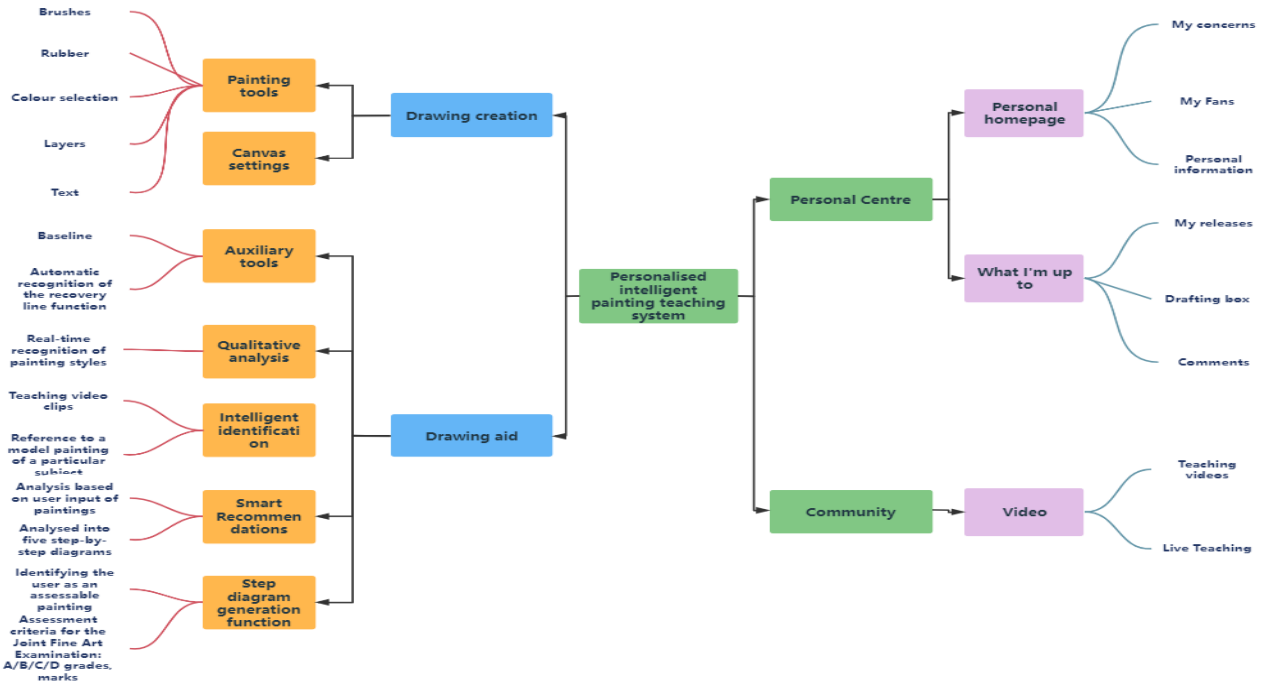

Figure 9. Information and content required for artificial intelligence painting

The artistic expression of a painting creation is not expressed by the technique, but is determined by the painter himself. In today's paintings, masters are more casual and skillful in the application of different raw materials, for example, in Chinese paintings, not only Chinese paints are used, but pe, sketches, watercolours, pigments, etc., and even paving and cutting, all enrich the picture. If one were to create a painting merely for the sake of technique, the image would inevitably be soulless and devoid of emotion. The creation of a painting is not a copy of the sketching objective, but rather an expression of the painter's true emotions, based on the needs of the emotions and the needs of the picture. The artist should continue to digest, assimilate and refer to it, and treat it correctly to the value and role of colour in the creation of a painting (Qian & Zhu, 2019).

Artificial intelligence cluster system can be set by the production staff to attribute, logical operation procedures, a key to generate the basic animation, for example, in a lot of people move street scene, in the previous animation production, need an animator consume about a month of time to make, that if the application of artificial intelligence production, can set a large number of people walking path, a large number of posture or embodiment, and the chance of variables such, the whole process This can further increase the efficiency of animation production in scenes where more than one person is involved, in addition to freeing up matching designers to work constantly to develop vital and creative scenes and storylines (Iqbal et al., 2020). The process of quantitative analysis of painting scenarios by artificial intelligence is shown in Figure 10.

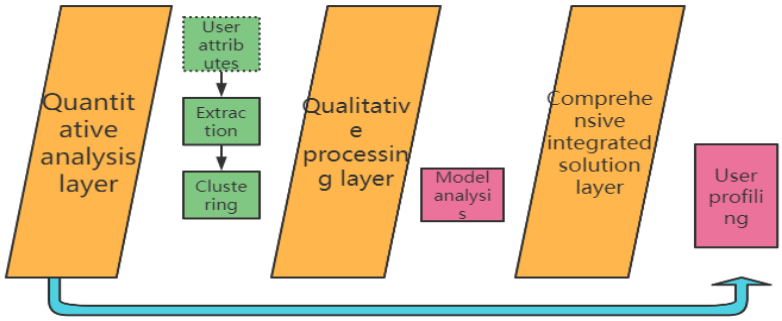

Figure10. Quantitative analysis of the painting scenario process by artificial intelligence

At present, the use of artificial intelligence to carry out animation creation is still at a relatively low stage, most of its research results in the stage of weak artificial intelligence, to reach very artificial intelligence, still need to overcome more technical problems and difficulties. For example, artificial intelligence swarming equipment and style migration, all belong to artificial intelligence to carry out animation prototype condition, and also can not be separated from the interior designer adjustment and production manufacturing, but the cooperation between artificial intelligence and human creation, has been able to further improve the production of high efficiency (Cucci et al., 2019).

5.Conclusion

In the realm of sports painting, artists embark on a creative journey that involves not only capturing the physical prowess of athletes but also delving into the depths of their mental resilience. Much like their counterparts in traditional art, contemporary sports painters seek to establish their unique creative design styles. These styles are shaped by the strengths and talents of individual artists, who draw inspiration from the world of sports.

To excel in sports painting, artists adhere to fundamental composition standards while exploring diverse methods of composition that convey a wide range of mental states and emotions. They harness the emotional nuances that different composition forms evoke to infuse their artworks with depth and meaning. Sports painting, in essence, encompasses all the elements of the visual arts, merging technical proficiency with the spiritual essence of emotions. The creative process in sports painting is a practical endeavor that allows artists to fully grasp the intricacies of pictorial elements and video representations. It cultivates sound thought patterns and refines their depiction skills. As artists engage with the subject matter, whether it be athletes in action or moments of mental resilience, they gain a deeper understanding of the emotions and narratives they wish to convey through their artwork.

In this rapidly evolving landscape, the relationship between artificial intelligence and human creativity takes center stage. Artists must adapt, embracing the cyclical nature of artificial intelligence's rapid development. They recognize that artificial intelligence, when harnessed effectively, can complement and enhance their creative endeavors. By actively engaging with artificial intelligence, artists empower themselves to leverage its capabilities, strengthening the development of sports painting and welcoming the new era with creativity and innovation

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