Application of Intelligent Video Clip in Short Video with Artificial Intelligence Technology

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Abstract:

As the rise of a large number of quality short video creators, short video quality improvement, short video users increases, which is closely related to the intervention of artificial intelligence. Ai is also involved in the news industry, not only reducing the pressure of the media, but also bringing vitality to the news. In this context, this paper aims to study the application status of intelligent video clips in short videos, video features of intelligent video clips, and the correlation between clip features and content. Using the method of literature investigation, case study method, and the research method of qualitative mixed by collecting quantitative data, concluded that artificial intelligence clips in outstanding style, characteristic, structure, clear out and high speed, video and emotional expression of arts but for strong, smart clips wisdom can only play a supplementary role in the conclusion, this is of practical significance to the creation and development of short video, to reduce the working pressure of media practitioners, to improve the pursuit of high quickly, high quality and timeliness of news.

Keywords: *Artificial intelligence, Short video, Smart clips, Application.*

I. ARTIFICIAL INTELLIGENCE AND THE CURRENT SITUATION OF SHORT VIDEO INTELLIGENT EDITING

Artificial intelligence is about machine learning, computer vision and other fields. It is an engineering and science that studies human intelligence on the basis of big data, cloud computing and algorithms. It is the simulation, extension and expansion of human intelligence. The main goal of artificial intelligence research is to enable machines to perform complex tasks that humans need to do. [1] Nowadays, artificial intelligence has in-depth to all aspects of the media industry. It is reported that about half of China's media use AI for effect detection, about one-fifth of media use AI for content production and resource management and operation, and about one-fifth of media use AI for precise content distribution. This is enough to see that artificial intelligence has entered China's media industry in a large area. In China, artificial intelligence has also brought vitality to TV news. For example, in the report of data news, automatic manuscript writing, data visualization and intelligent audio and video synthesis technology can be realized. By building intelligent platform and integrating knowledge graph, automatic production of data news and video can be realized. [2]

Short video is a short video with relatively short length, usually 15-30 seconds, or a few minutes or so, the longest is not more than 30 minutes, usually vertical screen, suitable for playing and spreading on mobile phones. With weibo, Meipai, Kuaishou and Toutiao entering the short video industry one after another and the rise of a large number of high-quality video creators, the number of short video users in China has exceeded 800 million by December 2020, an increase of more than 100 million compared with March of the same year, accounting for 88.3% of the total Internet users. The rise of short video industry is closely related to the involvement of artificial intelligence. Therefore, research on the application of artificial intelligence technology in short video industry is of great practical significance to the creation and development of short video.

Based on the research of intelligent cutting technology in the application of short video, explore the intelligent video editing features, and editing features and content, literature survey method, case study method and qualitative combination of research methods, It is concluded that it is not enough to rely on artificial editing to ensure the quality and artistic effect of a short video as well as the improvement of spread effect. At present, the artificial intelligence in editing work is far from good. In order to make ai editing applied to the media industry, there are still no small challenges to the conclusion. This is of great significance to the creation and development of short video.

II. APPLICATION OF INTELLIGENT CLIP TECHNOLOGY IN SHORT VIDEO

2.1 Human +AI Smart Clip: Replace Some of the Base Technology Operations

During the NPC and CPPCC sessions, there are live, linearly edited videos in chronological order for people to watch, there are also time-sensitive non-linear reports tailored for mobile new media, in which short videos clip fragmented content and capture only the highlights of the audience's attention. Therefore, during the two sessions, People's Daily adopted a live broadcast and multiple fragments of short video coverage. The application of short video intelligent editing technology at the two sessions of China in 2011 reflects that artificial intelligence editing can replace some basic technical operations of human beings. The AI recognizes live audio and converts the audio into text, which is used to determine whether news is valuable or not. Simply click on the required text, will automatically capture video clips and download accordingly. Today, with 5G signals, media workers can quickly upload large files, review them, and publish them. During the national two sessions in 2021, People's Daily New Media used this method to produce videos in multiple live broadcasts during the opening meeting and the premier's press conference, so as to release key segments that users are concerned about. With the support of AI editing technology, the effectiveness and quality of news has been maintained, and multiple initial reports on the whole network have been realized. In this process, the intelligent editing technology is not just for video editing, but should be called intelligent creation, because it replaces the high-intensity technical work that originally requires human watching, listening, writing and so on. [3] In the end, it only needs to judge the news value of the generated AI clips, write news articles, and verify key facts. [4] This makes journalists have more energy to deal with the "gatekeeper" of news, and better control, selection and production of news content. It satisfies the high speed, time limitation and new pursuit of spot news.

