Retraction

Retracted: Online Simulation of Illustration Patterns Based on Digital Art Design

Mobile Information Systems

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

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[1] X. Fu and T. Feng, "Online Simulation of Illustration Patterns Based on Digital Art Design," *Mobile Information Systems*, vol. 2022, Article ID 3273364, 9 pages, 2022.

Research Article

Online Simulation of Illustration Patterns Based on Digital Art Design

Xi Fu[1] and Tao Feng [2]

[1]*Ganxi Vocational Institute of Science and Technology, Xinyu 338000, China*
[2]*School of Economics and Management, Beihang University, Beijing 100191, China*

Correspondence should be addressed to Tao Feng; feng_tao@buaa.edu.cn

Illustration art is an important part of graphic design, and is an intuitive means of artistic expression. Based on the gradual development of social networks and modern illustration art, digital illustration technology has become the main means of expression in modern graphic design. Starting from the basic concept of illustration art in the digital age, this study analyzes the application of digital illustration art and promotes the innovative development of the artistic expression of graphic design in China. This study will combine the traditional Chinese painting language with digital illustration creation in an inquiry-based manner, optimize the standard genetic algorithm, verify it through experimental simulation, and find that the model is more innovative based on the original model. This study provides a certain theoretical basis for the development of digital illustration in China and has a certain propaganda effect on the traditional Chinese painting language.

1. Introduction

As an important global cultural exchange market, China must always maintain the spirit of daring to inherit, dare to innovate, and be good at integrating and advancing with the times. How to ensure that the essence of the inherent culture is located—but also to keep up with the world mainstream, or to create the mainstream of the world—requires the joint efforts of many scholars and experts to carry forward the traditional Chinese culture and present a prosperous state of contention among a hundred schools of thought, so as to create a benign way of global cultural development and exchange [1].

At this stage, society is changing rapidly, and images are gradually replacing words and becoming an important way for people to understand things. As an emerging digital language of imagery, illustration is gradually breaking into people's field of vision with the intensification of informatization [2]. The illustration is commonly known in China as illustration. The commercial illustrations used in foreign markets today include publication illustrations, cartoon mascots, film and television posters, game character settings and built-in art scene design, advertisements, comics, picture books, greeting cards, wall calendars, decorative paintings, packaging, and other forms. Illustration communicates ideas with readers or audiences through books, animations, etc., without age gaps or cultural differences, which can be accepted by the audience. In these works, the level of presentation is uneven, and there are experienced and experienced older creators, often with traces of social problems, and young creators as the masters of the new century Zai, in the absence of pressure and burden, too much imitation of foreign culture, deep things are not expressed enough [3]. The two have a common flaw, that is, the scarcity of the use of traditional Chinese painting language, resulting in works without a certain depth and presentation of local culture. In this way, illustrators are easily biased by other cultures in the world, and it is difficult to form a precipitate under the inherent 5000-year culture, thus forming a unique independent illustration feature. And people's requirements for illustration are also getting higher and higher, and how to achieve the functionality and artistry of illustration go hand in hand is a serious challenge to today's illustration industry [4]. With the development of

the digital age, China's digital illustration has developed to a certain extent, how to integrate and penetrate, absorb the essence of local culture, understand themselves, transform the world, and innovate Chinese elements in the illustration is the direction of our main research, and it is also one of the ways to solve the main contradictions in the illustration industry.

With the development of the economy, data networks have been scattered all around us, and digital products are also numerous, and you can get what you want from the network anytime, anywhere [5]. Therefore, the digitization of disseminated content will be an inevitable result of social development. Illustration, as an ancient art, allows people to understand the story of what happened more graphically, however, the inherent way of communication can no longer meet the rapid development of the era, and digital illustration will surely take its place.

Digital illustration, as the name suggests, is the product of the digital processing of illustration. Digital art is the graphic design by means of digital technology and the so-called "pure art" spread by the World Wide Web as the media. As long as digital technology is the carrier and has independent aesthetic value, it can be classified into digital art.

