Characteristics of Intangible Cultural Heritage Communication in the New Media Environment

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Abstract: Intangible cultural heritage(ICH) is an important part of China's excellent traditional culture. Under the background of the new era, it is necessary to shoulder the cultural mission entrusted by the times, play a leading role of intangible culture, and promote the foreign exchange and dissemination of Chinese culture. With the development of modern society, the living environment of ICH has changed, and it is difficult to adapt to modern living conditions, which leads to problems that it has never encountered in the process of inheritance. How to deal with this kind of cultural conflict reasonably and pass on the ICH in an innovative form needs to be considered from the aspects of inheritors, ways of inheritance, audience groups, and so on. If these points and aspects are well combined, a new way can be opened up from the historical development process, which will greatly promote the protection of ICH. In this paper, Single shot multibox detector(SSD) target detection algorithm based on deep learning technology is further studied. The experimental results show that the accuracy of the improved SSD target detection algorithm map is 5.2% higher than that of the original SSD algorithm, which effectively improves the ability of SSD algorithm to detect targets.
Keywords: Intangible cultural heritage; New media technology; Digital inheritance

1. INTRODUCTION

Among the characteristics of ICH, vitality is particularly important. It carries the traditional excellent culture that is constantly developing in production and life (Buckarma et al., 2017). Therefore, it exists in the daily production and life of the people. At the same time, it also determines that only solid-state protection cannot be carried out during the protection. Its existence and development depend on the changes of social environment and rely on the inheritors of the inheritor to continuously develop and evolve. If a project lacks inheritors or even inheritors, the skills of the inheritors are doomed to die (Chen et al., 2022). The core of the implementation of ICH protection is to mobilize the enthusiasm of inheritors at all levels. As a kind of cultural heritage, ICH is not only the crystallization of human wisdom, but also the essence of human culture. Culture is the soul of a country and a nation (Bhandari et al., 2020). The protection of ICH is conducive to enhancing the sense of identity and

belonging of our national culture and cultural self-confidence. Therefore, it is very important for the protection of intangible assets. With the advent of the Internet, a large amount of information is flooding the network, and with the accelerated pace of life, people don't have more leisure time to get information through words, radio and television (Cawcutt et al., 2019). With the popularity of the Internet and the improvement of network speed, short videos that more closely meet the consumer needs of users' fragmented content have quickly won the favor of various major content platforms, fans and capital under the fast-paced life. Therefore, the use of short videos to inherit and spread ICH can break the limitations of traditional inheritance methods and make ICH better inherited and developed (Ashammakhi, 2017).

However, how to guide the benign development of ICH in the short video era and promote the dissemination of ICH requires further professional research and practical exploration (Luping et al., 2015). With the innovation and development of science and technology and the simultaneous development of radio and television, the ICH is inherited in the form of documentary. The new media environment also provides a brand-new platform for the documentary of ICH. It can not only record the real status of ICH, inherit the living status of people and things, but also meet the audience's audio-visual feelings, which can not only reflect its cultural value but also achieve the artistic value of the film (Dang et al., 2021).

Under the background of the new era, digital technology is developing rapidly, and culture and technology are beginning to merge with each other. Using digital technology to protect and spread ICH has become a new development trend. Persist in moving from history to the future, from intangible to tangible (Chew et al., 2021). The ICH with a long history and without polishing has activated our inspiration. However, with the continuous advancement of urban-rural integration and modernization process in China, the rapid development of the material economy inevitably leads to the imbalance of material and cultural development. As an important cultural gene in China, the current development environment of ICH is inevitably worrying (Xiao et al., 2019).

To conform to the development of the times and grasp the innovation of science and technology, we should re-examine the historical classics from the perspective of development. Re-examining China's cultural ecological environment from the perspective of scientific and technological development, there are obstacles to the preservation and development of intangible resources, and the methods of resource integration and

protection meet the severe challenges of the times. It is difficult to fully reveal and protect precious intangible resources only by relying on traditional media's words and pictures, and its research and innovation are even more unsustainable. Therefore, in today's digital age, digital inheritance and communication with mass communication characteristics, which is more efficient, fast and convenient, naturally becomes the first choice (Wei, 2021).

It plays an important role in systematically and comprehensively protecting and inheriting the ICH of ethnic minorities, and promoting the ICH of ethnic minorities to enter the public's sight. The protection, dissemination and inheritance of ICH by using new media technology is bound to be the future development direction and trend. The promotion and popularization of heritage can not be separated from the reports and publicity of mass media. In recent years, with the rapid development of information technology in China, video has become an extremely important way and carrier of non-genetic broadcasting, among which the development of short video and data prove that it has become a mode of transmission that can not be ignored.

According to the data of Tik Tok in 2019, 93% of 1,372 national ICH projects have settled in Tik Tok, and the total number of praises has exceeded 3.3 billion. More distinctive non-legacy topics, including "Laughing the quintessence of the country" and "New Voice of BLACKPINK", have accumulated more than 10 billion broadcasts. It can be seen from the above data that the new media has great influence and significance on the protection and dissemination of ICH. Therefore, on the basis of the existing research, aiming at the problems in the transmission of ICH short videos, this paper puts forward the optimized path for the transmission and development of ICH short videos, promotes the development of ICH short videos, and promotes the transmission and protection of ICH. This paper mainly studies the application of deep learning technology in shot boundary detection and semantic extraction of ICH video. Mainly based on the improved algorithms of 3dcnn and SSD, it studies the principle and implementation of the algorithm, calculates the multi task loss of deep learning method in large-scale video applications such as ICH video and analyzes its feasibility, explores the improvement and development direction of the algorithm, and promotes the automatic semantic segmentation, classification and intelligent retrieval of ICH video. Its innovation lies in:

In terms of research content, at present, there are many researches on the protection and dissemination of traditional culture, and short video is

the academic research hotspot. However, the innovation of this paper is to combine short video with intangible cultural inheritance. In the existing literature, the research on the transmission of non-legacy short videos is not mature. Based on this research perspective, it is of great research value and significance to innovate the transmission path of ICH.

