

Retraction

Retracted: An Improved Method Research on Graphics and Image Processing System

Security and Communication Networks

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Security and Communication Networks has retracted the article titled “An Improved Method Research on Graphics and Image Processing System” [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Research Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process, and the article is being retracted with the agreement of the Editorial Board.

References

- [1] Z. Du, “An Improved Method Research on Graphics and Image Processing System,” *Security and Communication Networks*, vol. 2022, Article ID 4213597, 8 pages, 2022.
- [2] L. Ferguson, “Advancing Research Integrity Collaboratively and with Vigour,” 2022, <https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/>.

Research Article

An Improved Method Research on Graphics and Image Processing System

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In the era of high-speed information, with the popularization of network and the rapid development of multimedia communication technology, human society has entered a key new stage of development. Human productivity and living style have been significantly altered as a result of social informatization. The field of computer image processing has also made significant strides recently. Photoshop has evolved into a must-have piece of software for those who work in computer graphics and image processing on a regular basis. It contributes to increased job productivity in the processing of computer visuals and photos because of its extensive functionality, user-friendliness, and humanization. Photoshop is a graphics and image processing technology programme that is very efficient. This software's image processing function is quite strong, and it is capable of producing graphics and image processing of the highest quality. This technology is widely used in practical work. Professionals are required to operate skillfully and grasp the technology accurately. Photoshop is widely used in current graphics and image processing. While meeting the relevant processing requirements of users, it is also used in various occasions related to image processing.

1. Introduction

In various fields of society, computers have been widely used. Computer graphics and image technology appeared in the late 1980s and has become a new technology. The end of computer graphics and image processing is mainly realized on the basis of software, which can be divided into many kinds according to the purpose. Image processing software PS, web animation group construction flash, film and television post synthesis software combustion, engineering drawing production software CAD, etc., have become the mainstream software in the design field [1]. For course teaching, it is often done by formulating teaching goals and putting them into effect gradually according to a set teaching progress in order to accomplish the course's educational objectives [2]. The current visuals and pictures are altered and optimized via the use of the appropriate operating technology and software. It displays a new visage on the computer screen once the picture alteration has taken place. For the most part, Photoshop is a technique of creating target visuals and pictures by using three-dimensional

processing technology to achieve a series of transformations, such as its alteration and creation, in order to display a new appearance on a computer screen. It is also possible to provide corresponding action instructions in order to achieve the best possible processing of graphics and pictures [3]. Also, regularly updated and enhanced is its own image processing function, which is used in a variety of application domains such as graphic design, image processing, text, and publishing, among others. The human visual system is an observation system in and of itself, and the picture it produces is a palpable imagination of the objective landscape in people's minds [4], which is also an observation system. Images are processed in a sequence of procedures in order to get the desired result, and this is referred to as image processing technology. Image processing may be separated into two categories: analogue image processing and digital image processing (or digital image processing). There must be a trade-off between benefits and negatives. Because it is impossible to differentiate between the actual and fake images in a modified picture, people's faith in digital media and judicial justice has plummeted, resulting in a significant

decrease in public confidence in both [5]. Everything has two sides. People's use of digital images is no longer a simple flat description of obtaining information, that is, without modification, no ups and downs, and the focus is not prominent. More and more people have the demand for post-processing of digital images, but rarely adhere to the principle of maintaining the authenticity of photos. It not only brings convenience to people but also brings worry to us [6]. Digital images are very vulnerable to external "attacks," and the society pays more and more attention to and questions the requirements for the authenticity and integrity of digital images [7].