Using digital technology in the art for more than 50 years. The study of digital illustration begins with digital art [6]. The 1966 Cybernetics exhibition was born in the United Kingdom, and this exhibition was the first to use digitalization for the first time, which was unprecedented, and at the same time, it marked the birth of digital art. The development of digital drawing software has promoted the development of digital art and promoted artists to slowly develop in the direction of digitalization [7]. With the onslaught of information technology, the change of illustration has become a foregone conclusion, and only change can not be eliminated by society. Digitalization is changing the way people live. The same goes for digital illustration. Its emergence has made the creators have a new reflection on the concept and production method, first of all, the inherent form has changed, it is an organic combination of a variety of artistic bodies, including communication, psychology, vision, and so on. Under such a development situation, a large number of modern digital illustrators have been born, that is, a new generation of digital illustrators, which has attracted more audiences and promoted the development of the large industry of illustration from the opposite direction, thus, promoting economic development. It has slowly become a model of multimedia technology and artistic design and its own creation is limited [8]. Moreover, it is impossible to produce multiple works, which is the disadvantage of traditional creative methods, produce inspiration, and use less time to realize their inspiration into reality [9].

In the current environment of multicultural integration, how to use the developed digital technology to combine the traditional Chinese painting language and form a new art form with both the traditional cultural connotation and the characteristics of The Times is an important proposition before us. Illustration art is an art form of personality liberation, and we cannot converge to some foreign art style. It is imperative to explore the Chinese local illustration language. If Chinese digital illustration wants to stand in the east of the world illustration forest, it needs to have Chinese characteristics. The illustration comes from fine arts, and nature is connected to traditional painting. Traditional Chinese painting is different from the world, and the essence of 5000 of culture is evident.

This study combines the traditional Chinese painting language with digital illustration creation in an exploratory way, summarizes the development history and current situation of the illustration technology at home and abroad, studies and compares the main classification of the Chinese traditional painting, and deeply analyzes the shape of the Chinese traditional painting. Through the introduction of classic digital illustration works, this study discusses how combining traditional Chinese painting language color structure and digital illustration is the inevitability of combining traditional Chinese painting and digital illustration and artistic forms of expression. Finally, also the original shortcomings are the use of an illustration art design model, and the model is based on cluster optimization and operator genetic algorithm, and is more innovative through experimental simulation. Through writing this article, I hope to provide a theoretical basis for the development of digital illustration in China, and also hope to let more people understand the traditional Chinese painting language, and carry it forward, so that Chinese culture can shine in the forest of the world culture. In this study, improve some of the original shortcomings, the characteristics of Chinese traditional painting, the fusion of modern multimedia technology, using an illustration art design model, and the model is based on cluster optimization and operator genetic algorithm, while the model through experimental simulation. The overall flow framework of the algorithm is shown in Figure 1.