2. Related Work

Since the promulgation of the Convention for the Protection of World Cultural and Natural Heritage in 1972, with the development of science and technology and the popularity of the Internet, countries all over the world began to attach importance to and explore the digital protection of ICH based on Internet. After detailed research and comparison of various shot boundary detection algorithms, Michael et al. Proposed three steps of shot boundary detection algorithm, and finally proposed a shot boundary detection algorithm based on graph Division (Amit-Cohen & Sofer, 2016). Meng L has studied the protection and inheritance of ICH against the background of the new media era, and believes that it is of great significance to explore the dissemination of ICH in the new media environment (Meng & Liu, 2021).

Stainforth E also has important reference and research value for this article. It studies the characteristics of spiritual culture and media culture from the perspective of cultural communication, finds the combination of the two, and explores the communication function of media for spiritual culture. "ICH" variety show is a cultural communication form of TV variety show. The spiritual and cultural inheritance in the book has important research significance for this article (Stainforth & Baeza Ruiz, 2019). Zhang h mainly starts from the perspective of the unique functional advantages of the media in the protection and dissemination of "ICH" and explores the unique communication advantages and communication values of such programs from the perspective of panorama and case studies. He believes that TV media should make good use of its advantages in publicity and dissemination to better carry out cultural communication (Zhang & Chen, 2019).

Wierzbicka discussed the necessity for cultural institutions at all levels to protect ICH and put forward corresponding protection measures to solve the difficulties of ICH in inheritance and rejuvenation (Wierzbicka, 2010). Culture summarizes a large number of video test sets, uses a variety of shot boundary detection algorithms to detect shot boundaries, and makes a

detailed comparison of the accuracy, speed and other dimensions of these algorithms (Dysart-Gale et al., 2009). Pozzi f et al. Analyzed the problems of short video and put forward reasonable suggestions for the future development of short video: exploring diversified profit channels, encouraging short video content innovation, enhancing short video copyright protection, eliminating vulgar content within the platform, and rejecting information simplification, so as to better promote the healthy development of short video industry (Ott et al., 2015). Yan W J analyzes the characteristics of short video transmission in the context of the current new media era and puts forward suggestions on the future development of short video (Yan & Chiou, 2021). After investigation and analysis, craith m n found that there are still many loopholes to be improved in many details, especially in the inheritance link (Nic Craith, 2015). On the basis of the brand communication strategy of "office Xiaoye", Chen a studied the communication strategy of the online red short videos, which is very enlightening for the research on the communication strategy of the ICH short videos in this paper (Chen, 2012).

3. Methodology

3.1. Digital technology combined with ICH

The development of our national culture is mainly word of mouth, but there are serious problems in this way of inheritance. Traditional culture is lost with the departure of the older generation of inheritors. Digital technology is a technology that uses two digits of 0 and 1 to encode, and processes, sends and manages various information through computers, photoelectric cables, communications and other facilities.

Digital technology includes digital coding, digital storage, digital transmission and other contents. Digital technology has been accepted and widely used by people and began to be applied to the development of ICH. Researchers input various ICH resources to conduct digital collection, processing, recording, storage, transmission and display. Throughout the social development, digital technology has obvious advantages, and its own advantages are many.

The most prominent function is that it can compress a large amount of data and correct the errors of data. Moreover, if the data is transmitted on extremely complex or important channels, the importance of these two functions will be revealed. The launch of this project is intended to process and preserve the results of the preliminary work through digital technology,

so that many ICH can be more effectively and comprehensively protected, and to a certain extent, it also provides favorable conditions for China's excellent culture to go out. In the platform of the digital Forbidden City, people can see the details that were difficult to see with naked eyes before, which makes the viewer's observation deeper; Digital Dunhuang provides more possibilities for protection, development and research after preserving Dunhuang art.

At present, the digital protection of ICH mainly uses video recording to seek a more complete record. At the same time, digital protection work has been carried out all over the country, and databases have been set up one after another. As shown in Figure 1 and Figure 2.

Figure 1: Digital Museum (A)