At present, the existing image enhancement technologies are mainly based on spatial domain and transform domain [8]. The former directly calculates the image gray level, and the main methods include direct gray level transformation, spatial filtering, and histogram processing [9]. The application of image processing is more common. When changes are made on the basis of existing images, effects are added through different functional requirements. This image processing technology is referred to as PS technology in daily applications. Common photo and picture processing will have similar software processing applications. The popularization and popularization of this technology meets people's needs in modern aesthetic requirements [10]. Images may now be classified into two groups in image processing and analysis technologies. The first kind of picture is analogue, which includes optical images, photographs, and television images. Analogue image processing is quick, but it lacks precision and flexibility, making it difficult to locate and evaluate. The second form is digital pictures, which are created by discretizing continuous analogue images into dot matrix images that can be recognised by a computer. The use of two-dimensional computer graphics and image production and processing technology is to perform a number of technical operations on existing pictures based on the demands of the client, causing the images to undergo a series of modifications. This is the foundation upon which picture editing software for everyday usage is built [11]. Using appropriate technological methods, integrating 2D and 3D production technologies, complementing one other on a technical level, and displaying more flawless visuals and picture effects is now achievable. Remote-sensing image processing technology is utilised in the realm of resources and environmental science to monitor natural catastrophes such as floods, forest fires, and earthquakes, analyse pollution levels, and explore mineral, groundwater, and marine resources [12]. In industry, computer vision allows robots to do components' inspection and automated assembly, as well as other repetitive operations, with great accuracy [13]. Militarily, image processing technology plays an important role in target location, tracking, and weapon guidance. In archaeology, using digital image processing technology, we can restore blurred images of precious cultural relics, automatically classify fossil images, etc. He found in all aspects of society [14].

However, due to objective factors, no matter how precise the instrument is, the image data collected by the scanner will inevitably have a certain degree of degradation, that is,

image degradation. Therefore, the purpose of this study is actually to optimize graphics and image technology to keep pace with the current social development. The development of science and technology is also a double-edged sword for our current society, which has advantages and disadvantages. Some security issues should also be dealt within groups. Based on Photoshop plug-in, we should do more systematic research on graphics and images.

2. Literature Review

Birajdar and Mankar [15] show that image edge detection is an important content of image analysis and an important preprocessing technology in the field of image processing, which is widely used in the fields of contour, feature extraction, and texture analysis. Zhang [16] created and built dealing image, a novel picture processing software platform that maximised the color of the produced image. According to [17], there are several particular image processing demands in different professional sectors that are currently being researched and developed. Scratch repair of photographs, de-moire treatment of printed materials, color restoration of image exposure transition or inadequate, geometric correction of photos, extraction and processing of particular information, and other unique needs have exceptionally high academic and commercial worth. Datta [18] sets a threshold for a small region or the whole picture and then segments it to retrieve the edge. The key to this procedure is determining one or more thresholds to properly extract the edge. It is now an excellent detection approach to compute the image's gradient, then suppress the non-maximum value to refine the edge band, and then repair it by setting the high and low values. In several professional sectors, according to [19], specific picture processing is required. Repairing scratches and extracting special information from photos scanned by scanners, for example, are of great social practical value in the field of criminal investigation image processing [20]. Third-party software is used as processing software, which is coupled with the driver built by the business via the interface, in order to construct a practical system, based on the professional computer image input devices developed and supplied by the company before. This system provides the benefits of cheap investment costs and focused development efforts, but it also has clear drawbacks [21]. Currently, the majority of domestic businesses and organisations will use image processing in their workplaces. For example, when processing criminal investigation photographs (including the extraction of concealed trail information and fisheye correction, among other things), the public security system will use foreign costly expert software. The fundamental problem is that domestic software is inadequate, while commercial software often falls short of the specifications [22]. The schedule is as follows: on the basis of continual modification, display written on the display of black-and-white pictures in computers has become a more sophisticated image editing tool and has been called Photoshop, presently, together with the marketing of commercial devices [23]. Channel technology in Photoshop software: this technology can store the color information of

images, form different selection ranges according to different colors, efficiently complete portrait extraction, use channel technology to extract images, and distinguish the objects to be extracted from the background according to black-and-white color levels. In [24], although the computer graphics and image processing technology has gained a certain popularity in this field, because the image processing technology in the computer graphics and image processing technology is better, there are more requirements for the special effect processing technology of image technology, but the requirements for the graphics processing technology are only creative.

From the literature, it can be seen that graphics and images are widely used at present, and the development at home and abroad is relatively advanced. Besides, this kind of cultural courses are set up in our domestic universities, and education is also a very registered technology. However, it is still constantly improving in various fields, and many fields are facing technological innovation. Only innovation can bring new opportunities and development, and now the competition in this field is fierce. In this study, based on Photoshop plug-in, the technology of graphics and images is studied, which makes it optimized in a wide range of application platforms.

3. Introduction to Image Processing Technology

The technique of analysing photographs using a computer to produce the desired results is known as image processing. Image processing is another name for it. The term “image processing” is now often used to refer to digital picture processing. Noise reduction, image enhancement, image restoration, image segmentation, image information extraction, and other methodologies and technologies are all part of digital image processing. Image processing has a broad range of applications, which may be loosely split into eight domains and more than ten subfields: material science, geology, life sciences, geography, auxiliary design, assessment, robotics, and aerospace and aviation. Digital graphics processing technology is used to capture various scenes in life.