2. State of the Art

2.1. Overview of Evolutionary Design. The so-called use of an evolutionary calculation can be fully used in the field of design [10]. Evolutionary design enables automatic circuit design and optimization. The first computer evolution program in history, "Blind Watchmaker", was proposed by Rudolph [11]. Fogarty proposed the theory that genetic algorithms could explain the theoretical framework of the entire design; his system could be used in the production of vehicles and seats; Karl Sims also used table lamps and sculptures in works of art, making the application of this technique more extensive [12]. Others have also used genetic algorithms in the floor plans of design buildings. Andrew Rowbottom wrote a program called Form for the first time and Matthew Lewis used evolutionary model techniques to successfully create interactive design systems [13]. Domestic researchers such as Liu Hong, Tang Mingqing and Liu Xiyu who did research and development of computer to support the appearance of innovative design. Sun Shouqian, Zhang Lishan, and Huang Qi used CAD to achieve the problem of color representation, design sketches, and structural patterns [14].
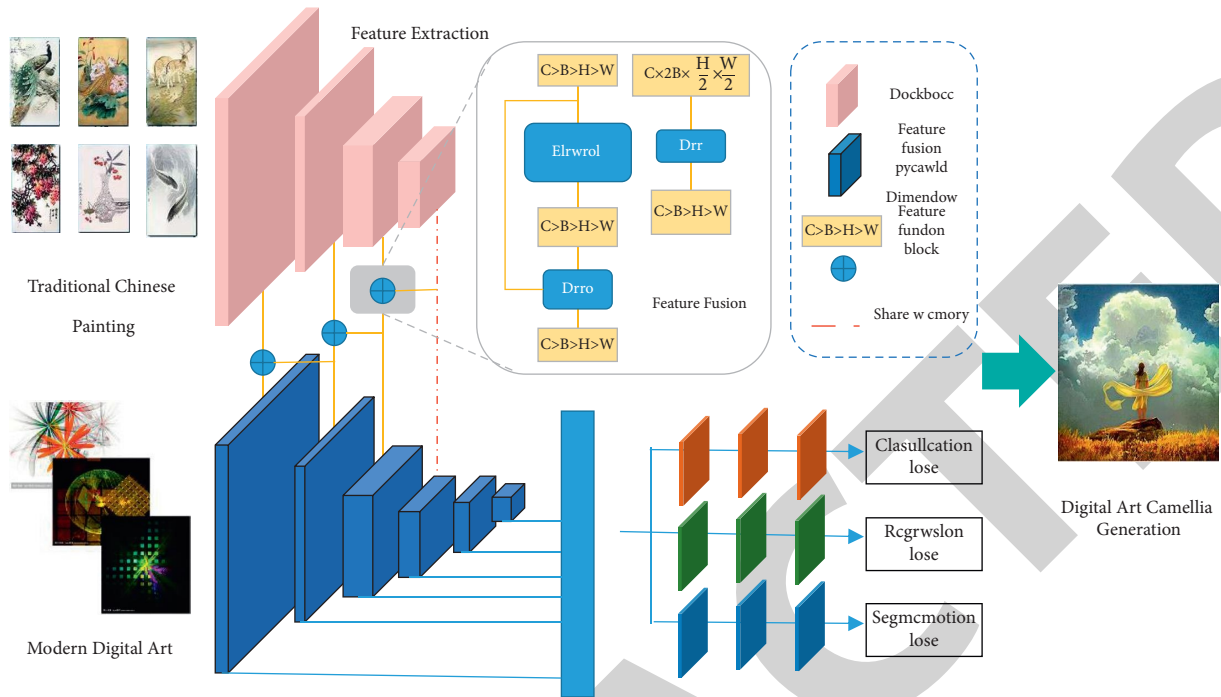
Figure 1: A digital generation model of art illustration integrating the characteristics of traditional Chinese painting.

2.2. Space for the Development of Traditional Chinese Painting Language.

In the context of the new media era, China's traditional painting art has been affected to a certain extent, and in today's era, painting art has also shown a digital form of expression. Under the influence of the trend of the integration and development of new media, traditional Chinese painting art has broken the limitations of previous carriers such as paper and canvas and changed from the traditional physical carrier of flat painting to the visual form of digital signals, and in this way, it is disseminated through the network, and through the combination of different types of digital signals and symbols, it is gathered into visual information and pictures, through modern scientific and technological means realizing the digital expression of traditional Chinese painting art will further realize more extensive dissemination in the network platform and achieve higher aesthetic value. Painting as a sensitive art form has undergone transformational changes in both concept and form. In the context of globalization, we must adapt to the new concept of form, pay more attention to our own characteristics and development, and establish our own art form based on inheriting and carrying forward traditions. At the request of the digital age, painting is no longer limited to the traditional form on paper or canvas, but has a new way of communication, and the powerful factors of the new era promote the rapid development of this method. Illustration, as one of the ways, has its own special development direction, and is being recognized by more and more people, contemporary culture is also becoming a new visual culture, and we are also entering the practical sense of the "era of reading pictures" [15]. The reason why a successful illustrator can create works with distinct visual characteristics is that he/she chooses a specific means of visual expression, a creative method, and follows specific aesthetic laws. "throughout the aesthetic history of China and the West, Eastern culture has favored an aesthetic model that is harmonious with the whole, while Western culture has focused on the aesthetic model of individual freedom and spirit. The former pursues the stability of society as a whole, while the latter promotes the open spirit of the personality of the aesthetic subject. In today's illustration art creation, we cannot simply pursue the Western aesthetic model but should focus on the influence and mode of action of the relevant elements in traditional Chinese culture [16].

2.3. The Main Categories of Traditional Chinese Painting.

In China's thousands of years of cultural history, Traditional Chinese painting has a long history and distinct national characteristics, forming a complete set of painting aesthetic systems, which is what we usually call "Chinese painting" [17]. Figure painting, landscape painting, and flower and bird painting are the three main categories of traditional Chinese painting. As shown in Figure 2, the contents and characteristics of various categories of paintings are shown in Table 1.