Liu Guoqing and others research results "video intelligent cutting technology research", through the analysis of video algorithms, induction and summary of different algorithm, designed the intelligent editing system solutions, has set up a platform video intelligent cutting technology research. The platform classifies and labels all videos through feature analysis and semantic classification of videos in the database, which are the main resources of intelligent clip. The main process of intelligent clip is to collect video images first, extract features from the collected images, and then extract key frames, which will generate videos. The collection of video images is based on the classification and label in the database to obtain relevant clips consistent with the subject content. By extracting the features of the clips, these relevant clips and key frames are splicing together to generate the required videos. The technical roadmap is shown in Figure 1. At present, based on the intelligent editing system technology platform, it can support editing of two types of short news videos, one is propaganda videos based on hot events, the other is daily news recommendation for a certain geographic region.
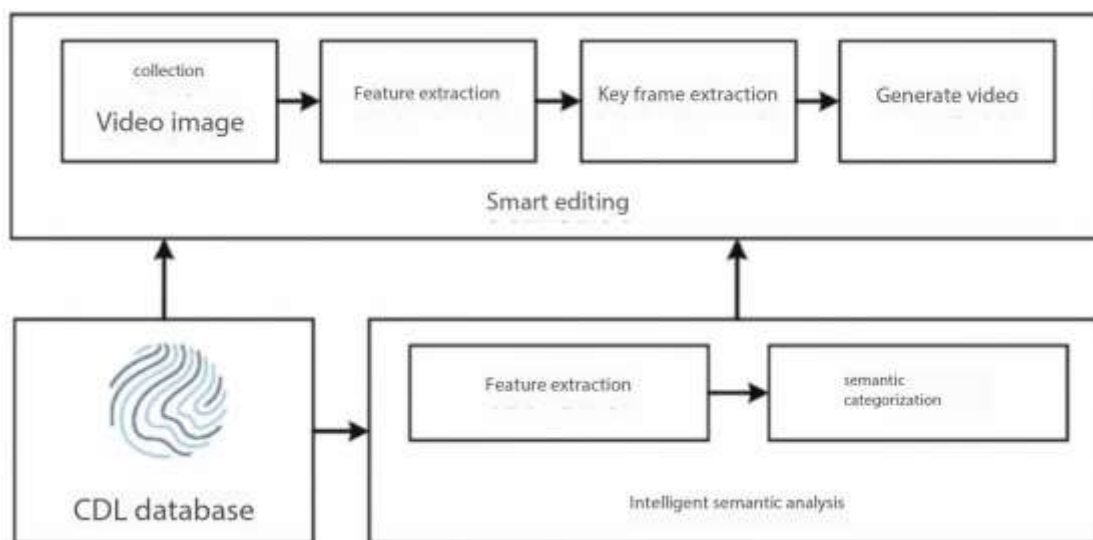

Fig. 1: Technical roadmap of intelligent editing system

2.2 AI+ Video Clips: Get Involved in Video Content Creation

Nowadays, the content production and creation of short videos is a hot air. In the context of massive demand for short videos, AI+ video clips have a huge market space, which is attributed to the application of machine deep learning in the media industry. AI+ video clip refers to the machine through deep learning, such as watching a large number of short news videos, trailers and popular short videos, through analysis, learning and classification, and then with the support of the algorithm, different types of videos can be "understood", and finally can gradually generate short videos in line with the theme.

In 2016, IBM's Watson robot cut a six-minute trailer for Fox's robot thriller "Morgan" in just 24 hours, which should have taken 10 to a month of human work. During the 2018 World Cup in Russia, The