3.1. The Concept and Characteristics of Digital Image Processing. Digital image processing involves a wide range of knowledge and a wide variety of specific methods. Traditional image processing technologies mainly focus on image acquisition, transformation, enhancement, restoration (Restoration), compression coding, segmentation, and edge extraction. And with the emergence of new ways and new auxiliary tools, it is also updating and developing. Digital image processing technology mainly includes the following points. Image material is the first step of digital image processing. Acquisition is limited to not only the imitation of human visual function but also the extension of human understanding and analysis means. Photoshop, as

the software with the highest utilization rate in the global graphics and image processing software, combines digital photographic pictures, editing, painting, graphics, and existing art works in the development and cultivates artistic aesthetic ability in the process of being familiar with various functions, which is beneficial to the improvement of image processing technology. The digital image process is shown in Figure 1.

That is, the process of transforming an image from a certain orthogonal transformation image to a region allows people to analyse the characteristics of image signals from a different perspective and make use of the transformation domain’s nature to make the whole process very comprehensive as well as allows our users to observe the world in which we now live in different ways and optimise and improve it.

It is the process of enhancing a picture. To assist observation, we may need to emphasise a certain person or location in a comprehensive photograph. The picture is further processed for recognition and protection. His goal is to convert a form that is better appropriate for human eye observation or that can be automatically quilted by a machine, actively increase picture quality, and deliver various levels of beneficial performance to the calculator. The main methods to deal with this problem are linear change of gray scale, piecewise linear transformation of gray scale, and nonlinear transformation. Assuming that the original image is $f(m, n)$ and the processed image is $g(m, n)$, the contrast enhancement can be expressed by the following formula:

$$g(m, n) = T[f(m, n)], \quad (1)$$

where $[t]$ is the gray transformation relationship between the original image and the enhanced image. Because the gray value of the image is limited to a small range, the imaging quality will become very poor, which brings inconvenience to people’s vision. The image quality and visual effect can be improved by using the linear or piecewise linear transformation and nonlinear transformation of gray. Assuming that the gray value of the original image is $f(m, n) \in [a, b]$ and the image after linear transformation is expected to be $g(m, n) \in [c, d]$, the linear transformation relationship is as follows:

$$k = \frac{d - c}{b - a}, \quad (2)$$

$$g(m, n) = c + k[f(m, n) - a]. \quad (3)$$

The linear transformation function slope of k is shown in formula (2). In order to emphasize useful information or gray range and remove useless information or gray range, the piecewise linear transformation method can be used to expand the $[a, b]$ range of useful information.

Firstly, the linear transformation with a slope greater than 1 in the $[a, b]$ interval is expanded, while other intervals are expressed by a and b . The formula of the transformation function is as follows:

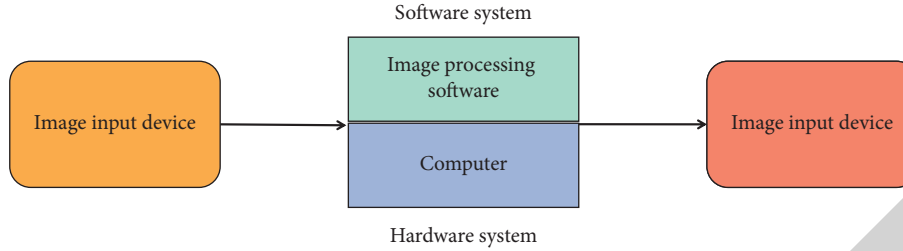


FIGURE 1: Digital image flow.

$$g(m, n) = \left(c, f \left\{ m, n < a, c + \frac{d-c}{b-a} [f(m, n) - a] a \leq f(m, n) \leq b, df(m, n) > b. \right. \right) \quad (4)$$

Image restoration is primarily concerned with eliminating interference and blur as well as restoring the image's original look. Reverse filtering and Wiener filtering are two common algorithms. Image deterioration may be caused by a variety of factors, including nonlinear sensor properties, phase differences in optical systems, and relative motion between imaging equipment and objects. When the different sources of picture deterioration are identified, image restoration technology may be utilised to fix the image. Figure 2 depicts the picture blur optimization procedure.