Figure painting was the first to reach maturity in Chinese painting, and the peak period of ancient Chinese figure painting creation was in the Tang Dynasty. A Chinese figure painting is a major painting discipline in Chinese painting, which appeared earlier than landscape painting, flower, bird painting, etc. It is roughly divided into Taoist painting, female painting, portrait painting, genre painting, historical story paintings, etc. Character painting strives to portray the personality of the characters realistically and vividly, with
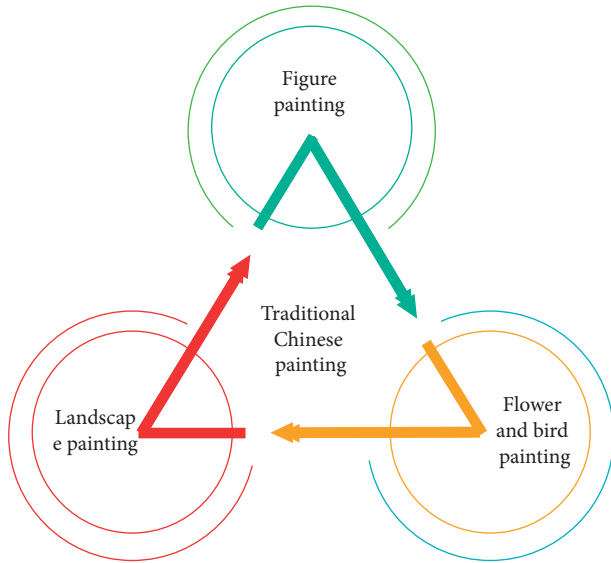
FIGURE 2: The split of Traditional Chinese painting.

TABLE 1: The main categories of traditional Chinese painting.

Categories	Contents
Portraits	Figure painting was the first to reach maturity in Chinese painting, and the peak period of ancient Chinese figure painting creation was in the Tang Dynasty.
Landscape painting	Landscape painting appeared during the southern and northern dynasties of the two Jin dynasties and was an independent and representative form of painting.
Bird	Flower and bird painting is an independent genre of Chinese painting, which appeared later than both figure painting and landscape painting, and became more and more mature after the Tang Dynasty, and flourished in the Song Dynasty.

vivid charm and with both form and spirit. His method of conveying the gods often contains the performance of the character's personality in the rendering of the environment, atmosphere, body, and dynamics. Therefore, Chinese painting theory also calls figure painting "conveying God". Famous figures of past dynasties have painted the volume of Gu Kaizhi's "Luoshen Futu" of the Eastern Jin Dynasty, the "Han Xizai Night Feast Map" of Gu Hongzhong of the Southern Tang Dynasty of the Fifth Dynasty, the "Wei Mo Jie Statue" of Li Gonglin of the Northern Song Dynasty, and the Southern Song Dynasty Li Tang "Tsevitu" and so on. With the development of computer digital technology, the increasing maturity of computer software functions, driven by some digital drawing software, figure painting technology has entered the era of omnipotence and miracles. Adobe Photoshop, the representative software that has made the rapid development of figure painting, has also been applied in many fields, allowing large areas of damaged, blurry black and white figure paintings to return to high-definition color figure paintings. Modern digital figure painting technology

has been widely loved by the public, and many people give repainted portrait photos to the elderly, relatives, and friends as gifts. Digital figure painting has become a fashion. Zhang posthumous work "Trick Painting" depicts the scene of the Tang Dynasty court women's pounding labor [18]. From right to left, the picture depicts three groups of scenes of pounding, sewing, and ironing, and a total of 12 characters are portrayed, each character is vividly portrayed, with different looks and staggering compositions. From the perspective of expression, the whole picture only has simple tones and does not do specific background depiction. An in-depth portrayal of the dynamic look of the characters. The character image is plump, the line of the picture is round and smooth, the pen is powerful, the color is gorgeous, and the character image is dignified and generous. The whole picture fully expresses the painter's keen observation and superb artistic expression in both the expressive technique and the composition form as shown in Table 2.

Landscape painting, referred to as "landscape", is a kind of Chinese painting that depicts the natural scenery of mountains and rivers as the main body. Representative painters include Zhan Ziqian, Wang Wei, Fan Kuan, and Zhang Hong. Landscape painting appeared during the Southern and Northern Dynasties of the Two Jin Dynasties and was an independent and representative form of painting. It gradually matured in the Sui and Tang dynasties, and further developed in the Song and Yuan dynasties. Dong Yuan, Li Cheng, and Fan Kuan were known as the three great masters in the early years of the Northern Song Dynasty. They all have their own styles. Formed the three major streams of landscape painting in the Northern Song Dynasty [19].

