Intelligent Editing System for Behind-The-Scenes Documentaries Based on CG Image Optimization Algorithm

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Abstract:On the basis of studying the network planning technology and the characteristics of CG project production, the relevant calculation methods of the network diagram are discussed, and the network diagram of the system is established according to the implementation of the current task. The type characteristics of behind-the-scenes documentaries are three aspects: fixed subject matter, unified mode, poor narrative, strong sense of participation, theme attachment, and mutual contrast, and summarizes the function of commercial marketing and publicity to satisfy the audience's peeping psychology. In this paper, content-based image retrieval the technology is applied to the resource search module of CGProject, and an image retrieval system ImgSearch is designed and implemented. The system has made some optimizations in image retrieval performance. Experiments show that the system has good practicability in CGProject.

Keywords: Intelligent Editing System, Behind-The-Scenes Documentaries, CG Image Optimization Algorithm

1. INTRODUCTION

CG (ComputerGraphics) refers to the digital graphics produced by computer hardware and software. image. With the popularization of digital TV production methods, CG production has become an indispensable method for DCC (Di9itaLContentCreation) of today's TV digital content creation. CG production gives full play to the advantages of computer systems [1]. The production is fast and it is easy to adjust. On the other hand, my country's animation industry is in its infancy, and there is a big gap with the above countries. According to statistics, there are less than 10,000 people in the country now, which is only 1/3 of South Korea's [2].

The annual output of domestic animation is only 1% of that of Japan, and the average Japanese has 5.8 minutes of domestic animation, while my country is only 0.0012 dirty. The internal book resources of traditional libraries are changing from paper to digital and electronic [3]. With the continuous development of Internet technology, cloud computing technology has entered the digital library. In the daily construction process of digital libraries, cloud computing technology is used to build intelligent A modernized book collection and editing system. The types of documentaries and the theory of documentaries have been continuously improved and innovated in the continuous exploration of senior scholars and practitioners, resulting in a wide variety of documentaries of various types [4].

The emergence of behind-the-scenes film documentaries can be said to be an emerging documentary model. The earliest behind-the-scenes film documentaries in my country date back to the 1990s [5]. At that time, director Zhang Yimou was preparing to shoot some footage for the film "Happy Times". The behind-the-scenes documentary "Keep Time" was born, but the film was only collected as an image material in the end, and was not broadcast publicly [6]. First of all, the main feature of behind-the-scenes documentaries is that they use the process of film creation and related content as creative materials. As a kind of popular art, film is not only loved by the broad audience, but also the main object of academic research. Every time a good movie is born, it will be accompanied by the attention of the public and cause a general concern and discussion in the society [7]. The subject selection background of this subject is the National High-tech Research and Development Program (863 Program) project, subject number: 2005AAl14050, project name: "Research on key supporting technologies for the construction of Shanghai Digital Media Base" Sub-topic 2: CG production process and key project management technical research, hereinafter referred to as the CGProject project [8]. The main goal of this project is to manage and control the whole process of animation production projects. The needs of these practical problems should be solved content-based image retrieval technology. It has become a research hotspot in recent years [9].

Content-based image retrieval research how to express the content of an image through the visual features of the image. Extract the highly representative features and use the features as the index of the image content to achieve similarity retrieval of images [10]. Most of the existing color image forensics algorithms Convert color images to grayscale images, and then use grayscale image analysis and calculation to obtain forensic results, but when color images are converted to grayscale images, a lot of statistical features between image channels and color information are lost [11].

TV content production, broadcasting and receiving system simulation and digital technology coexist with the old and new, in the production stage [12]. TV program producers use computer technology to produce related CG images: in the viewing stage. Mainstream end users receive analog TV signals through TV receivers to watch images. In the presentation of moving images [13]. There are many technical differences between TV receiver screens and computer monitor screens. Moreover, the execution cycle of general projects is also relatively long, and the project management is complicated [14].

There are generally potential dependencies and constraints between the resources required by the uncle, as well as the

mutual substitution and exclusivity of resources, which greatly increases the complexity of the management project. It not only fully meets the needs of the development of modern society, but also improves the effectiveness of the internal management of the library [15]. The intelligent book collection and editing system can give full play to the real value of the collection resources. Reflect the reality and observe the historical and humanistic process. As an art and an industrialized social product, the development of contemporary and human beings can be said to go hand in hand [16].