Geometric processing, image enhancement, and image restoration are all from image-to-image processing, that is, the input original data are image, and the output after processing is also image, while reconstruction processing is mainly aimed at the processing from data to image. Its main algorithms include algebraic method, iterative method, Fourier backprojection method, and convolution backprojection method.

Picture coding is the study of data compression technology that uses the statistical properties of image signals and the physiological and psychological aspects of human eyesight to effectively encode image signals. Currently, image coding may be used for three goals in medical technology development: the first is to lower the picture data storage capacity, the second is to reduce the image data rate, which may reduce the bandwidth of the image during transmission, and the third is to compress the image information, which is useful for feature extraction and image recognition.

Pattern recognition is the final one. There are three methods for recognising someone. Statistical recognition is concerned with characteristics, while syntactic structure recognition is concerned with structures and primitives, and fuzzy recognition is concerned with people's subjective probabilities.

At present, the well-known image processing group, which has been successfully developed, is the de facto industrial standard of global graphics and image processing software. Since its advent, it has become the most concerned image product for users all over the world with its powerful functions, leading technology, high availability, and perfect integration.

3.2. Photoshop Plug-In and Its Implementation. Most developers are used to developing software independently, and everyone uses their own style for programming. Photoshop is a leading large-scale image processing software across PMAC. Since its inception, Photoshop has become one of the image products most concerned by users all over the world because of its powerful functions, leading technology, friendly operation interface, high availability, and good integration. However, when several people, more than a dozen people, or even hundreds of people collaborate in software development and design, how to seamlessly integrate the software code (possibly link libraries and components) written by several people has become a thorny problem. The platform program's call to the plug-in is a response to the user's operation. Generally speaking, when calling a plug-in, first define a graphics object, which implements the reference to the object defined by the calling plug-in. Every program integration and code maintenance needs to recompile and link the source code and redistribute new software, which is sometimes very troublesome. In this case, developers need to find a way to divide the target software to be developed into several functional components, and the standard interface regulations are followed between each component. Now, the plug-in technology applied in the user field is divided into three types.

Text insertion: this plug-in is similar to a basic batch processing command plug-in in that it has a minimal degree of freedom and requires users to pick and enter items one by one. This plug-in has a limited number of functionalities and scalability. Some plug-ins are simple to create, and users of various applications may create their own. Second, script insertion, which employs a particular language to create plug-ins, is difficult to price, and credit developers must create their own programme explanation kernel. This strategy has the benefit of allowing the programme to actualize itself without the need for other applications to create plug-ins, and it is widely used in office automation software. The last kind is the programme plug-in, which is created by modifying an existing programme and establishing many user-defined interfaces in the original theme so that plug-ins may freely access different programme resources. Users have a lot of flexibility with this tool, and they may develop and

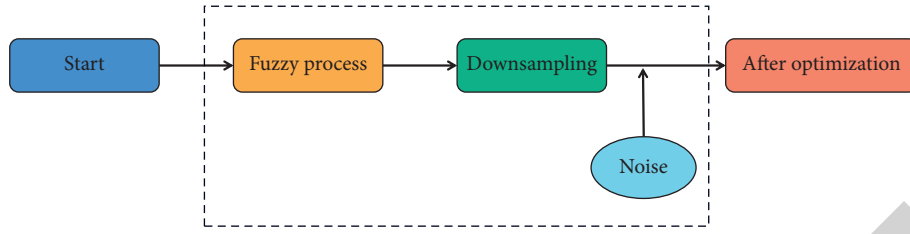


FIGURE 2: Image blur optimization process.

create endlessly. The only flaw is that it is tough to coordinate the interface pads.

In reality, the purpose of plug-ins is to increase the platform's capabilities. Image acquisition plug-ins, picture input plug-ins, picture formatting plug-ins, image selection plug-ins, image processing plug-ins, and image information extraction plug-ins are the six plug-ins described in the system. The purpose of plug-ins is to extend and improve software functionalities without changing the program's basic platform. When the plug-in interface is made public, any organisation or person may create their own plug-ins to address operational issues or add new features, resulting in true "plug and play" software development. The platform extension interface is completely implemented by the platform, and the plug-in is only called and used. The plug-in interface is completely implemented by the plug-in, and the platform is only called and used. The implementation of the image plug-in will be introduced below.