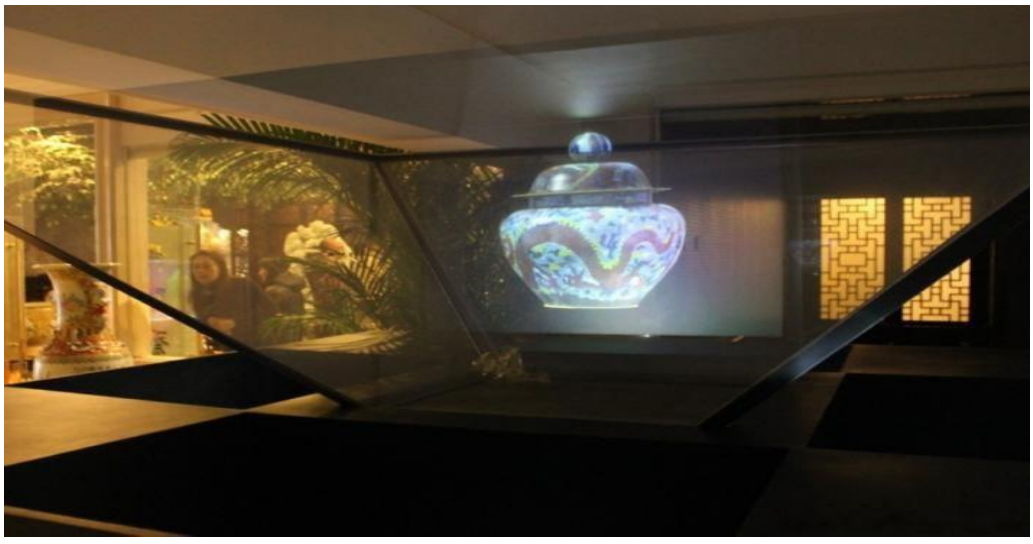

Figure 2: Digital Museum (B)

Protecting ICH through digital technology is the result of diversified social development. Digital technology, which collects, records, processes and reproduces ICH, plays an important role in the whole process of protection, and has become the main way of protection at present. In developed countries, it is obvious that the combination of culture and science and technology promotes the development of culture. The application of science and technology plays a very important role in cultural development.

The main advantages are: (1) Changing the experience mode; (2) Increase consumption demand; (3) Expanding production factors; (4) Improve the quality of composition; (5) Activate reform and innovation; (6) Give birth to new industries; (7) Enhance the communication strength; (8) Improve the saving effect. All in all, in fact, in the current ICH protection work in China, digital means has played an important role in all work links by virtue of its advantages in the above three aspects. In a word, digital technology is an effective new scientific model to protect ICH, and it is the main means and way for the projects that need integrity, rescue and fidelity. At the same time, it also meets the needs of sustainable development, which is of great significance to comprehensively improve the level and quality of protection work.

3.2. Theory and Technology of Non-video Shot Boundary Detection

ICH is not only a cultural form, but also a kind of knowledge that can be stored, disseminated and learned. At present, text, pictures, audio, video, animation and games bear the knowledge content of ICH to varying degrees. Among them, video as a communication medium has its unique advantages. It covers vision and hearing, and is easy to output and store. Therefore, it plays an irreplaceable role in the inheritance, transmission and protection of ICH. Most of the recorded products of ICH videos are long videos with mixed semantics. Based on the rapid development of short videos and data proof, it has become a major problem that the long videos can only be manually operated and cannot be quickly and accurately divided into multiple short videos according to the scene. Traditional video boundary detection methods include pixel frame difference method, histogram frame difference method, feature matching method, statistical learning method, etc. Because of the limitation of various factors, the extraction process of feature points is complicated, especially when there is a large amount of data, the efficiency of data processing is very low. At the same time, gray scale processing is carried out in the image processing process, and color information is lost, so it will lead to inaccurate detection

in video detection. The rapid development of CNN proves its effectiveness in understanding image content. Compared with the threshold method, the method of deep learning has more obvious advantages in accuracy and speed. The method based on deep learning has made great improvements in accuracy and detection speed, but the existing methods are not without shortcomings. Because the content of a shot is continuous, the narrative within a shot often does not change too much, so the video is often composed of many shots, and the shot boundary also exists in the complete video. There is a transition frame between the stitched shots, which is called mutation, and only one frame is included. The most prominent feature is that the two frames of the two shots before and after change greatly, and the characteristic value of the video frame changes dramatically. The mutation of the characteristic value is more convenient to detect. Therefore, the traditional threshold based method can have a good accuracy in detecting the mutation, However, the traditional methods are insufficient in detection speed and other aspects, and it is difficult to cope with the wide variety of ICH videos. Compared with the composition structure of the above video, the composition structure of ICH video is basically the same, but there are slight differences, as shown in Figure 3.

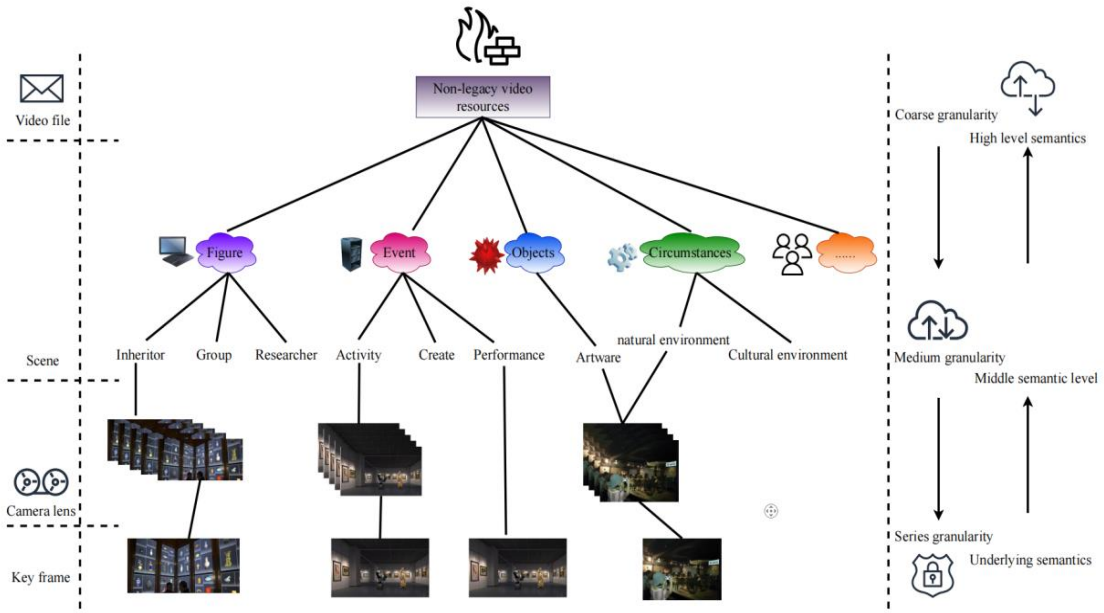

Figure 3: Structure of non-legacy video

Non-legacy video is also divided into four levels, namely video clips, scenes, shots and key frames. The level of frames in non-legacy video only considers key frame information. Besides the classification of video structure, video scenes are also subdivided into various categories. As an