The mature stage of landscape painting was from the five dynasties to the early years of the Northern Song Dynasty, forming different styles. Li Cheng is a representative painter of landscape painting in the Northern Song Dynasty, his works are mainly based on the vast scenery of Qilu in the plains, and the scenery of the cold forest is mostly the subject, "Reading the Stele Stone Map" is one of his masterpieces, depicting an old man riding a mule looking up at the ancient monument in the cold suburbs of Wei et al. [20]. The old man in the picture echoes with the dead trees and stagnant water around him, giving people a desolate and calm feeling. The portrayal of the environment and the emotions of the characters reflects the emotional expression of the painter as shown in Table 3.

Flower and bird painting is a kind of Chinese painting, which depicts flowers, birds, insects, etc. In Chinese painting, paintings depicting flowers, flowers, birds, fish, insects, etc., are called flower and bird paintings. There are three kinds of painting methods in flower and bird painting: "gong pen", "freehand writing", and "part-time work with writing". Gongbi flower and bird painting are to outline the object with thick and light ink, and then color in depth and light layers; freehand flower and bird paintings are to draw objects with concise and general techniques; and between the brush and freehand, it is called part-time work belt writing, and the form is realistic. Flower and bird painting is a unique school of Chinese painting. It came into being later

TABLE 2: Representative figures of figure painting and their masterpieces.

Figure	Magnum opus
Gu Kaizhi	Roselle Futu volume
Han Di	《Wenyuan Tu》
Yan Liben	"Ling Yan Ge twenty-four heroes"
Wu Daozi	"Statue of confucius", "the picture of the heavenly King sending his son", "the diagram of the ten-Fingered bell Kui"
Gu Hongzhong	"Han Hee-Jae's night Feast"

TABLE 3: Representative figures of landscape painting and their masterpieces.

Figure	Magnum opus
WuZhen	"Eight views of Jiahe", "water village map"
Wang meng	"Qingbian hermitage map", "summer mountain residence map"
Huang Gongwang	"Fuchun mountain residence map"
Ni Zhan	"Yuzhuang Qiuji map", "Zizhi mountain house map", "river bank wangshan map"

than figure painting and landscape painting. It became more perfect after the Tang Dynasty and flourished in the Song Dynasty. Flower and bird painting has also gradually become the mainstream of Chinese painting. The Double Happiness Diagram was painted by the Northern Song Dynasty painter Cui Bai, depicting a hare in the countryside in autumn and a pair of magpies chirping as a warning. The three echo each other, constituting a sense of the rhythm of the intertwined pictures. The delicate and vivid depiction of hares, as well as the gentle swaying of trees and bamboo grass with the wind, add interest to the overall picture.

3. Methodology

3.1. Genetic Operator Optimization of Illustration Art Design

3.1.1. Optimization of Cross-Variation Operators Based on Dynamic Adjustment. Based on the online simulation of illustration patterns based on digital art design, the crossover and variation operators of traditional genetic algorithms are optimized by dynamically adjusting the probability of crossover and variation, which effectively solves the problem of premature convergence of genetic algorithms, and the selection operator of traditional genetic algorithms is optimized by using quantum particle swarms, which makes the algorithm more reliable in running results. If the Pm is too small, the speed of exploration will be very slow, and if the Pm is too large, but it is also possible that the original relatively high-quality individuals will be destroyed. If the Pm value is too small, the individual will have a relatively slow growth rate; if Pm value is too large, this method will develop into a general method based on random search. Figure 3 shows a general process of genetic algorithms.

The PCs and Pm in the algorithm are set in advance, which does not make the searched value the optimal value, and will lead to the premature completion of the entire algorithm.