The attribute list of plug-ins is a flexible and extensible data structure used to represent the metadata of plug-ins. The metadata here refer to some basic information used by platform programs. Through these metadata, the platform program can get static information such as plug-in type, version, entrance address, logo, parameter name, parameter number, and parameter default value, so as to control the plug-in. Photoshop's plug-in structure is divided into two parts: the plug-in itself and the host. Plug-ins are built as standalone files, enabling them to be stored anywhere and introducing the notion of versioning. Photoshop's plug-in structure is regularly enhanced and evolved, and the unique interface is now entirely distinct from that of SiliconBeach, thanks to the work it does for full color picture processing and virtual memory management. Gaussian blur is a popular image processing technique for reducing picture noise and increasing detail levels. The convolution between the picture and the normal distribution, which is also known as Gaussian distribution, is the Gaussian blur process of an image from a mathematical standpoint. Gaussian blur is defined as a function of convolution of image and Gaussian distribution and one-dimensional orthonormal distribution:

$$L(x, y) = g(x, y) \times l(x, y),$$

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(x-\mu)^2}{2\sigma^2}}, -\infty < \sigma < \infty. \quad (5)$$

Parameters μ is the mean value of the random variable following the normal distribution, and the second parameter

σ^2 is the variance of the random variable, so the normal distribution is recorded as $N(\mu, \sigma^2)$. The probability law of random variables following normal distribution is μ . The probability of adjacent values is large, and the distance is taken as μ . The farther the value is, the smaller the probability will be. The smaller σ is, the more concentrated the distribution μ will be nearby. The larger the σ is, the more dispersed the distribution will be.

4. Comprehensive Experimental Test

The grayscale results are relatively competent. In order to further evaluate the performance of the algorithm in this section, I first compare the customer satisfaction; let the customer use the traditional grayscale optimization method and the grayscale conversion method in this paper at the same time and then see which one I prefer more. In the user survey, the respondents select the two gray images they prefer from the two gray images and place them side by side. The two gray images are transformed from color images, one of which is the result of the algorithm in this section, and the other is randomly selected from the previous methods. For each pair of images to be compared, they are randomly placed on the left and right positions. The comparison between the traditional algorithm and the optimization algorithm in this study is shown in Figure 3.

There is no way for users to communicate with one another. They make decisions based on their gut instinct. As may be observed, the technique described in this study offers a number of distinct benefits over the old approach. Only one person's decision is less than 0.6, while the rest range from 0.7 to 0.6. Let us take a look at some of the most common algorithms. Only a few of them are more than 0.4. At first glance, consumers seem to favour the gray picture altered by the new algorithm.

Following that, we will perform a survey and test of ten sets of graphs for two users, ranging from one to ten. We not only added group graphs to the previous experiment but also notified the scientists of each algorithm's breakthrough. Check out which one they prefer. Figures 4 and 5 depict the test results of 10 groups of two users.

It can be seen from the figure that there is little difference between the survey scores of the two users. The obvious point is that the user's optimized image data scores in this study are much higher than those of traditional images. It can be seen that the current optimization technology still obtains most of the value in the market people's trust. The algorithm of this study maintains the consistency of

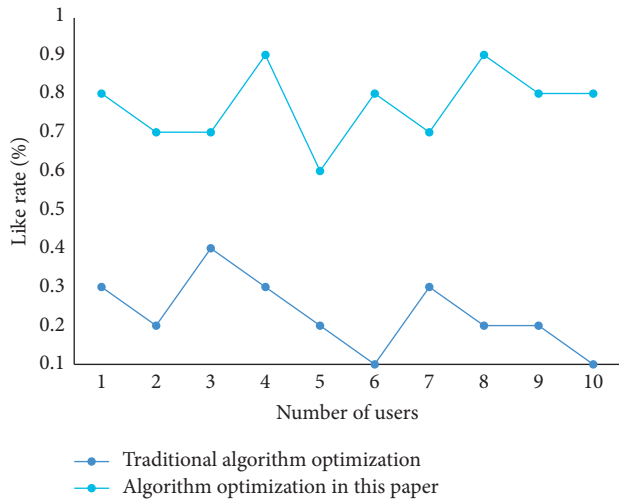


FIGURE 3: Comparison of traditional algorithms and the optimization algorithm in this study.