Since the documentary is a mirror that reflects social life, the observation of the film itself should also be a historical mission of the documentary, and the encounter between the two will inevitably erase the spark. In recent years, with the prosperity and development of my country's film market, behind-the-scenes documentaries have also developed considerably. In 2002, the behind-the-scenes documentary "Origin" of the movie "Hero" was broadcast on TV stations across the country. As the first behind-the-scenes documentary of a film in my country, "Origin" had a sensational effect once it was broadcast [17].

2. THE PROPOSED METHODOLOGY

2.1 The CG Image Optimization Algorithm

CG images are composed of red, green, and blue (RGB) three colors mixed in different proportions and intensities. Usually, each color channel of RGB contains 8-bit data, which can be divided into 256 gray levels considering the encoding of TV images. In this In the stage, usually two or more contractors, after carefully studying the customer's demand proposal, estimate the type and quantity of resources required, and the time required to design and implement the solution, and each propose a solution to the problem. From the results, the images and key images in the front are very close in terms of color, which is in line with human visual requirements, and the effect of Figure 2.42 is better than that of Figure 2.41. The description methods for texture mainly include: Statistics-based methods, model-based methods, and structure-based methods.

Statistics based on statistical methods include autocorrelation functions, moments, co-occurrence matrices, and several textures. The model analysis method describes texture as a corresponding probability model or a linear generative model of a series of basis functions in statistics, signal analysis, information theory and other disciplines. This is because the distribution of feature similarity is not uniform, and the components of the statistical histogram are It is quantified at equal intervals and cannot accurately reflect the hue difference. The cumulative histogram method makes the distance between chromaticity values proportional to their visual similarity, which is more advantageous. We first perform CD transformation on the quaternion to obtain two complex numbers, and then perform dual-number complex wavelet transformation on the two complex numbers to realize the quaternion wavelet transformation of grayscale images. CG projects are generally very complex large-scale projects. It is difficult for managers to think through every aspect of a project based on experience.

At the same time, many constraints such as construction period, quality and resources will make the project manager feel unable to start. The project management system is a set of multi-functional and multi-user project management system developed to meet the needs of the 3D animation development and production team to carry out project management informationization. It is a set of professional project management software for all animation development project teams. Discrete wavelet transform, contour wavelet transform overcomes the shortcomings of discrete wavelet transform and has advantages in directionality and anisotropy. Based on this advantage, contourlet transform can extract more than discrete wavelet transform in terms of image features compared with discrete wavelet transform. Wavelet transform has more edge features and feature information in multiple directions.

2.2 The Behind-The-Scenes Documentary Based on CG Image Optimization Algorithm

For this purpose, managers will compress the tasks that start first, according to the start time of key tasks. If the manager wants to meet the requirements with the lowest cost, then he should choose the task with compressible time, and choose the task with sufficient spare resources and the amount of non-renewable resources required to shorten the duration or the task with the least cost to compress. Based on the cloud environment, the staff of the library will not be limited by space and time, and only need to use the Internet to provide high-quality user services in mobile devices. At the same time, the system services and software updates are handled by special personnel. Spread through video websites.

However, most of the crews are fighting independently, and there is no unified and large-scale industrial platform. The description methods of texture mainly include statistical-based methods, model-based methods and structure-based methods. Statistics based on statistical methods include autocorrelation functions, moments, co-occurrence matrices, and several textures. The model analysis method describes the texture as a corresponding probability model or a linear generative model of a series of basis functions in statistics, signal analysis, information theory and other disciplines. The color quaternion wavelet transform also provides amplitude and angle features, which are very It shows the information of the local structure of the image and effectively avoids the directional redundancy information caused by too many directions of the gray wavelet.

2.3 The Intelligent Editing System for Behind-The-Scenes Documentaries

In the context of the continuous popularization of Internet technology, cloud computing technology has been widely used in various fields of society. The main components of a cloud computing system include cloud applications, cloud clients, cloud platforms, and cloud infrastructure. The popularity of mobile APP applications enables the content of video websites to be obtained quickly and easily. Just click on the application to watch the latest news, movies and videos. Therefore, the demand for content is increasing day by day under the premise that the communication channel solves the guarantee of traffic, and high-quality content and comprehensive coverage can also increase the click-through rate of video websites.