MAGIC artificial intelligence platform of Xinhua News Agency automatically generated video manuscripts, automatically analyzed the picture of the game, and captured the wonderful picture, added subtitles, music, and released after synthesis. It is reported that MAGIC will automatically generate short videos after each game according to a preset template. Tens of thousands of videos were generated during the 31-day competition, accounting for half of the short videos of the Chinese World Cup, and some short videos were viewed more than one million times. In 2018, tencent sports with IBM China research institute of artificial intelligence system "IBM AI Vision visual brain", for the NBA finals during each play star personal video clips the 45 seconds. In 2018, Pear Video cooperated with Wochit, an American company, to introduce its AI intelligent editing technology "Smart Scissorhands" to achieve automatic generation of short videos. In addition, "USA today" the use of artificial intelligence wibbitz clip short video. The AI technology can generate video scripts from news reports, splicing images and video footage into new videos, and adding commentary. In China, the application of artificial intelligence in video clips is growing. For example, IFLYTEK's "Sound of Music" and Cloud Chuangtong announced to cooperate in the development of online maker wechat business videos, providing a platform for efficient production of short videos. The two sides will give full play to their respective advantages and jointly explore cooperation in the field of innovative business, providing samples for the benign interactive cooperation between the short video production market and Internet + and artificial intelligence. More powerful functions and can make more interesting works. In China's 70th anniversary military parade, CCTV news for the first time used AI+ video clips to produce short videos, and efficiently posted those completed short videos to the CCTV website and CCTV news app. [5] The whole project process is divided into five sections, including before and after the start of the list, element collection, screen filtering, and intelligent editing results pushing. The production process is divided into early stage, middle stage, late stage. The early stage includes identification and positioning according to the set background sound, scene, target, keywords and other elements, and the middle stage includes clipping, splicing and filtering of materials according to algorithms and procedures. The late stage includes the synthesis and release of the full video. The most obvious difference between these short videos made by AI intelligent editing and traditional videos is that the production process is all automated. In terms of specific technology, in the data acquisition stage, CCTV AI clip automatically identifies and locates the picture content of more than 70 cameras; In the algorithm programming stage, the sequence modeling technology is used to accurately segment the shooting and set the initial frame of each short video. In the stage of video editing, the signal system is used to combine the shots effectively. In intelligent distribution stage, artificialL intelligence can complete transmission and push in a short period of time on multiple platforms. Manual audit stage, by manual check, to ensure that the content of zero error; At the stage of technical support service, the previous clips were used to train the "93 Military Parade" to strengthen the algorithm and cognition of different shots. In the man-machine cooperation stage, the human provides topic selection and planning, and the machine assists in data capture and automatically forms reports. In this way, "good topic selection + good technology" can form good reports and form technical advantages. The specific summary of the application of AI+ artificial intelligence clips is shown in Fig. 2.

The year	company	System name	The specific practices
2016	Fox	Waston	"Morgen" Trailer
2017	Xinhua News Agency	"The media brain."	MGC Video News
2018	Tencent Sports	IBM AI Vision	NBA Events Video
2018	youku	—	World Cup Highlights
2018	Pear Video	Wochit	Short Video Clips
	USA Today	Wibbitz	Making Illustrative Videos News

Fig. 2: Application of AI+ AI clip

III. RESEARCH ON THE CORRELATION BETWEEN ARTIFICIALINTELLIGENCE CLIP FEATURE AND VIDEO CONTENT

With the development of network technology and the updating and development of various mobile hardware devices, people's demand for short video is increasing day by day. Because of this, the production of short videos needs to improve as well as quality. Editing is an important part of short video creation, though it's getting easier now thanks to artificial intelligence. In order to improve the quality of ai editing works, there is still a long way to go to realize the automation, intelligence and AI editing technology of video production. Editing quality improved in order to make the AI, you have to help the AI to understand the basic rule of artificial clip and skills, learning lens language, editing features, and the link between the video content. Through feature extraction and data analysis, the relationship between duration, scene, feature and content of different types of video works is obtained. [6] The specific summary is as follows: First, from the perspective of shot duration, the single shot duration of animation, film and TV series is usually less than four seconds; Variety and news videos lasted between four and five seconds. Documentaries and sports competition videos usually last more than five seconds. The average length of news videos is relatively stable. In addition, the differences between the lens length of movies, TV drama, use how long lens according to the specific content and form of expression, as a result, this kind of video if you can understand the content of artificial intelligence put forward higher requirements. [7] The shooting duration of sports game video should be determined according to the type of game, and then adjusted according to the content. Secondly, from the perspective of landscape, documentaries and TV dramas have more close-up shots, accounting for more than half; The close-up shots of the film are more than one-third; Nearly a third of sports videos were long shots; News, variety videos should be used as little as possible feature, preferably not more than 5%.