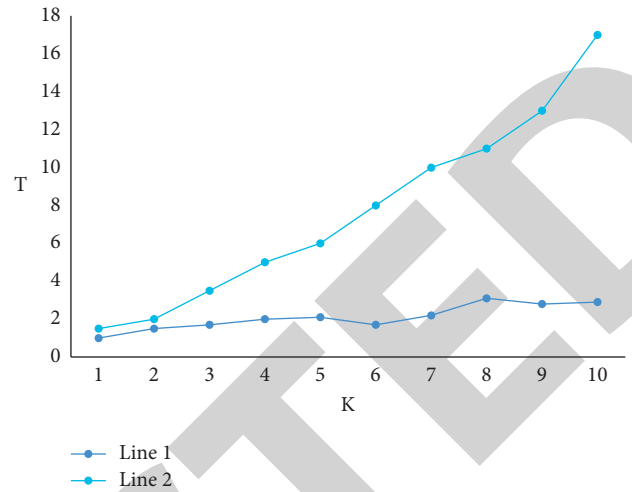


FIGURE 6: Exact value error.

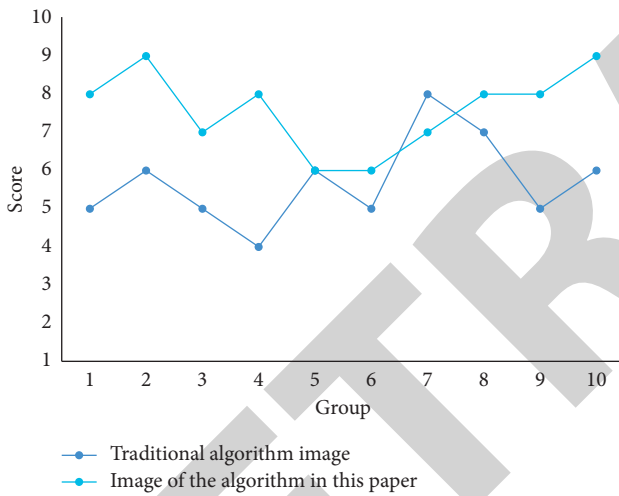


FIGURE 4: Ten groups of user test scores (1).

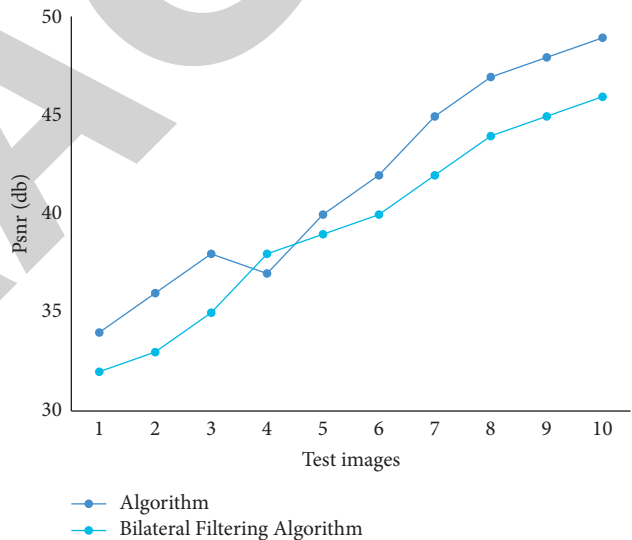


FIGURE 7: The algorithm in this study and the bilateral filtering algorithm compare the reconstructed image of the picture.

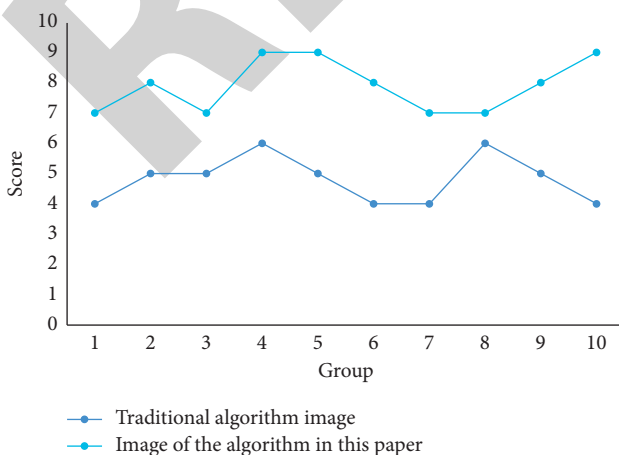


FIGURE 5: Ten groups of user test scores (2).

perception of color images and grayscale images, which is consistent with the aesthetics of the survey group.

