



# Auxiliary Design of Oil Painting by Computer Technology Under the Background of Big Data

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**Abstract.** At present, China's oil painting is moving towards a new field of development, but there are few monographs and discussions on the artistic research of oil painting creation. Most of the research on oil painting creation in academic circles is the introduction of oil painting skills and critical articles. In order to make the contemporary oil painting creation have a good development space in China's academic circles, it is necessary to conduct in-depth research on the artistry of oil painting creation, follow the development principle of keeping pace with the times, and apply the advanced Internet technology in the research process of China's oil painting creation, so as to promote the development of China's oil painting creation.

**Keywords:** Internet plus · Background · Oil painting · Art of creation

## 1 Introduction

In the new era, people's life is more affluent and their living standard is also greatly improved. The use of modern advanced Internet technology can transfer all kinds of information to people. Internet technology not only provides a lot of convenience for people's life, but also promotes the rapid development of China's culture and art field. In the field of oil painting creation, we need to break through the previous research on oil painting creation, follow the artistic rules of oil painting creation, and combine with modern advanced Internet technology to promote the emergence of new oil painting creation mode in China [1].

Image based oil painting stylized rendering is one of the hot topics in the field of computer graphics. In order to further improve the quality of image oil painting stylized rendering, a hierarchical image oil painting stylized rendering algorithm based on multi-scale brush is proposed. The algorithm simulates the oil painting process of artists, In each layer of brush painting, the incremental Voronoi sequence sampling points and image tangent direction field are used to determine the brush streamline, and then the brush shape and brush height field are combined for texture mapping to obtain the final image oil painting stylized rendering results, The algorithm can not only simulate the real process of oil painting, but also generate a more hierarchical oil painting effect, which fully reflects the structural characteristics of the image and oil painting details.

## 2 The Important Role of Real Emotion in Oil Painting Creation

The art of oil painting is a creative form of labor. Only through careful drawing, careful consideration and continuous improvement can painters create fine works. In today's era, oil painting creation needs a breakthrough to meet the needs of modern people's pursuit of personality. Oil painters need to express their feelings in the process of creation [2]. An oil painting can be called perfect only when it presents the rich inner feelings of oil painters. For creation, the most important thing is the injection of emotional factors, to meet people's wishes and needs. The creation of oil painters' works is to bring pleasure to people and help people form a positive, healthy and optimistic mental state in life. For oil painters, good mood will directly affect the creation of oil paintings.

Compared with the urbanization process of western countries, China's historical agricultural civilization and agricultural social tradition make China's urbanization process difficult. However, in the process of accelerating the development of urbanization, the development and changes of rural areas are obvious. At the same time, social imbalance brings more and more problems and contradictions. Like the history of urbanization in the west, painters agree with the inevitable trend of modernization in concept, but they are still full of nostalgia and longing for the tradition of local social civilization (see Fig. 1).

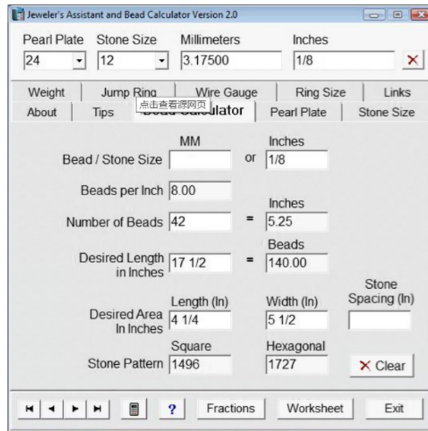


Fig. 1. Painting assistant system

## 3 The Artistic Expression of Rhythm and Rhythm in the Process of Oil Painting Creation

### 3.1 The Influence of Rhythm and Rhythm in Creation

Art is interlinked, and different works of art have different artistic characteristics. Rhythm and rhythm are not only used in the field of music, but also in oil painting. In the

development history of oil painting in China, rhythm and rhythm play an indispensable role in the process of artistic creation. With the help of artistic rhythm and rhythmic features, creators can enhance the expressiveness of oil painting works, so as to create more excellent oil painting works for the world. In the new era, in order to promote the continuous development of China's oil painting art creation, borrowing modern advanced Internet technology, selecting modern advanced painting materials and integrating 3D printing technology can create better oil painting works for the world. Oil painting materials provide conditions for creating the rhythm and rhythm of oil painting works of art, thus enhancing the ability of image processing and expression of oil painting works of art. For example, the cold and warm color, the virtual and real performance of the picture, the dry and wet of the media, the density of the object, the black and white gray of the picture and the thickness of the color, etc., add the inherent artistic expression to the oil painting art works.