important channel for the transmission of ICH, videos also show rich and colorful forms. For example, interview videos of ICH inheritors show the characteristics of interview videos. For example, the combination of virtual reality technology and ICH gives people an immersive experience, such as ICH micro films that condense ICH symbols and creatively transform, or ICH displays of ICH inheritors on short video platforms.

Gray value is the simplest and most common pixel feature, and its most common algorithm principle is to calculate the difference of gray values of all corresponding pixels between two frames and find the sum of their absolute values. The difference calculation of gray value between video and color video is slightly different. For grayscale video, the grayscale difference of frame k and frame $PD(I_k I_{k+1})$ is:

$$PD(I_k I_{k+1}) = \frac{1}{MN} \sum_{x-P_k=0}^{M-1} \sum_{y=0}^{N-1} \left| P_{X+1}(x,y) - P_k(x,y) \right| \quad (1)$$

Where M, N indicates the width and height of the video frame, $P_k(x,y)$ indicates the gray value of the k frame at pixel point (x,y), and $P_{k+1}(x,y)$ indicates the gray value of the $k+1$ frame at pixel point (x,y). For color video, the corresponding definition of this interframe difference is:

$$PD(I_k I_{k+1}) = \frac{1}{MN} \sum_{x=0}^{M-1} \sum_{y=0} N - 1(P) \quad (2)$$

$$P = \left| P_{k+1}(x,y)^R - P_k^R \right| + \left| P_{k+1}(x,y)^G - P_k^G \right| + \left| P_{k+1}(x,y)^B - P_k^B \right| \quad (3)$$

The formula $P_k^R(x,y)$、$P_k^G(x,y)$、$P_k^B(x,y)$ represents the red component, the green component and the blue component of the k frame at the pixel point (x,y), respectively. The principle of this kind of algorithm is simple and easy to understand, and it is also convenient to implement. The biggest advantage is its high computational efficiency, but the disadvantages are obvious. It is easy to cause false detection when detecting moving objects or objects with drastic changes in light, and has low robustness and no portability.

3.3. 3D CNN-based non-legacy video shot boundary detection algorithm

With the rapid development of science, technology and economy in modern society, the demand for digital protection of endangered ICH projects is also increasing, and the requirements for protection quality are also rising. Through continuous efforts in recent years, with the help of various ways, precious ICH resources have been transformed into a digital ICH database. However, the quality of collected data in the currently completed database is not high enough, which leads to poor usability. Such

problems are mainly in the following two aspects: first, the integrity of the collected data is not high, the consistency is poor, the necessary accuracy and effectiveness are not strong. Second, there are a large number of ICH projects in China, and there is no due coherence and consistency in the collection process, resulting in the lengthening of the collection work cycle, which directly affects the timeliness. At the same time, the integrity of the collected information cannot be guaranteed, which forms an obstacle in the follow-up utilization.

From the scope of application, it is mainly applied to simple archive records, with little in-depth research on the connotation of the project; From the depth of use, it is only digital in form without making full use of the advantages of digital technology; From the technical point of view, the applied digital technologies are mainly old technologies, and few new technologies are applied. Many technologies that are more in line with the needs have not been used, and the used technologies have not been fully utilized.

The continuous development of modern media forms based on digital production technology has brought three-dimensional information to the public in a convenient and efficient way, which has greatly changed the way of inheritance and protection of ICH. It can not only preserve the foundation, but also display the ICH through various media, thus bringing the ICH closer to the public, allowing the public to perceive and make creative changes, thus bringing people a deeper cultural experience. Digital technology gives a new look to the original craft.

With VR glasses, you can experience the process of the inheritors in the production process. Under AR technology, it can produce an immersive learning experience of non-legacy culture; 3D printing technology can restore the past non-legacy production scenes; In various digital film industrial parks, with the help of MR technology, the interaction between virtual world and real world can be realized, and the deep blending of intangible culture and technology can be fully experienced.

From the above video composition structure, we can know that the minimum unit of the video is the video frame. Because the ICH video itself has the characteristics of large volume, it is unrealistic to extract and analyze the features of each pair of adjacent frames of each video. Therefore, in order to improve the efficiency of video boundary detection, we should first filter out the areas without shot boundaries.

In this chapter, we will use the high-level output of C to represent the characteristics of video frames, compare and analyze the feature differences of adjacent frames, and exclude the areas without shot boundaries in the

video based on this.

The conversion process between lenses can be shown in formula 4:

$$I_t(X) = a_t(X)B_t(X) + (1 - a_t(X))F_t(X) \quad (4)$$

Among them, a blending parameter is a very important parameter, which directly determines the type of shot transformation. When $(a_t, a_{t+1}) = (1,1)$, it means that there is no lens change at t; When $(a_t, a_{t+1}) = (1,0)$, it means that there is a shear shot at t; When a slowly changes from 1 to 0, it means that there is a gradual change between shots at this moment.