IV. ANALYSIS OF THE CHARACTERISTICS OF ARTIFICIAL INTELLIGENCE FILM EDITING

According to the content of the script, different angles, camera positions and scenes will be shot as materials for the video works manually edited. These rich materials will become the basis for the editor to carry out post-production. In the process of editing, editors need to figure out the idea of the director and the script, and then check the material repeatedly to determine the idea of editing before starting production, which is a very huge project. [8] Usually when editing a work, the length of the material is several times or even tens of times longer than the length of the finished film. [9] It takes a lot of time just to go through the material, let alone the editors who have to watch it repeatedly. In the process of editing, the least technical content is the mos time-consuming, which is precisely the viewing and selection of these materials, the combination of shots and the precise selection of editing points. [10] There are rules and techniques to follow for these time-consuming and energy-consuming tasks. So artificial intelligence can take advantage of this, and the effect will be better than human editing. After summary, it is found that artificial intelligence editing is suitable for videos with prominent style, distinctive features and clear structure, and the production effect and speed are better than manual editing. But in the face of the need for appropriate artistic expression, accurate emotional work, artificial intelligence can only play a supporting role.

V. CONCLUSION

The use of intelligent video clips has brought a lot of convenience to people. This paper summarizes and discusses several intelligent clip methods suitable for short video. For example, the combination of artificial clip and intelligent clip can complete the video clip, or the video clip can be completed directly by intelligent clip. In fact, the use of smart clips in short videos goes far beyond that. Although artificial intelligence editing technology has many advantages in intelligent video editing, it is found that intelligent editing is only suitable for some specific types of video works and performs well in the early stage of video editing, but it is not enough to rely on intelligent editing alone in improving the art and emotional expression effect of works. Intelligent editing can only be used as an auxiliary means of editing at present. Intelligent cutting technology is facing a big challenge. Media practitioners should not panic that artificial intelligence technology will replace human editing. In addition, the development of artificial intelligence editing technology should still be intensified. As intelligent clip technology reduces the labor cost of video production, it will cause a certain amount of panic to design practitioners. Will the development of artificial intelligence lead to the elimination of traditional editing technology? Due to the participation of the whole people in short video, the technical threshold of video production is lowered, and the aesthetic effect and artistry of video are reduced due to the recommendation of algorithm, which raises new problems for people and provides development space for short video creators and artificial intelligence technology. The author believes that artificial intelligence will not replace people's work. People only maintain rational thinking on technology, so that technology better for the creation of services. People should not be carried away by technology, thinking that artificial intelligence is omnipotent and blindly pursue. Nor should we stop accepting new things just because AI isn't perfect. We should seize the opportunity of the development of artificial intelligence, face the tide and make positive contributions to

the application of artificial intelligence technology in short video.

REFERENCES

[1] Liu Qingtong, Xue Ziyu, Guo Peiyu, Cao Xin, Chen Zhiye. Research on intelligent video clip technology. Radio and Television Information, 2021, 28(07):50-52.

[2] Machine Learning. Lip-syncing Obama: New tools turn audio clips into realistic video. Bioterrorism Week, 2017.

[3] Zhao Bei, Zhang Hongzhong. Application and thinking of artificial intelligence technology in China's media industry in 2019. Journal of Journalism and Writing, 2019(12):23-29.

[4] Gilbert Susan. Dan Callahan's Press Clips. The Hastings Center report, 2019, 49(5).

[5] Wan Qing. Research on news production process reengineering in the era of artificial intelligence -- taking CCTV AI editing for the 70th anniversary military parade as an example. News research guide, 2019, 10(23):65-66+68.

[6] Larzabal Christelle, Bacon-Macé Nadège, Muratot Sophie, Thorpe Simon J. Tracking Your Mind's Eye during Recollection: Decoding the Long-Term Recall of Short Audiovisual Clips. Journal of cognitive neuroscience, 2020, 32(1).

[7] Study of Montage Editing in Art Video. TECHART: Journal of Arts and Imaging Science, 2018, 5(2).

[8] Han Shuo, Yang Bo, Zhang Yana. Research on correlation between clip features and video content based on data analysis. Radio and Television Information, 2021, 28(05):40-44.

[9] Schlendorf Kelly, Stone Gregg W, Abraham William T, Mack Michael J, Lindenfeld JoAnn. Who and when to clip: that is the question. European journal of heart failure, 2020, 22(1).

[10] Zhou Li. Artistic characteristics and development direction of film and television editing in the era of big data. Cradle of Journalists, 2021(06):132-133.