### 3.2 The Expression form of Rhythm and Rhythm in Artistic Creation

Rhythm and rhythm are very important in music creation, and rhythm and rhythm are also very important for oil painting creation. Oil painting creation also requires quality, and is related to personality. The quality of oil painting is reflected in the outside and inside. The appearance of an oil painting reflects the external character of oil painting, while the internal character of oil painting mainly refers to the internal meaning of oil painting. In order to make an oil painting have a profound connotation, the creator needs to use rhythm and rhythm to add color and charm to the work in the process of oil painting creation. An excellent oil painting can set off the painter's psychological quality, aesthetic taste and comprehensive quality. The artistry of oil painting is mainly reflected in rhythm and rhythm. Rhythm and rhythm can bring different visual effects to people and make people bright in front of their eyes, so as to improve the quality of oil painting works. Therefore, if an oil painting lacks rhythm and rhythm, it will not reflect the real connotation of the oil painting, will affect people's aesthetic appreciation of the oil painting, and will reduce the aesthetic value of the oil painting.

The most common activation functions in CNN structure are sigmoid, tanh and relu, and their corresponding mathematical expressions are as follows.

$$\text{sigmoid} : f(x) = \frac{1}{1 + e^{-x}} \quad (1)$$

$$\text{tanh} : f(x) = \tanh(x) \quad (2)$$

$$\text{ReLU} : f(x) = \max(x, 0) \quad (3)$$

Through the mathematical expression and image of the activation function, we can see that the value range of sigmoid function is (0, 1), and the characteristic of the derivative function is that it is 0 at the beginning, and it tends to be 0 soon [3].

## 4 The Influence of Visual Culture on Contemporary Oil Painting

With the advent of the era of visual culture, great changes have taken place in our lives. The brand-new visual experience has opened a mysterious door to the development of

contemporary art. Contemporary art is in an era of diversified development, with diversified creative ideas and ways. Nowadays, many of our artists are innovating for the sake of “innovation” and working hard to highlight “personality”. It is driven by this mentality that their works are becoming more and more empty, artists are becoming more and more utilitarian, and the artistic creation environment is becoming more and more market-oriented. The “contemporaneity” of art has become a problem worthy of consideration for our creators, which has distinctive characteristics of the times. “Innovation” is not just building a brand new thing and abandoning the traditional excellent things. It should, as the predecessors say, make the best use of the fine tradition and make the past serve the present, and carry forward and expand it on this basis. Especially for the artist’s own artistic language service, will eventually form their own completely unique artistic personality. The development of art should be a process of inheritance and continuation. Artists should first pay attention to the political, economic and cultural characteristics of the times they live in, and then express their feelings and feelings in such a background, rather than blindly following the trend and catering to the market (see Fig. 2).

The creation of Chinese contemporary artists once again makes people feel the great power of thought. It is precisely in the repeated encounter of the current problems of Chinese people’s survival that has become a basic problem. It is repeatedly shown in their works and forms a special system of cultural symbols, which further shows that the creators have the problem of thinking about the meaning of life, which is worthy of our happiness. The development and progress of new technology is bound to promote the development of art, but the key problem is still related to human imagination, aesthetic sensibility and creativity. That is to say, the essence of art concern is to pay attention to people’s problems, that is, to pay attention to people’s life state, ideology, living situation, spiritual dilemma and so on. The development of art is eternal in paying attention to people’s problems. It will not change because of the development of modern scientific and technological means. The development of technological means can only improve the expression form of creators’ attention to people’s problems. As the most sensitive nerve in society, artists constantly experience the creation by using modern scientific and technological means between the double feelings of life and art. Therefore, we should be more clearly aware that the creation of modern images and contemporary art is always centered on “human problems”.