The video data in the clipshots training set is used to train the network. It can be seen from the following data that the shot boundary of the video data in the clipshots data set has been clearly marked.

The input object of this chapter is the video segment with a length of 16 frames accepted by the network, so as to calculate which category the 8th frame of the video center frame belongs to, and calculate the probability that the 8th frame is a shear, gradient and non shot boundary frame. Therefore, the training sample set meeting the network needs needs to be further improved. As shown in Table 1.

Data set	Total video	Change over	Gradual change
Training set	3516	112055	34552
Test set	536	5354	2855

Table 1: Statistics of ckipshots data set

In the experimental video shot, the number of non boundary frames is much larger than the boundary frames. If the image frames contained in the video are used as the training samples of this experiment, the number of negative samples in the final training set is much larger than the number of positive samples, and the phenomenon of extremely uneven proportion of positive and negative samples will occur.

Once this phenomenon occurs, in order to minimize the loss function during the training of experimental data, the network tends to judge the samples as negative categories. Therefore, the sample data must meet the preconditions that the proportion of positive and negative samples is balanced as much as possible, and the number of samples is more than the positive samples.

Then, the number of non shot boundary samples in the training set is reduced by downsampling, so as to reduce the difference between the training set samples and the real world class distribution. For sample $x, y \in R^c$, it indicates the type label corresponding to the sample, and C is

the total number of categories. If the true category of the sample is c, then $y_c = 0; p \in R^c$ is the predicted value obtained by the convolution network of the sample x, and p^c indicates the probability that the sample x belongs to the category c. For sample x, the cross entropy loss between the predicted value p and the real mark y is expressed as

$$L(x, y, p) = -\sum_{c=1}^{C} y_c \log(p_c) \tag{5}$$

When there are m training samples x, the objective function of the optimization algorithm is expressed by the average loss of all samples, which is calculated as follows:

$$L_{train} = \frac{1}{m} \sum_{(x,y) \in X} L(x, y, p) \tag{6}$$

Because real objects have various aspect ratios (such as pedestrians), setting multiple aspect ratios can detect objects with different aspect ratios.

SSD's anchors mechanism will be used on a total of six feature maps, and the center coordinate of the default box on the $k \in \{1,2,...,6\}$ feature map can be obtained as $(\frac{a+0.5}{|f_k|}, \frac{b+0.5}{|f_k|})$, where $|f_k|$ is the size of the k layer feature map, $a, b \in \{0,1,2,....|f_k|-1\}$. Generally, the aspect ratio of the default box will only be 1, 2, 1/2, and 1/3. When the aspect ratio is 1, the calculation formula for adding the width of 1 r and the height of $s_k = \sqrt{s_k s_k + 1}$ of each default box in the w_k^n、 h_k^n layer characteristic diagram is as follows

$$w_k^n = s_k \sqrt{r_n}, n \in \{1,2,3,4,5\} \tag{7}$$

$$h_k^n = s_k \sqrt{r_n}, n \in \{1,2,3,4,5\} \tag{8}$$

$$w_k^6 = h_k^6 = \sqrt{s_k s_k + 1} \tag{9}$$

In the above formula, s_k is the default box ratio on the characteristic map of layer k, and the calculation formula is:

$$s_k = s_{\max} + \frac{s_{\max} - s_{\min}}{m-1}(k-1), k \in \{1,2,...,m\} \tag{10}$$

x in the above formula indicates the result of matching the default box with different categories of GroundTruth boxes; I is the position information of the prediction box; g is the position information of the ground truth box; c is the confidence of the prediction box; p is the number of forecast categories; Posneg and posneg represent positive and negative samples respectively; a is a parameter for weighing confidence loss and position loss, and is usually set to 1.

4. Result Analysis and Discussion

The data sets and experimental conditions used in this chapter are shown in Table 2. The training set is composed of the trainva part of the two data sets in the table and the self-made data set. The test set is composed of the test part of Pascal VOC 2007 and the self-made data set. The self-made data set is 1000 manually labeled suona pictures and 2000 tree pictures.

Frame	GPU	Training set	Test set
Pytorch	NVIDIA（R）	PASCAL VOC	PASCAL VOC
	GTX（R）1050TI	2007，PASCAL VOC	2007, Self made data set
		2012, Self made data set	

Table 2 Experimental conditions and data sets

According to the Statistical Report on China's Internet Development released by China Internet Network Information Center, as of December 2020, there are 873 million short video users in China, as shown in Figure 4.