In the choice of content, select the most representative plots and scenes. Although a documentary is a record of the shooting process, it must be recorded with a purpose, and select the most expressive and representative plots and pictures, such as: the director's excellence, the dedication of the actors, the philosophical pictures on the set, and so on. Since the image retrieval of a single feature is often affected by the feature description and extraction method, it may cause

unsatisfactory results due to the defects of the algorithm used. In practice, multiple features are often combined for retrieval to achieve complementary advantages. Since color is also an important feature of images, in order to obtain higher retrieval efficiency, feature points, etc.

Shapes are generally represented by points in the feature space, that is, described by a vector. In the deformation method, the shape can be described by the input required to transform one shape into another shape. The similarity of the shape can be measured by the transformation distance. In the relational method, the overall description of the shape is the description of the individual components that make up the shape, and also includes the description of the relationship between them. The behind-the-scenes documentaries of the film have now basically formed the "standard configuration" of the film, the film crew before shooting A special documentary group was established to record the process of filming. However, most of the crews are fighting independently, and there is no unified large-scale industrial platform.

3. CONCLUSIONS

CG/PR forensics model W based on color quaternion wavelet transform and CG/PR forensics model based on quaternion Markov statistical features. Then, the H methods are realized through the simulation platform. The typed research is inseparable from the sorting out of their development context, and the development of behind-the-scenes documentary films is divided into stages, which is convenient for accurate positioning. In particular, the development process of behind-the-scenes documentaries in Chinese films is combed in detail. Through the research and analysis of dual-tree complex wavelet transform, wavelet theory and quaternion theory, the gray-scale quaternion wavelet transform is proposed on the basis of dual-tree complex wavelet, and the Based on this, a corresponding forensic model is proposed.

4. REFERENCES

[1]Fu Ke. Research on the application of CG images in documentaries [J]. Western Radio and Television.

[2] Guang Jinzheng, Liang Jianru, Liu Yisheng. Plant image classification algorithm based on improved EfficientNet.

[3] Cui Yansong, Chen Keliang, Zhang Xiaohuan, et al. Convergent Media Acquisition, Editing and Distribution System Based on Intelligent Creation Algorithm: CN111353077A[P]. 2020.

[4] Li Lisha. On the Application and Influence of CG Technology in Documentary Creation [D]. Hangzhou Normal University.

[5] Huang Chengcheng. Video streaming media editing system based on 3G network [D]. Nanchang University, 2010.

[6] Jiang Lixian. On the principles of using CG technology in documentaries [J]. China Media Technology, 2012(06X):2.

[7] Liu Jieyi. Discussion on the Diverse Application of CG Animation in Documentary Production and Packaging [J]. Satellite TV and Broadband Multimedia, 2022(7):183-184.

[8] Shan Xiaojun. Optimization of acquisition and editing system based on speech recognition technology [J]. Liaoning Radio and Television Technology, 2018(3):3.

[9] Dong Yanping. Construction of digital resources based on CGRS system [J]. Jiangxi Library Journal, 2006, 36(4):3.

[10] Du Xiaoxia, Xu Guomin. Thinking and Practice of "Blended Teaching" of "Image Processing" Course under "Double Reduction Policy".

[11] Zhang Ke, Wang Jingfa. Design of Journal Manuscript Editing Management System Based on B/S Architecture——Taking "Books and Information" Network Editing System as an Example [J]. Library Work and Research, 2008.

[12] Zhang Xiaoyan. Research on the creation of educational TV programs based on CG technology [D]. Hebei Normal University, 2009.

[13] Dong Yanping, DongYanping. Digital Resource Construction Based on CGRS System [J]. Library Research, 2006, 36(4):24-26.

[14] Li Zan, Zhang Changsheng, Ma Tao, et al. Optimization of plasma spraying process parameters for AlCoCrNiFe high-entropy alloy coatings based on CGSOA-BPNN [J]. Surface Technology, 2022, 51(1):311-324.

[15] Wang Xingang, Shao Cuiling, Zhao Shengrong, et al. A HER2 Image Classification Method and System Based on Convolution and Residual Networks:.

[16] Zhao Feifei, Peng Zhuyi, Zhang Wenjia, et al. Optimal configuration method of flexible AC transmission equipment based on adaptive particle swarm optimization:.

[17] Guo Fayong, Guo Chenwen, Gao Chenhao, et al. Robot inverse kinematics solution method based on fruit fly optimization neural network algorithm:.

[18] Meng Qingsong, Zhang Hai. A remote sensing image target detection system based on deep learning