#### **4.1 The Lack of Spiritual Connotation Under the Influence of Mass Consumption Culture**

Since the end of the 20th century, China has entered an era dominated by mass consumption and dominated by mass media. At the same time, it is a cultural era of diversified development oriented by practical spirit. Artists try their best to express their own feelings while paying more attention to the aesthetic taste of the public. In the creative activities aimed at the aesthetic taste of the masses, the artists of later generations use different forms and means of expression, trying to find new breakthrough opportunities from both conforming to the aesthetic taste of the masses and rich cultural connotation [4].

## 4.2 The Confusion of Aesthetic Pursuit and Artistic Standard Under the Background of Visual Culture

With the deepening of China's reform and opening up, the rapid development of economy has greatly improved the people's material living standards, the rapid improvement of material living standards and quality, and further emancipated the mind [5]. People also gradually bid farewell to the Puritan ideology and life concept under the idealistic system before the reform and opening up. With the advent of the consumption era, consumerism, as the inevitable ideology of the current society, has been growing and spreading rapidly. Under the influence of consumerism, Chinese aesthetic culture has entered an unprecedented period of secularization [6]. One of the remarkable characteristics of secularization is that metaphysical idealism and aestheticism are replaced by a kind of metaphysical pragmatism and realism. The auxiliary system of oil painting is shown in Fig. 2.

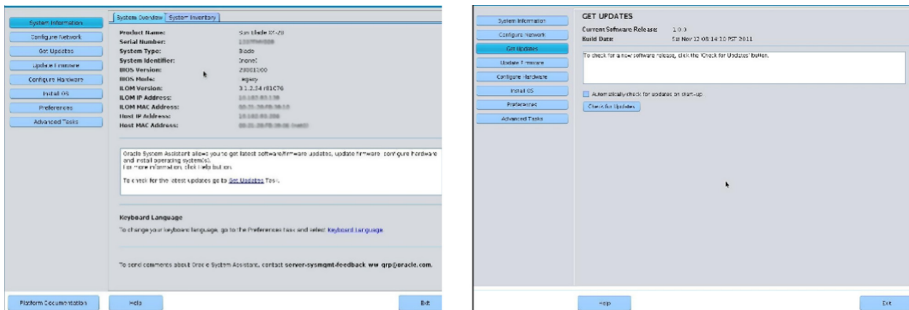


Fig. 2. Oil painting assistant system

## 5 The Penetration of Design Factors into Contemporary Oil Painting Creation

### 5.1 The Penetration of Design Elements in Visual Communication Design into Contemporary Oil Painting Creation

Eye catching signs, beautiful packaging, moving illustrations and shocking posters in life affect the expression of oil painting creators' thoughts and feelings in painting in different visual forms. Music art is to express the inner emotional ups and downs through the pleasant melody, and mobilize our auditory organs; while painting is to solidify the music, express through shaping different shapes and rich colors, and mobilize our visual organs [7].

The penetration of many design elements in visual communication design into contemporary oil painting makes its sense of form more intense and tends to be flat. In terms of picture effect, it pursues the rule of formal beauty, emphasizing change and unity, rhythm and rhythm, personality and order, etc. [8]. First of all, the creation process reinterprets the point, line and surface, such as Zhao Haibo's oil paintings (Fig. 3). We can

see that the painter uses the simplest point, line and surface to exaggerate the graphics, and uses flat painting and gradient in the bright colors. The intersection of pictures makes the picture form an order, an overall rhythm, and the picture is composed and the color is harmonious.