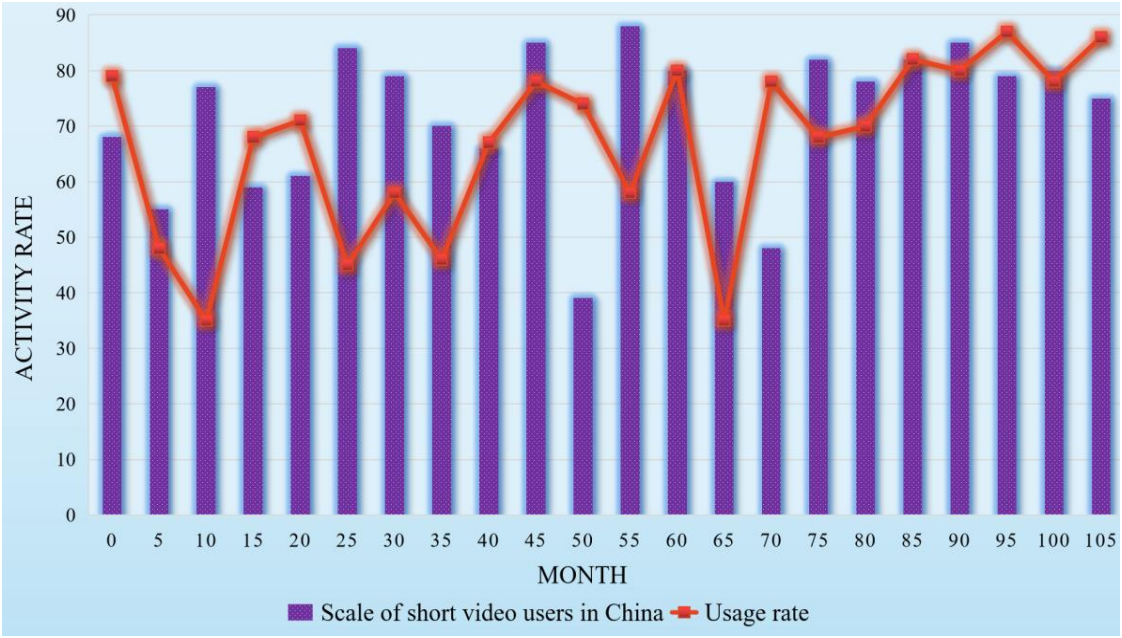

Figure 4: Changes of short video scale and usage in China

The rapid development of short video is due to its breaking the traditional mode of communication, conforming to the information receiving habits of the audience in the pan entertainment era and the fast food era, breaking the traditional official release mode of communication,

lowering the threshold of information communication and content production, and making it possible for users to create content independently. The characteristics of instant communication and scene communication of short video also bring new visual experience and sensory enjoyment to the audience. It can be seen that FasterCNN has more detection frames than the actual number, and there are false detections, while there are no false detections and missed detections in the other three types. Summarizing the above observation results, the overall detection performance of MINE and YOLOV3 is better, and there are no missed or false detections. Comparing the detection effects of the two algorithms, it can also be found that MINE's frame is more perfect for framing objects. Compared with the original SSD algorithm, mine has a better detection effect for small objects.

Figure 5 records the detection accuracy (AP) of the improved SSD target detection algorithm on Pascal VOC 2007 test and self-made data set, compared with the above three classical algorithms in six categories.

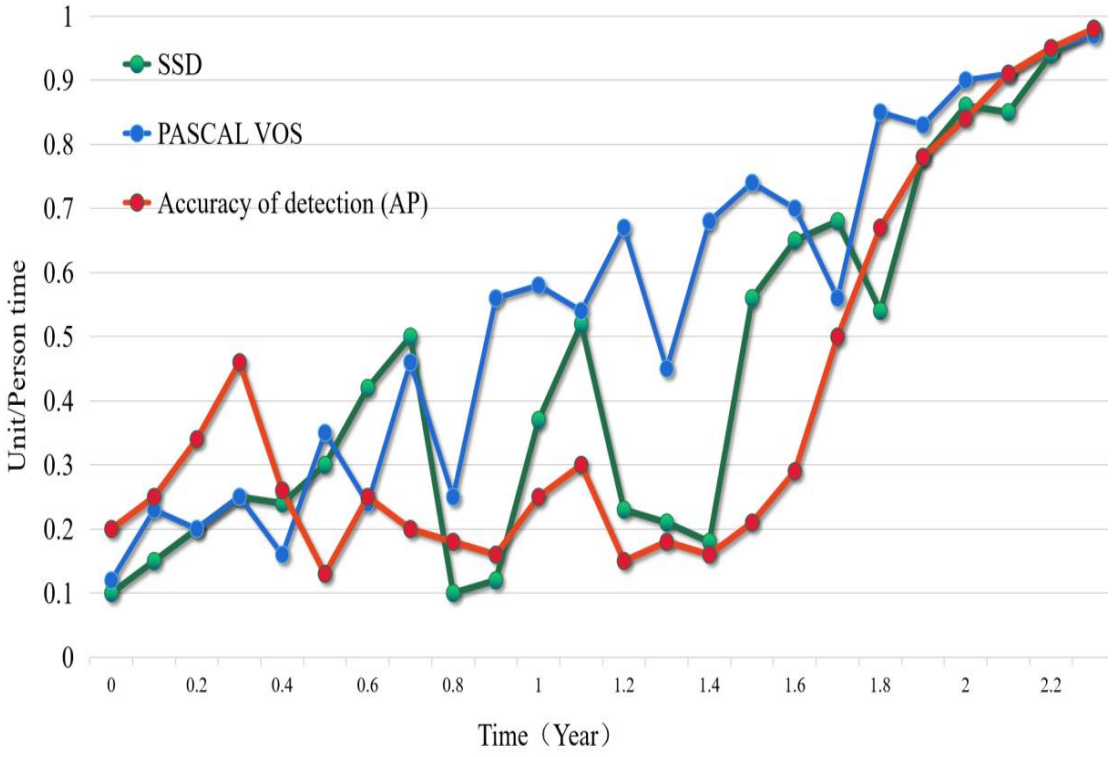

Figure 5: Simulation diagram of actual data

The simulation results show that the improved SSD target detection algorithm can not only correctly detect the real suona images without background, but also correctly detect the cartoon images, which indicates

that the algorithm has a deep learning level of features and can obtain higher-level object features. The algorithm has a good detection effect on the suona performance in the real scene, and the detection frame can well wrap the object itself. However, the first detection image in the second line may be blocked by the red cloth, and the suona may be missed. As shown in Figure 6.

