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Application of Computer Image Processing Technology in Media Based on New Media Era

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Abstract: Electronic imaging technology, a new technology that utilizes the electromagnetic properties of materials to create images, is widely used in platemaking, proofing, printing, medicine, nondestructive testing, and other fields. This paper analyzes intelligent production practices in process industries and demonstrates that the proposed model can provide an effective new approach for knowledge integration in enterprise information decision-making. This paper first introduces the context of the new media era, then conducts academic research and summarizes the application of media and computer IPT in media, outlining the applications of electronic imaging. Based on an algorithmic model, various algorithms for the application of computer IPT in media are proposed based on the new media era. Related concepts are also introduced, and simulation experiments are conducted. Through the integration of content compatibility, resource integration, publicity integration, and computer IPT, average compatibility increased by 11.25%, and the number of users increased. With good resource integration and high mutual integration value, this paper has practical significance for this type of research, helping to promote academic progress and providing a reference.

1. Introduction

Digital IPT has played a huge role in promoting the sustainable development of the image media industry. In this paper, coding compression, segmentation and enhancement restoration are discussed in order to make the staff of relevant units better understand the image and lay a foundation for future work.

Many scholars have studied the application of IPT in media. Zhang Lina introduced the method of remote sensing image processing using multimedia technology, discussed some problems of remote sensing image format conversion, and believed that there is a large color difference between remote sensing image and real image [1]. A device proposed by Carpio Joy N allowed users to understand the media conditions in specific areas, collect quantitative data by a device, and measure the traffic volume through the installed camera through IPT [2]. Monga Vishal mainly expounded several image processing technologies commonly used in multimedia applications and their implementation methods in multimedia applications [3]. Bruns Axel believed that the traffic media

platform provider severely restricted access to platform data through its application programming interface. This has a particularly critical impact on the ability of social media researchers to investigate information campaigns and other phenomena, and requires the platform to explain the possible role of the information and policies it provides in promoting such dysfunctions [4]. Liu Dong believed that the relationship between the use of digital media and happiness also depends on the way technology is used. A series of meta analyses were conducted on the use and well-being of different types of SNS (Social Networking Services) [5]. Al-Naji Ali believed that objective image quality assessment is a challenge for digital image and video processing systems, because image quality would be distorted in various applications including recovery, compression, storage and transmission [6]. Ortega Antonio believed that the development and application of computer graphics and imaging technology has greatly accelerated the development of intelligent devices, and discussed and studied the application of computer graphics and imaging technology in media [7]. Guo Meng-Hao believed that computer IPT has achieved great success in the application of media, showing great potential in image processing [8]. The above research has achieved good results, but with the continuous updating of technology, there are still some problems.

How to make use of the application of IPT in the new media era has been analyzed at different levels by many scholars. With the rapid development of science and technology, Feezell Jessica T found that digital IPT has achieved unprecedented development, and its application value in the media field has been greatly improved [9]. Khamis Susie emphasized the significance and concrete embodiment of digital IPT in the new media era, with a view to accelerating the development of the financial media era and giving full play to the advantages of digital IPT [10]. Light Ben believed that image software applications are very popular in the digital media environment, and they are the places for major social, cultural and economic changes in many fields [11]. Fardouly Jasmine studied and tested the internalization and collectivization of IPT in the new media era, compared it with specific target groups, and mediated the relationship between the use of mobile social image processing and appearance related variables [12]. The above research shows that the application of computer image processing has a positive effect, but there are still some problems.

2. The background of the new media era and the introduction of the computer IPT

(1) Characteristics of the new media era

This paper summarizes four characteristics of the new media era, as shown in Figure 1:

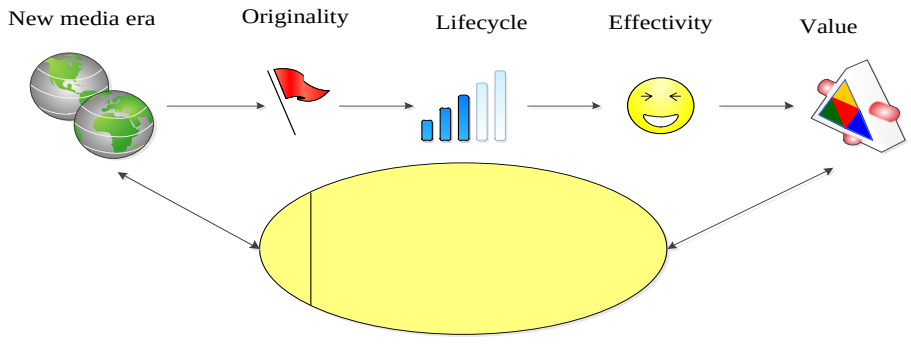

Figure 1 The characteristics of the new media era

(2) Common computer image processing techniques

IPT is to apply the image processing technology to the image processing. Digital images are two-dimensional images formed by industrial cameras, scanners and other devices. The compression, enhancement, recovery, matching, description and identification part of the image are shown in Figure 2:

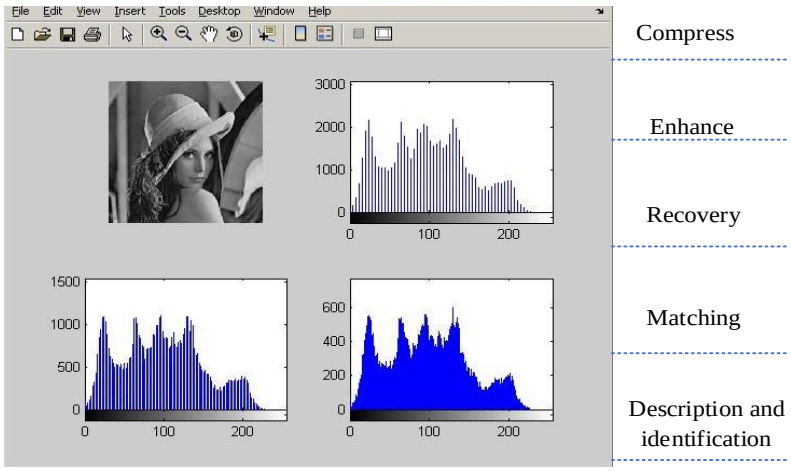

Figure 2 Process of each part of the image processing work

At present, the most widely used systems are Kang Nai Shi, map intelligent system, etc., which is a new technology gradually developed in recent years, [13]. In this age of information explosion, image is an important means for human beings to obtain, express and disseminate, and is the fundamental for human understanding and understanding of the world. See Figure 3:

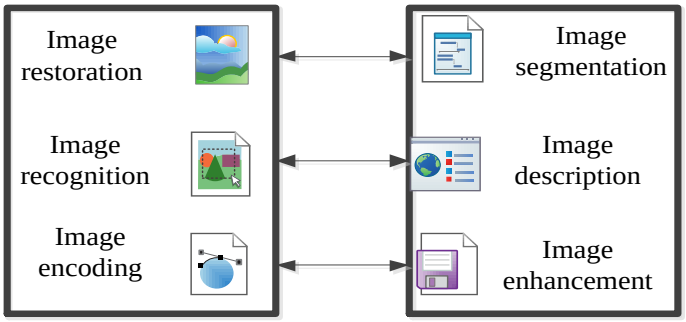

Figure 3 Common computer IPT

1) Image enhancement

Image enhancement is to improve the visual quality of images, and there is no unified theoretical system at present. At present, the commonly used enhancement methods include contrast processing, histogram correction, noise processing, edge enhancement, transformation processing and pseudo color processing. In the field of multimedia, various types of images are mainly image enhancement, and various image processing software usually supports image enhancement.

2) Image restoration

Image restoration is to keep the image as it is, so as to correct the distortion caused by the formation, transmission, storage, recording and display of the image. In the process of image restoration, people must first establish a degradation model, and then restore according to the reverse process of degradation.

3. Evaluation of the Application of Computer IPT in the Media under the Background of the New Media Era

(1) Application status

New media is the comprehensive use of network, radio, television and other media to form a complete and multi-level communication content. Its core content is the integration of resources, content, publicity and interests. Among them, content fusion refers to that in the process of

communication of new media technology, due to different communication channels and technologies, the content of communication is compatible; resource integration is a process of integrating the technologies and audiences of various media through the use of new media technologies; the integration of publicity shows that in the specific application, all kinds of media publicity methods have their own shortcomings, and each cannot achieve better results; interest integration is to use the concept of new media to package the forms of various media to form a unified communication unit, and users can obtain information about various resources through payment. This method can not only effectively improve the effect of advertising, but also control the time cost and capital cost of users. The core content of new media is shown in Figure 4:

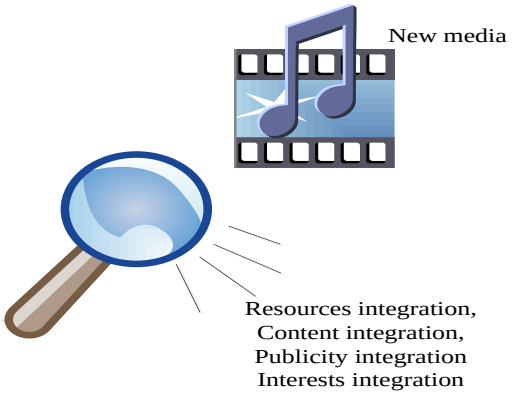

Figure 4 Schematic diagram of the core content of new media

In the age of new media, IPT has a wider range of applications, effectively solving the barriers between various media in the media era. With the advent of the new media era, the integration of image technology and text has become a universal phenomenon. By adding corresponding pictures, people can improve the level and aesthetic feeling of reading and attract the attention of readers. At present, people obtain information mainly through mobile phones and mobile Internet technology to obtain pictures, images, audio and text. Through the comprehensive application of various media means, people can give full play to their respective advantages to achieve the best effect of learning from each other.

(2) Research on the method of computer IPT in media

After the arrival of the era of integrated media, people can not get, express and convey information without pictures. Computer technology is used to encode and compress the image to achieve the purpose of image processing, as shown in Figure 5:

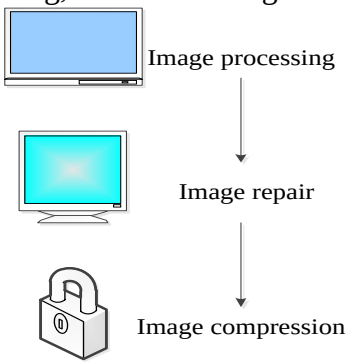

Figure 5 Method of computer IPT in communication media

1) Image processing

Image processing is a model where an image can be obtained through PS (Photoshop) technology, and then obtain an irregular image, draw the edge of an image, and then select a picture with a relatively large color, and then select similar or similar color areas after improving the color level. This paper applied image processing technology to the media, the most common use is post-processing, special effects production and beautification editing. For example, in order to achieve the effect of advertising, it is necessary to use PS technology, according to the requirements of the advertisement, and then according to the requirements of the advertisement, and then use various tools to add, superposition, and finally achieve the ideal effect, such as Figure 6:

P S

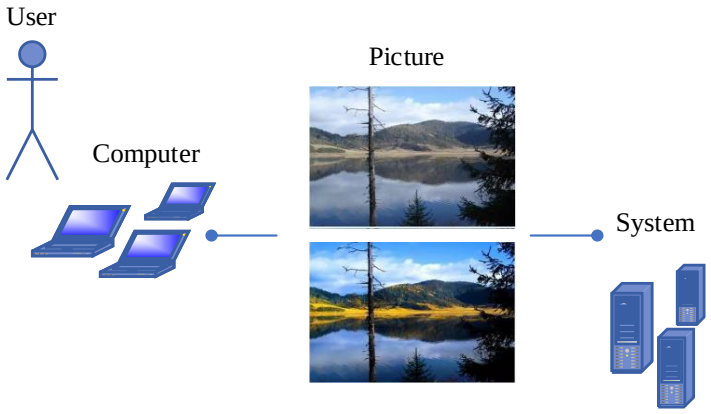

Figure 6 Process of P S in image processing

2) Image compression

For large-capacity images, this processing consumes a great deal of resources and the transmission speed is very slow, so it affects the user experience. Digital image compression adopts a new compression method, which compresses the original image data to speed up the transmission rate and reduce the resources required for transmission. However, when compressing image data, image fidelity is particularly important. For example, JPEG (Joint Photographic Experts Group) coding technology is adopted. In order to copy the color of the original image to the color mode, the image is divided into a small block by image preprocessing technology, and then the model is processed by forward discrete cosine. After sorting, coding and other processes, a compressed data stream is finally obtained [14].

4. Related Algorithms of IPT

(1) Wavelet transform algorithm

Wavelet is a method of multi-resolution analysis of signals and images, which is studied from the perspective of signal decomposition. Assuming an input signal is f (x), the signal can be regarded as a linear combination of a group of $\varphi_k(x)$, called:

$$f(x)=\sum_k c_k\varphi_k(x) \tag{1}$$

Among them, c_k is the expansion cardinal number of the base.

If the following permissible conditions are met, the function is called a mother daughter wavelet function:

$$C_{\psi} = \int_0^{+\infty} \frac{|\widehat{\psi}(w)|^2}{w} dw < +\infty \tag{2}$$

The corresponding equivalent condition is:

$$\int_{-\infty}^{+\infty} \psi(t) dt = 0 \tag{3}$$

Through the expansion and translation of such parent wavelet function ψ(t), the result is as follows:

$$\psi_{a,b}(t) = |a|^{-\frac{1}{2}} \psi(\frac{t-b}{a}) \tag{4}$$

In the formula, $\psi_{a,b}(t)$ is called wavelet function, and it can be seen from Formula (4) that $\psi(t)$ has a certain degree of oscillation.