**Fig. 3.** Zhao Haibo's oil paintings

## 5.2 The Penetration of Product Design into Contemporary Oil Painting Creation

Product design involves a wide range of fields, covering most of our daily life. In particular, some excellent product design uses the most popular simple elements, while maintaining the practical and economic style, it focuses on adding the concept of humanization and environmental protection, striving to show a more perfect life experience. In the creation process of contemporary oil painting, the pursuit of natural, pure, self liberation of personality, trying to product design, environmental design of some factors of the real feelings, incisively and vividly show in the painting. In product design, the function, structure, material, shape, color, surface treatment, decoration process and mechanical properties of the product, such as strength, rigidity and stability, will bring users high efficiency, comfort and aesthetic enjoyment [9]. At the same time, oil painting creators get inspiration from these elements to promote the contemporary oil painting creation to pursue a more up-to-date visual texture, Strong mechanical modeling, philosophical and profound picture. We can't help feeling that this is the product of the industrial age [10].

## 6 The Infiltration of Multimedia into Contemporary Oil Painting Creation

Randall Parker and Kim Jordan said in the "prelude" to multi media: "multimedia (may, will blur the boundaries between life and art, personal and media, real and virtual [11]. And we are only now beginning to understand what these trends mean." I think that as we gradually "understand what these trends mean", our art and artistic creation gradually become clear. It is multimedia that exists in our daily life and presents it to us in a brand new and exciting form, which makes us find the road of painting innovation. The main way for multimedia to infiltrate contemporary painting creation is to let different images infiltrate with the help of network platform, reflecting various forms of interaction.

Because art comes from the experience and observation of life, the starting point of oil painting creation is also based on this origin. We will find that in the daily busy life, the network has changed our society, and mobile phones have enriched our life. No matter where you go, you will feel the convenience of your life by tapping the keyboard. It is precisely because of the new lifestyle of the Internet that our oil painting creators have changed their previous observation and creation methods, found new elements in the new media, and created better oil painting works in a unique way. It is precisely because of the rich and changing cyberspace that we have, Different image culture guides our visual appreciation and changes our creative thinking. I would think that perhaps our creation at first as a virtual symbol involved in the process of creation, behind the symbol of people's emotions, emotions, emotions, creators through the canvas platform combined with their own feelings of life to show this illusory effect, and even amplified or strengthened, is the process of artistic refining and creation [12].

The infiltration of multimedia into contemporary painting creation, on the one hand, is based on the background of the times, the way of oil painting creation has been changed, and the painting theme has become diverse. When we look at the history of Western painting, we will feel that many excellent western paintings choose religious themes, such as Renaissance painting, which has the tendency of secularization of religious themes. In Raphael's painting, there is obviously pagan spirit. When Raphael created "the virgin of Sistine", he has a strong sense of religious theme, The painter depicts the beautiful virgin Mary in a sweet and leisurely lyric style. The composition is solemn and balanced, and the content and form reflect the characteristics of the Renaissance. In today's society, magic video games, animation, these dynamic images, bring us perfect visual experience and super impact, constitute an era of digital art.

Computer games and animation in our life are the most interesting areas in multimedia. A large number of them are emerging to denounce our life, and promote many oil painting themes to be displayed in the form of cartoon animation. For example, I recently saw Liu Yimeng's work call (Fig. 4).



Fig. 4. "Call" oil painting

## **7 Design Factors in the Works of Western Painting Masters**

### **7.1 The Relationship Between Animation and Painting**

Animation comes from life and is higher than life; animation comes from painting and is higher than painting [13]. There are various forms of artistic expression in painting, such as oil painting, watercolor, gouache, pen painting, pencil painting, etc. Painting works choose a certain space to express the content, and coagulate it with material media to form an artistic image with perfect spiritual outlook and essential significance. Animation art captures motion through a series of pictures, showing the state of the subject in space, resulting in a sense of motion of time continuity. Painting works of art can bring animation art designers rich source of inspiration, both in the ocean of art are interlinked and integrated. Animation art and painting art, in a certain sense, are to show the various forms of things, flowing and changeable actions, people's inner emotions and mysterious scenes in the plane space side by side through light and shadow, color, points, lines and surfaces, creating a harmonious and perfect whole. Both of them have some common characteristics in emotional expression and artistic expression, thus producing resonance [14].