In this article, we found a way to automatically obtain the value of Pc and Pm to solve the above problem, the basic idea of this solution is to automatically adjust the values of these two indicators according to the different dynamics and characteristics of the population in the process of operation,
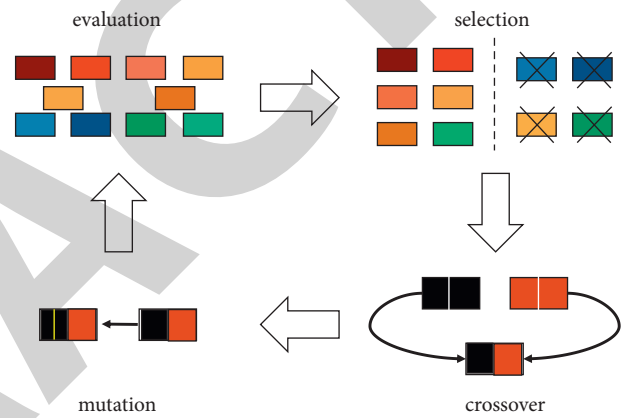

FIGURE 3: Genetic algorithm flow.

and the crossover probability and mutation probability in this article need to be in accordance with formula (1) and formula (2) Perform non-static automatic adjustment.

$$P_c = \begin{cases} P_{c1}\dfrac{P_{c1} - P_{c2}}{f_{\max} - f_{\text{avg}}}\left(f' - f_{\text{avg}}\right), & \left(f' \geq f_{\text{avg}}\right), \\ \\ P_{c1}, & \left(f' \leq f_{\text{avg}}\right), \end{cases} \quad (1)$$

$$P_m = \begin{cases} P_m\dfrac{P_{m1} - P_{m2}}{f_{\max} - f_{\text{avg}}}\left(f_{\max} - f\right), & \left(f \geq f_{\text{avg}}\right), \\ \\ P_{m1}, & \left(f \leq f_{\text{avg}}\right), \end{cases} \quad (2)$$

In the above equation, the meaning of f' is: during the intersection of individuals, the degree value of use reaches the maximum; the meaning of $f_{\max}$ is: the value of the largest fitness in the population; the meaning of f_{avg} is: the value of the average fitness of each generation of the population; f The meaning of the representation is: the usage value of the mutated individual.

From (1) and (2) is not concentrated in the process of optimization, the Pc and Pm in the formula will shrink the value by themselves; if the value of the fitness degree is more

concentrated in the process of optimization. Through this method, the quality of the group can be improved. If the numerical f_{avg} adaptation value, then the values PCs and Pm will become larger; on the contrary, it will be smaller, and this method can allow individuals in the old generation to continue into the new population.

3.1.2. Optimization of Select Operators Based on Individual Fitness Assignment. In genetic algorithms, operators are chosen in order to select viable individuals in the population to generate new populations. Find individuals with strong vitality, cross-mutate them, and if a generation gap is set, insert them into the original population and form a new population together with well-adapted individuals. The selection operator of the genetic algorithm is based on the artificial evaluation of adaptability, and the adaptability of excellent individuals is the same.

The optimal individual preservation method is to directly enter the next generation of individuals with the highest adaptability in this generation of populations.

Since the artificial selection has noise, its probability shows a step-shaped change, and the generalization function is calculated as:

$$F(X) = \frac{X^4 + 1 - \cos(X\pi/2)}{2}. \tag{3}$$

Let the current generation be t (counting from generation 0), the probability of use of the optimal individual of the ith generation is:

$$P_s = F(a) - F(b),$$

$$\begin{cases} a = \dfrac{(\lfloor t-1/k \rfloor - \lfloor t - i/k \rfloor + 1)}{(\lfloor t-1/k/1 \rfloor)}. \\[4mm] b = \dfrac{(\lfloor t-1/k \rfloor - \lfloor t - i/k \rfloor + 1)}{(\lfloor t-1/k/1 \rfloor)} \end{cases} \tag{4}$$

3.2. K-GA-Based Illustration Clustering Optimization. In this design process, we will classify a variety of flowers, to improve the efficiency of the combination and avoid repeated attempts on flowers of similar styles.

Due to the influence of generative digital art and storage models, illustration art shows a trend from still images to dynamic images. For example, in the form of animated images based on the GIF system, the ideography extends from simple pictures to time and space, and it is worth mentioning that under the influence of contemporary art characterized by multiple media, some emerging forms of illustration have emerged: combined with music and storylines, the table of illustration art has been enriched that means to bring it to new heights. This study is by randomly selecting data, the algorithm can choose to represent a specific category, this practice can find a certain number of cluster centers in multiple clustered data, and then according to the distance between these centers. In the cost function, you can see the distance difference between the data and the

cluster center, and you can judge the quality of the cluster. Other objects can be divided into the corresponding categories, as shown in Figure 4. The following four different cases can be found to be different from the non-cluster center t.