Scale function $\phi(x)$ is the linear combination of orthogonal bases in space:

$$\phi(x) = \sqrt{2} \sum_{k \in z} h(k) \varphi(2x-k) \tag{5}$$

Formula (5) is the double scale formula satisfied by the scale function, so the wavelet function is also a linear combination of basis functions in space:

$$\psi(x) = \sqrt{2} \sum_{k \in z} g(k) \varphi(2x-k) \tag{6}$$

This is the double scale formula satisfied by the wavelet function.

If the FIR (Finite Impulse Response) filter meets the following conditions, an orthogonal wavelet can be formed.

$$|H_0(w)|^2 + |H_0(w+\pi)|^2 = 1 \tag{7}$$

The following values can be obtained:

$$H_0(0) = 1 \tag{8}$$

$$H_0(\pi) = 0 \tag{9}$$

(2) Wavelet transform algorithm and FIR filter construction

First, a dual scaling function $\widetilde{\varphi}(x)$ is found, which satisfies:

$$\widetilde{\varphi}(x), \varphi(x-1) > \delta_l \tag{10}$$

This group of bases is called biorthogonal, and the expansion of function f (x) can be written as:

$$f(x) = \sum_{k \in z} f_k \varphi(x-k) \tag{11}$$

5. Simulation Experiment Evaluation of Computer IPT in Media

Experiment description: this paper analyzes the application of computer IPT in media based on the new media era through simulation experiments. The experimental samples are selected from media platforms A, B, C and D. The data samples are the total number of users of the four media platforms, including 12 for media platform A, 16 for media platform B, 8 for media platform C and 14 for media platform D. Through the analysis of content integration, resource integration, publicity integration and computer IPT, the experimental results are summarized and discussed. Table 1 shows the user visits of the above media platforms for the following experimental reference:

Table 1 User access of the media platform

	Ranking	Number of users/million	Number of pages/10000	Pages/10000
A	21	357	97	1471
B	7	612	132	1785
C	36	271	84	1185
D	13	463	114	1367

(1) Analysis of content compatibility

Figure 7 shows the content integration analysis of traditional media and new era media in news media, book publishing, advertising business and media products:

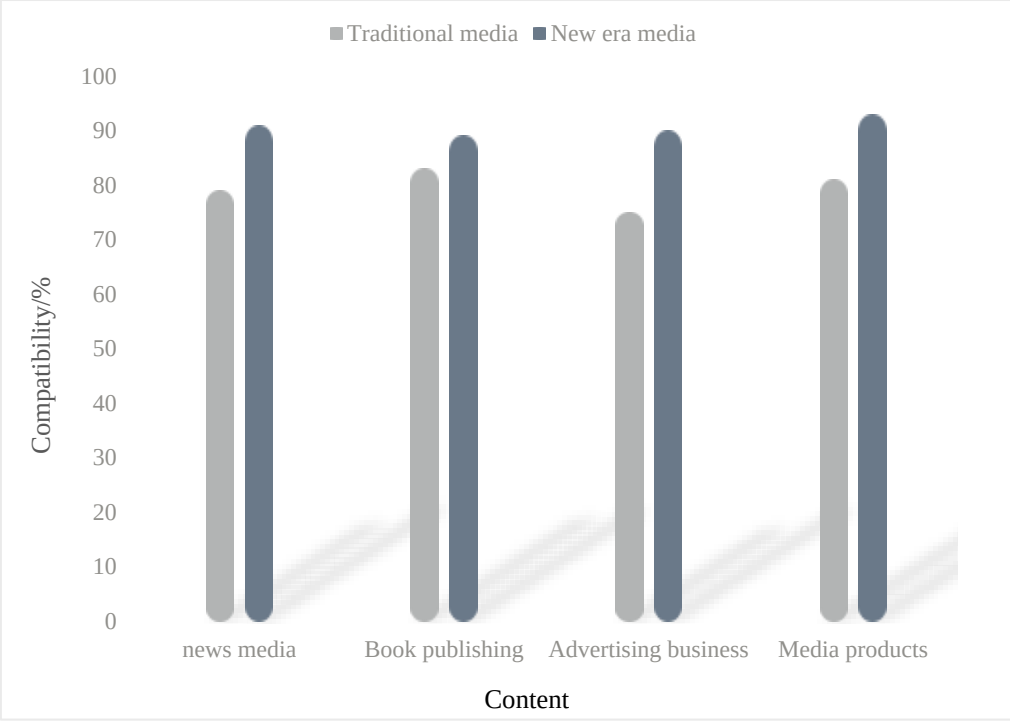

Figure 7 Analysis of the content integration of traditional media and the new era media