Painting is to use the author's subjective feelings to allocate aesthetic factors to depict objects. It pays more attention to color and emphasizes the independent performance function and artistic language of color. In the creation of animation design, learning from the artistic language of painting will bring unique artistic charm and vitality to animation works. The composition, color, light and shadow, material and texture of pictures in animation works will bring different psychological hint to the audience, so as to convey the author's creative intention and emotional expression. Drawing what we need from paintings is also an expansion of the edge of different art fields.

### **7.2 Painting is the Foundation of Animation**

With the rapid development of computer technology, in the process of animation design and painting creation have had a huge impact, it not only greatly improves the efficiency of people in the creative process, but also provides people with a greater space for thinking. In the CG overwhelming today, the computer is almost omnipotent [15]. However, animation is very important because of its painting. Computer can not replace the traditional role of paper and pen, the simplest and most direct way is often the most effective and important way. Even in the process of using computer to create animation, painting as its basis is still an indispensable part. Painting is of realistic significance to animation. Because painting does not rely on real things, not limited by time and space, it can easily follow their own ideals and wishes to depict images, as long as you want to, you can achieve it through painting.

### **7.3 Animation has a Unique Painting Style**

Animation is not only very different from painting in the two aspects of "personalization" and "attachment", but also in the pursuit of formal beauty. Animation, divided into realistic and non realistic decoration, the former image close to life. In painting, they



have different meanings and degrees. In the process of animation production, the image of animation is required to be simpler and more restrictive. The latter is more interesting [16].

In today's world, the social division of labor is more and more clear, the pressure of work and life makes people more and more nervous, people want to work more relaxed, animation is developing rapidly in this social environment. Therefore, animation is easy to be accepted by the public, with a broad customer base and market development space. In the spiritual field, material consumption and many other aspects have had a great impact, become part of people's entertainment, consumption. Beginners should not mistakenly think that computer is omnipotent. Although computer technology provides a very important and practical technology for drawing animation, technology will always serve the purpose of achieving the art of animation. The computer is just a programming machine, which can only provide technology and efficiency, but can not cause the change of ideas. It can never replace the creative foundation, modeling ability and artistic behavior ability of hand painting. We can only use it as a tool. This tool must serve the artistic concept of creating animation. It can't be confused by it, and can't lose the artistic concept, so as to ignore its own hand-painted ability.

## **8 Animation Masters' Reference for Artistic Ideas**

Modern art creation is closely related to the development of science and technology, such as industrial technology thought and futurism, style school, structuralism and Cubism, Freud's dream interpretation theory and surrealism, etc., which can be said to be the combination of science and art, and art creation is a kind of regular creative activity. As an art form, animation not only emphasizes art, but also emphasizes the flexible use of visual language and performance technology. To be exact, it is not only art research but also design application. The beginning of any kind of aesthetic consciousness in the world is always accompanied by the concept innovation in the field of philosophy, and modern technology provides the possibility for us to explore the means of expression. Learn some art theories and understand some art schools, learn from the works and experience of art masters to improve the cultural quality and life experience of their works.

In the process of painting, color plays a more important role in expressing the painter's feelings, especially in the creation of oil painting. In the light and shade changes of colors, it reflects people's social environment, and also reflects the relationship between people and society. The more harmonious the light and shade of colors in oil paintings under the action of light, the more harmonious they are, the more harmonious they are between people and society. In a specific work, if there is a lack of harmonious relationship, it will be impossible to achieve artistic success. In the process of oil painting creation, the colors used in oil painting can touch the natural hearts of the appreciators. They act on the depths of people's hearts through the eyes, nose and other sensory organs of the appreciators.

## 9 Conclusion

In today's era, the art field also needs to follow the pace of the times, using modern advanced Internet technology to innovate and break through in oil painting creation. We should always follow the law of artistic creation, integrate artistic rhythm and rhythm into the creation process of oil painting works, and add the artist's real feelings, so as to express the strong color and internal meaning of oil painting works. Selecting appropriate oil painting materials and giving full play to the language symbols of abstract beauty in the process of oil painting artistic creation can add artistic sense to oil painting works and promote the development of oil painting art in the Internet era.

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