As can be seen from Figure 5, the process by which the clustering algorithm runs. Variance E in the cost function varies due to the reclassification of the data. If the cost function of the output is not appropriate, then you need to change the way the clustering is done. By comparing the value with the size of zero, assuming that it is less than zero, then it means that this change is meaningful, otherwise, the original cluster center is the more appropriate center, and there is no need to change it the matrix of characteristics of choosing these flowers is:

$$\begin{pmatrix} a_{11} & \cdots & a_{19} \\ \vdots & \ddots & \vdots \\ a_{k+1} & \cdots & a_9 \end{pmatrix} \tag{5}$$

Second, by applying the stochastic function.
Third, develop an adaptability function such as (8):

$$E = \sum_{i=1}^{k} \sum_{p=C_i} |p - m_i|^2 \tag{6}$$

In the equation, E is the sum of the mean variances, the letter p represents the categories.

$$P(a_j) = \frac{f(a_j)}{\sum_{i=1}^{n} (a_j)}. \tag{7}$$

In the equation, the symbol $f(a_i)$ means the magnitude of the odds that the ith individual will be selected, and the symbol $f(a_j)$ means the jth A function value for individual fitness, the letter n indicates the number of individuals contained.

Fifth, calculate the size of the individual's chances of persisting to the next population. Sixth, use the algorithm of K-medoids to optimize individuals. Seventh, implement P_c as well as P_m;

4. Results and Analysis

The unmodated function and the multimodal function.
The single-peak function is as follows:

$$\min f_1(x, y) = 100(y - x^2)^2 + (x - 1)^2. \tag{8}$$

The multimodal function is as follows:

$$\min f_2(x, y) = 21.5 + x \sin(4\pi x) + y \sin(20\pi y). \tag{9}$$

The standard genetic algorithm runs the algebraic test results for the average running of these two functions as shown in Table 4. Using the illustration design of hexagonal fractal with the.

As can be seen from Table 4, for 2 functions, the crossing probability is 1, and the average running algebra of the function gradually decreases as the crossing probability
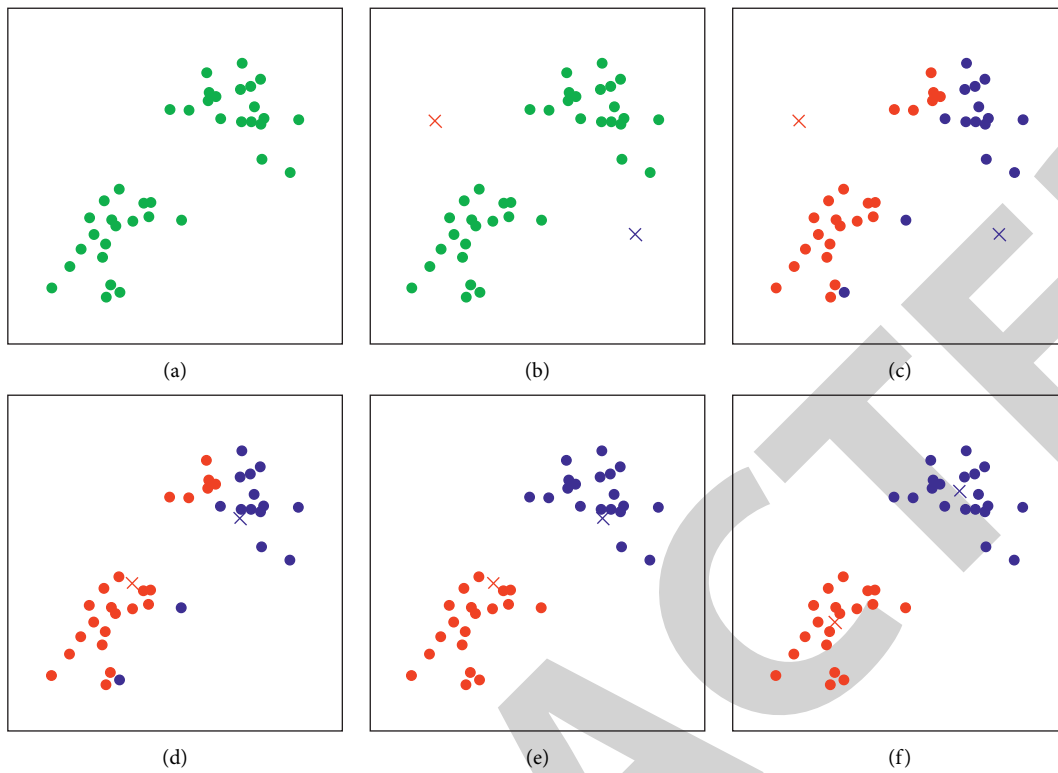
(a)