Figure 6 shows that when the function of a one-dimensional normal distribution is calculated, the time spent in the rectangular coordinate system is much less than the time required in the polar coordinate system, indicating that the new calculation method's calculation amount is much smaller than the polar coordinate systems. The number of operations listed, as shown in the figure, when the image moment is computed in the Cartesian coordinate system, the amount of computation is substantially decreased since the picture does not need to be transformed between the two coordinate systems. At the same time, rounding errors caused by coordinate conversion are eliminated, and computation accuracy is increased. Figure 6 shows the precise value inaccuracy.

The abscissa is the highest order of moments used in reconstructing the image, and the ordinate is the time it took to compute the exponential moments. Line 1 represents the time spent in the rectangular coordinate system, whereas line 2 represents the time spent in the polar coordinate system. As can be observed, data are not distorted by rotation, scaling, or other factors, making them more resistant to assaults and able to endure attacks when brightness and contrast are changed. The quantity of data that the method in this study needs to process is less than that of the original picture. The number of picture blocks will be decreased after overlapping blocks, so the matching search will take less time; the size of the feature space will also be lowered, enhancing the accuracy. The detection effectiveness is considerably lowered, as well as the detection time. Finally, the algorithm in this study and the bilateral filtering algorithm are used to compare the reconstructed images, and the accuracy and effectiveness of the algorithm in this study are determined, as shown in Figure 7.

The experiment fully shows that the local structure parameter model of the color image can better establish the constraint relationship between the color image and the depth image in the scene than other algorithms so that the reconstructed high-resolution image can be clearer at the edge.

5. Conclusion

With the expansion of image application field, image processing technology has developed rapidly and has become an important and useful technology in the field of image understanding and computer vision. The technical application of Photoshop in graphics and image processing is a process of combining theory with practice and tending to practice. While giving full play to the technical value, it develops creative thinking, makes more extensive and in-depth investigation on practice, and better promotes the use of this technical software. We must strengthen the teaching of Photoshop technology and graphics and image processing-related technologies, optimize the curriculum, master the application of key technologies, and constantly improve the technical level of scholars using Photoshop. It also effectively improves the blowing efficiency of graphics and images and provides professional processing technology and basic theoretical knowledge for processing personnel. Based on the research of Photoshop plug-in, the application of current platform and plug-in software can reduce the trouble and time of software recompilation and release and can well realize the division of development, absorb the strengths of others, and also realize code hiding and protect intellectual property rights. It can not only make the processed image more suitable for human visual observation but also provide more effective information for further image applications, such as image classification, image segmentation, target recognition and target detection, war damage evaluation, and understanding. This study is not detailed, and there are still deficiencies. After that, we will continue to study and follow up.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The author declares that there are no conflicts of interest.