According to the column height of the two legends in Figure 5, the new era media was more inclusive than the traditional media. In terms of news media, the compatibility of traditional media was 79% and that of new era media was 91%, a difference of 12%; in terms of publishing book, the compatibility of traditional media was 83% and that of new era media was 89%, a difference of 6%; in terms of advertising business, the compatibility of traditional media was 75% and that of new era media was 90%, a difference of 15%; in terms of media products, the compatibility of traditional media was 81% and that of new era media was 93%, a difference of 12%. The average compatibility of traditional media in these four items was 79.5%, and that of new era media in these four items was 90.75%. Through simple calculation, the average compatibility of new era media in

these four items was 11.25% higher than that of traditional media.

(2) Resource financing analysis

According to the data samples in the experimental instructions, Figure 8 shows the analysis of the number of users of traditional media and new era media in four media platforms A, B, C and D:

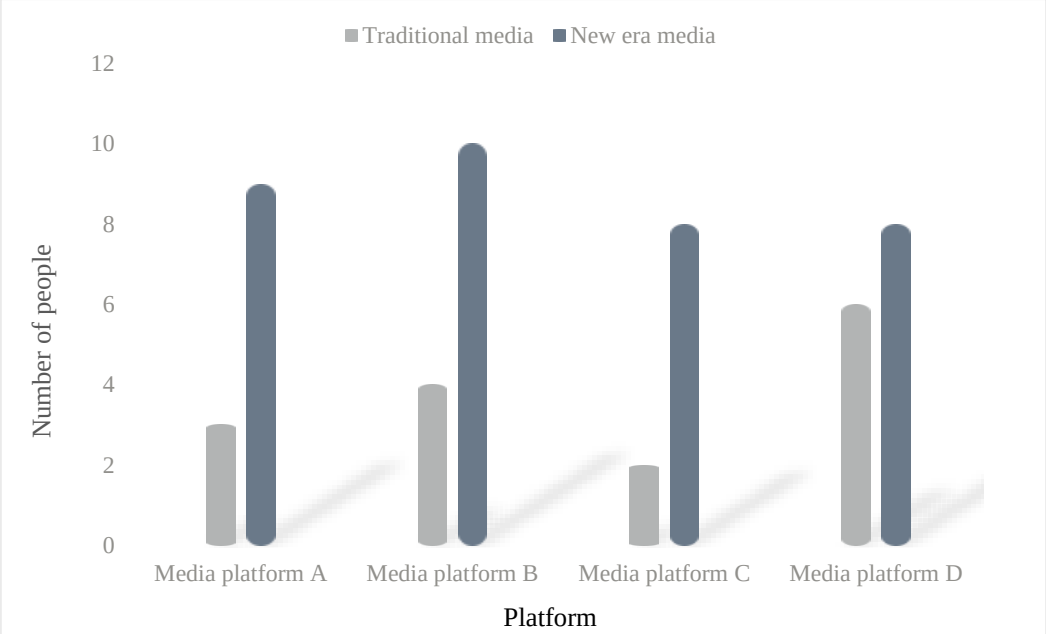

Figure 8 Analysis of the number of people using traditional media and new era media in media platforms

It can be seen from Figure 8 that in media platform A, the number of people using traditional media was 6% of the total number of people, while the number of people using new era media was 9% of the total number of people; in media platform B, the number of people using traditional media was 8% of the total number of people, while the number of people using new era media was 20% of the total number of people; in media platform C, the number of people using traditional media was 4% of the total number of people, while the number of people using new era media was 16% of the total number of people; in media platform D, the number of people using traditional media was 12% of the total number of people, while the number of people using new era media was 16% of the total number of people. In the four media platforms, 15 people used traditional media for 30% of the total number of people.

6. Conclusions

With the arrival of the new media era, the value of pictures is becoming more and more obvious. People can use computer technology to make more text descriptions into pictures. Making pictures not only satisfies readers' vision, but also spreads information more efficiently. This paper analyzed the application of computer IPT in the media in the new media era by using the writing method of subdividing the main body. Through the experimental analysis of commonly used technologies, the technology with better efficiency was obtained and discussed.

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