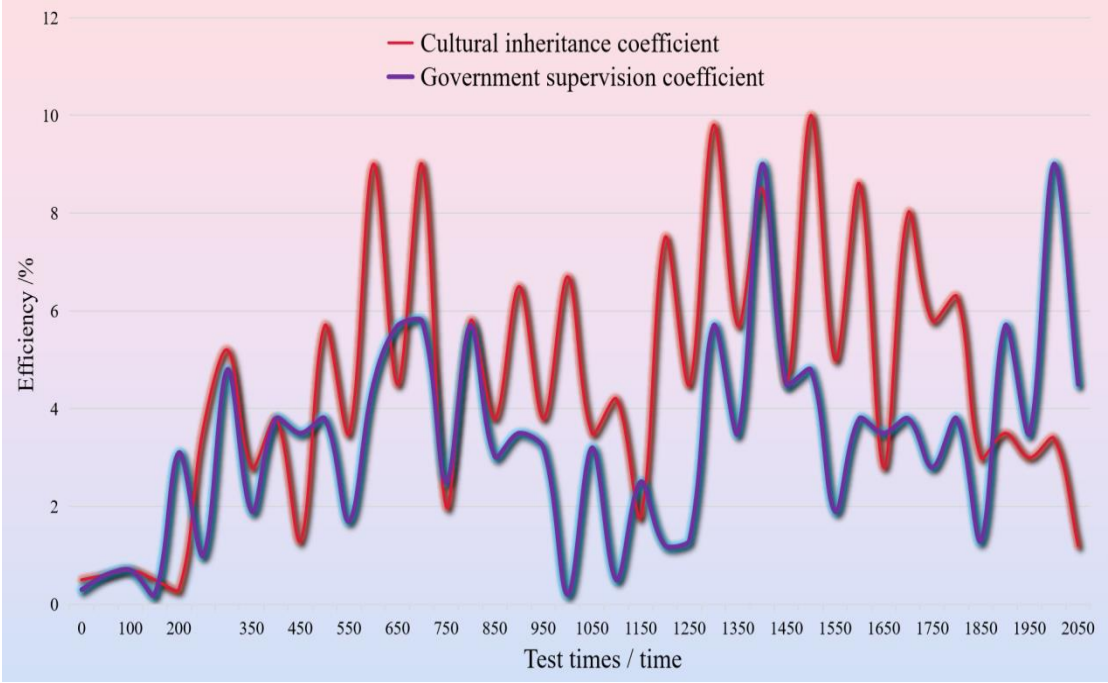

Figure 6: Simulation diagram of behavior detection effect

The improved SSD target detection algorithm has a good detection effect on trees in non-legacy scenery. Trees in simple background can be correctly detected, but there will be missed detection in complex background. In the complex background of a picture, the algorithm can correctly detect people and trees, but only trees without obvious crown can be missed, and there is no false detection.

Because the number of samples of tree pictures is more than that of suona pictures, theoretically, the detection effect should be better than that of suona pictures. However, because of the complexity of the spatial information of the boundary frame of non-legacy video, the algorithm has false detection of the categories that are not in the training set, and neither the duck detected in the fifth row in the first row nor the cow detected in the third row in the second row has achieved the ideal detection effect.

In order to further increase the detection accuracy, the training set should add more labeled pictures for non-legacy categories and

corresponding categories. As shown in Figure 7.

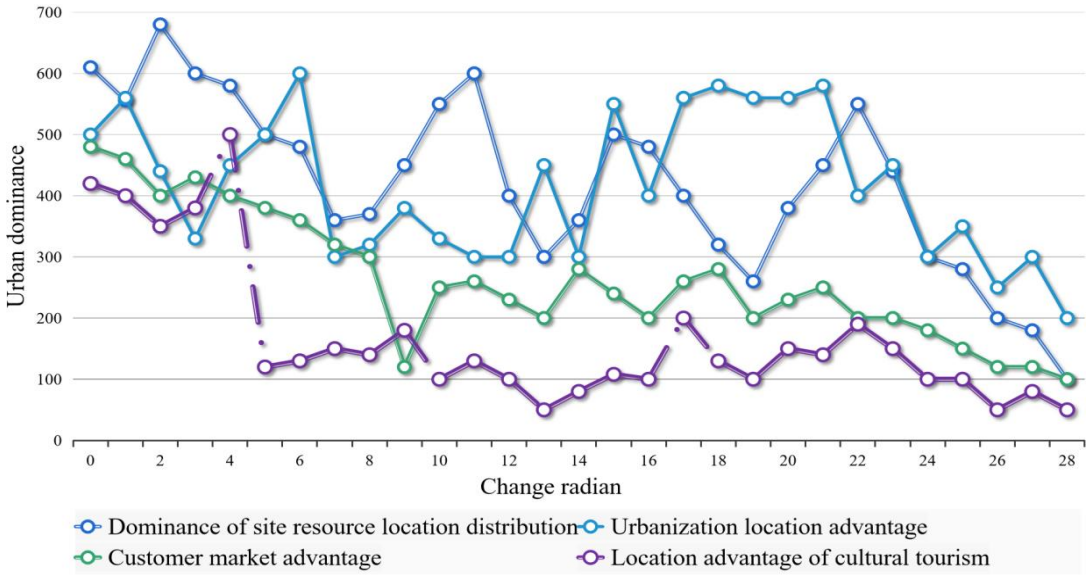

Figure 7: Simulation diagram of labeled pictures with additional classification in training set

According to the present situation of various ICHs, some projects lack successors and need inheritors to inherit; Some projects have definite inheritors, but their living conditions are worrying, their acceptance by the people is low, and there are obstacles to connecting with the current situation of modern social life. Some projects have been improved in the process of development to adapt to modern social life, but the popularity of the projects is not enough, resulting in no good development space. In the process of inheritance, the basic content can basically meet the demand with the current level of digital technology. In terms of traditional handicraft wood carving, in the process of inheritance, the basic tool use methods, basic cutting methods, etc. can be taught after recording using the current digital technology.