References

- [1] M. Zhang, L. Ma, and P. Yu, "Three-dimensional full-range dual-band fourier domain optical coherence tomography accelerated by graphic processing unit," *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 25, no. 1, pp. 1–6, 2019.
- [2] F. Press, "Adobe Photoshop CC for Photographers: a professional image editor's guide to the creative use of Photoshop for the Macintosh and PC (Paperback)," *Adobe Photoshop Cs for Photographers*, vol. 19, no. 5, pp. 537–543, 2018.
- [3] Q. Yang, "Technical operation analysis of Photoshop in premiere header image processing," *Information and Computer*, vol. 000, pp. 52–53, 2018.
- [4] F. Wang, W. L. Lyu, and J. S. Pan, "A robust image authentication scheme with self-repair capability for grayscale source document images via PNG format," *IET Image Processing*, vol. 10, no. 12, pp. 971–978, 2017.
- [5] J. Tan, J. M. Lien, and Y. Gingold, "Decomposing images into layers via RGB-space geometry," *ACM Transactions on Graphics*, vol. 36, no. 1, pp. 1–14, 2016.
- [6] H. Song, C. Yang, J. Zhang, W. C. Hoffmann, D. He, and J. A. Thomasson, "Comparison of mosaicking techniques for airborne images from consumer-grade cameras," *Journal of Applied Remote Sensing*, vol. 10, no. 1, Article ID 016030, 2016.
- [7] M. Mikhail, S. Jiang, P. Hahn, A. Orlin, R. C. Rao, and N. Choudhry, "OCTA: a practical method of image averaging using adobe Photoshop software," *Ophthalmic Surgery, Lasers and Imaging Retina*, vol. 50, no. 12, pp. 802–807, 2019.
- [8] W. Li and J. Li, "Research on music visualization based on graphic images and mathematical statistics," *IEEE Access*, vol. 8, no. 99, p. 1, 2020.
- [9] V. N. Nikolenko, N. A. Risayeva, O. g. M. Kolomiyets, M. V. Oganessian, V. A. Kudryashova, and A. A. Bolotskaya, "Human anatomy in tables - opportunities and prospects of using graphic images," *Vestnik Kostroma State University. Series: Pedagogy. Psychology. Sociokinetics*, vol. 32, no. 4, pp. 225–231, 2019.
- [10] A. Konstantinov, "Technical drawing in graphic knowledge's bases studying," *Geometry & Graphics*, vol. 5, no. 1, pp. 51–63, 2017.
- [11] S. O. Yuichiro, "About the graphic image park," *The Journal of Information Science and Technology Association*, vol. 69, no. 5, pp. 200–203, 2019.
- [12] K. A. Lauffer, "Book review: amanda frissen, graphic news: how sensational images transformed nineteenth-century journalism," *Newspaper Research Journal*, vol. 42, no. 1, 2021.
- [13] J. L. Davis, B. Soetikno, K. H. Song, Y. Zhang, C. Sun, and H. F. Zhang, "RainbowSTORM: an open-source ImageJ plug-in for spectroscopic single-molecule localization microscopy (sSMLM) data analysis and image reconstruction," *Bioinformatics*, vol. 36, no. 19, 2020.
- [14] R. Claveau, P. Manescu, M. Elmi, V. Pawar, M. Shaw, and D. Fernandez-Reyes, "Digital refocusing and extended depth of field reconstruction in Fourier ptychographic microscopy," *Biomedical Optics Express*, vol. 11, no. 1, pp. 215–226, 2019.
- [15] G. K. Birajdar and V. H. Mankar, "Computer graphic and photographic image classification using local image descriptors," *Defence Science Journal*, vol. 67, no. 6, pp. 654–663, 2017.

- [16] N. Zhang, "Application of computer graphics and image software in marine graphic design," *Journal of Coastal Research*, vol. 106, no. 1, p. 600, 2020.
- [17] M. O. Harris-Love, B. A. Seamon, C. Teixeira, and C. Ismail, "Ultrasound estimates of muscle quality in older adults: reliability and comparison of Photoshop and ImageJ for the grayscale analysis of muscle echogenicity," *PeerJ*, vol. 4, no. 1, Article ID e1721, 2016.
- [18] K. Datta, A. Rittenbach, D. I. Kang, J. P. Walters, S. P. Crago, and J. Damoulakis, "Computational requirements for real-time ptychographic image reconstruction," *Applied Optics*, vol. 58, no. 7, pp. B19–B27, 2019.
- [19] W. Hu, Z. Lei, H. Zhou et al., "Plug-in free web-based 3-D interactive laboratory for control engineering education," *IEEE Transactions on Industrial Electronics*, vol. 64, no. 5, pp. 3808–3818, 2017.
- [20] L. Boxer and P. C. Staecker, "Homotopy relations for digital images," *Mathematics*, vol. 37, no. 1, pp. 99–126, 2016.
- [21] Z. Ege and C. I. Kara, "Nielsen fixed point theory for digital images," *Journal of Computational Analysis and Applications*, vol. 22, no. 5, 2017.
- [22] P. Wei, T. Jiang, H. Peng et al., "Coffee flower identification using binarization algorithm based on convolutional neural network for digital images," *Plant Phenomics*, vol. 2020, no. 5, 15 pages, 2020.
- [23] M. Deoli and J. Joshi, "A fast and robust approach to detect copy-move forgery in digital images," *International Journal of Computer Application*, vol. 137, no. 5, pp. 29–33, 2016.
- [24] U. S. Ajiethkumar, K. Kalidass, and K. Bhuvaneshwari, "Topological credibility analysis of digital images-A locally finite spaces approach," *International Journal of Pure and Applied Mathematics*, vol. 116, no. 23, pp. 707–717, 2017.