(b)

(c)

(d)

(e)

(f)

FIGURE 4: The procedure of the clustering algorithm.
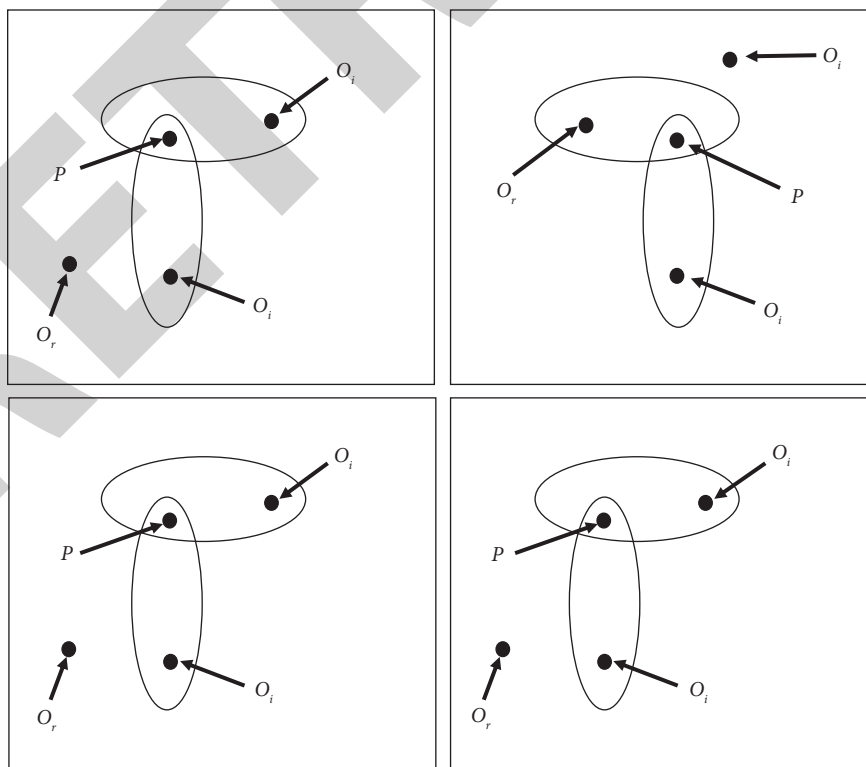

FIGURE 5: Schematic diagram of the algorithm clustering process.

TABLE 4: Algorithm simulation results of the test function.

Function method		f_1		f_2	
		GA	K-GA	GA	K-GA
	1	56.26	9.42	12.69	4.91
	0.9	59.04	9.64	14.61	5.46
Cross	0.6	60.05	6.09	14.66	6.49
probability	0.9	61.44	6.69	15.56	6.94
	0.6	62.49	9.52	19.91	9.54
	0.5	64.56	10.49	20.65	6.06

increases, and when the crossing probability is 0.5. The F1 function has more average running algebra than the F2 function, which is mainly determined by the function itself. Therefore, the results of this experiment show that the greater the crossover probability also increases the probability.

5. Conclusion

Driven by high-tech, China's digital media industry is developing rapidly, and digital media drives the development of illustration in the field of new technology. Using digital technology for Chinese illustration to convey the unique traditional Chinese culture, which is an important way for Chinese painting art to be understood by the world. In this new environment, however, we should "roots", because a lot of Chinese traditional painting language "with", through the combination of modern digital illustration, which can let more people understand our traditional painting, to inherit and carry forward, such a positive phenomenon contributes to the vigorous development of illustration market today.

This study combines the traditional Chinese painting language with digital illustration creation in an exploratory way, summarizes the development history and current situation of the illustration technology at home and abroad, studies and compares the main classification of the Chinese traditional painting, and deeply analyze the modeling of the Chinese traditional painting. Finally, the standard genetic algorithm is optimized. Through experimental simulation, it is found that the crossover probability of the optimized algorithm is more likely to produce excellent individuals. This study can provide a theoretical basis for the development of Chinese digital illustration and can promote the development and publicity of traditional Chinese painting language.

Data Availability

The labeled dataset used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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