At the same time, when engraving some relatively rare wood, the digital technology can be used for assistance. Because many kinds of wood are precious, it may not be able to use physical objects for demonstration in the subsequent inheritance, This can make the inherited skills more complete. In the process of selecting digital technology to protect ICH inheritance, first of all, we should pay attention to the right remedy, take the most direct and effective means to join the inheritance link and related links, objectively and fully analyze the existing problems and solve them with digital technology, and gradually form a more close to modern life on the basis of traditional inheritance system and more effective, Make up for

the disadvantages of the traditional inheritance system under the existing conditions, and integrate the inheritance system with modern digital technology. As shown in Figure 8.

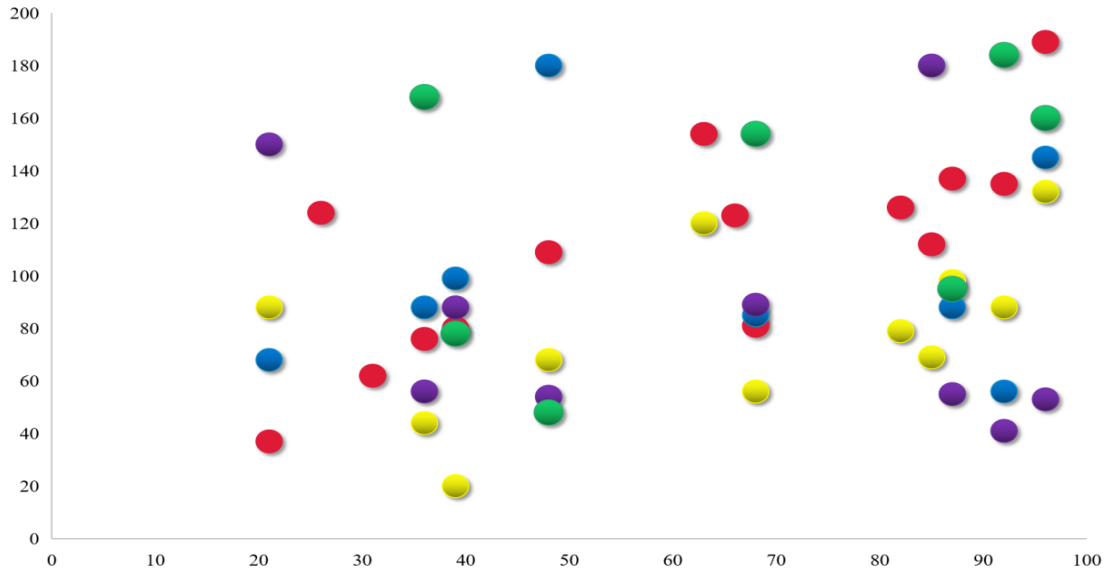

Figure 8: Auxiliary effect of digital technology in inheriting cultural heritage

As can be seen from Figure 8, the failure detection rate is obviously not as good as the other two algorithms, but the false detection rate is much higher than them, because GA falls into local optimal convergence prematurely. The application of digital technology in the process of protecting, inheriting and developing ICH will promote the modernization of ICH protection in China, improve the protection level of ICH in China and innovate its development concept. However, when we want to make good use of digital technology, and then use animation technology to integrate with non-legacy culture, we should not put too much emphasis on the technical level. We should make innovative performance on the basis of protecting the authenticity and integrity of the content of non-legacy culture, so as to adapt it to today's social life and better accomplish the protection and inheritance of non-legacy culture.

Summarizing the detection results observed above, the improved SSD target detection algorithm can have a good detection effect on the trained sample class, but there will be false detection on the untrained object detection. Therefore, the algorithm needs better design for the complexity of the ICH video frame information. However, the detection performance of the improved algorithm can meet the detection needs of ICH landscape pictures, and can detect the trained categories more accurately. After the

comparative test, the improved SSD target detection algorithm map reached 81.5%, which increased by 5.2% compared with the original SSD algorithm. At the same time, the experiment on ICH images also shows that the algorithm has certain universality. Therefore, the improved SSD algorithm designed in this paper effectively improves the ability of SSD algorithm to detect targets.

5. Conclusions

The cultural resources in the ICH developed through a long period of social life are precious. However, the development of science and technology and economy has changed the inheritance environment of ICH, causing it to encounter various problems in the new objective environment. In the research process, the research means of art, culture, communication, psychology and other disciplines are used to explore the ways and means of diversified communication and development of ICH under the background of digital technology, so as to realize the further development of the theory and practice of digital application design of ICH. With the coming of the 5g era in 2020, the society is upgrading from an information society to an intelligent digital era. Therefore, literary and cultural creators are required to innovate in form, integrate with the current technology industry, and actively build a network cloud creative industry park. In this paper, the Clipshots data set and the national cultural industry research center's non-legacy works are studied, and a shot boundary detection method based on 3D CNN is designed, and the traditional SSD target detection algorithm is improved, which has a good detection effect on the cut in the non-legacy video. A series of improvements are made to the original SSD algorithm, and the non-legacy video boundary frame obtained in the second step is input into the trained improved SSD algorithm for target detection, and compared with the traditional deep learning algorithm.

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