A Comparative Study on the Features and Applications of AI Tools -Focus on PIKA Labs and RUNWAY

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Abstract

In the field of artistic creation, the iterative development of AI-generated video software has pushed the boundaries of multimedia content creation and provided powerful creative tools for non-professionals. This paper extensively examines two leading AI-generated video software, PIKA Labs and RUNWAY, discussing their functions, performance differences, and application scopes in the video generation domain. Through detailed operational examples, a comparative analysis of their functionalities, as well as the advantages and limitations of each in generating video content, is presented. By comparison, it can be found that PIKA Labs and RUNWAY have excellent performance in stability and creativity. Therefore, the purpose of this study is to comprehensively elucidate the operating mechanisms of these two AI software, in order to intuitively demonstrate the advantages of each software. Simultaneously, this study provides valuable references for professionals and creators in the video production field, assisting them in selecting the most suitable tools for different scenarios, thereby advancing the application and development of AI-generated video software in multimedia content creation.

Keywords: Multimedia Content Creation, AI Video, AI Art Creation, PIKA Labs, RUNWAY.

1. Introduction

The rapid development of artificial intelligence (AI) technology, especially the emergence of generative AI software, provides new methods of video generation. AI-generated video software has attracted attention for its ability to significantly reduce the threshold and cost of content creation. More and more artists are beginning to use AI for artistic creation. For example, the best short film "The Crow" at the 2022 Cannes Film Festival is a work created with the participation of AI software. The AI software RUNWAY company held the first AI Film Festival in February 2023, which received enthusiastic participation from many artists. Since then,

various types of AI creation competitions have appeared in the art field, which has gradually made AI creations recognized by the public. This paper aims to compare and analyze the functions and applications of two AI-generated video software PIKA and RUNWAY. By studying the software's user interface, ease of use, application of AI technology, and the quality and efficiency of generated videos, the advantages and limitations of the two software's applications are discussed. Provide effective usage suggestions for potential users and provide an outlook on the future development of AI-generated video software.

2. Background of Study

As important players in the field of AI-generated videos, PIKA Labs and RUNWAY not only represent technological progress, but also mark the transformation of the creative industry to more efficient and intelligent production methods. PIKA Labs is a software that provides free video generation. It has functions such as image generation video, text generation video, text and image embedded video, and video stylization. RUNWAY provides a more comprehensive video creation platform. It supports video generation, style transfer, image expansion, camera movement, motion tracking integrated with multiple plug-ins and other functions. The emergence of these two AI software not only changes the traditional video content creation process, but also enables individual creators and small teams to compete with large production companies.

3. Paper Title and Author Information

3.1 Basic Attributes

The methods of entering the two software pages of PIKA Labs and RUNWAY are very different. PIKA Labs needs to log in to the special platform software Discord and add PIKA L;abs in the community of the platform before it can be used. Currently, PIKA Labs can't create user independent rooms in the community page, which means that all users must generate videos in a multi-person room. RUNWAY can generate videos directly on its official website. The web page provides a clear interface and categorizes each function, so users can quickly find the functions they need. there are corresponding operation tutorial videos under the interface of each function entrance. It helps new users to learn more detailed operations to a great extent.

[left Picture] PIKA Labs operation interface   [Right picture] RUNWAY operation interface
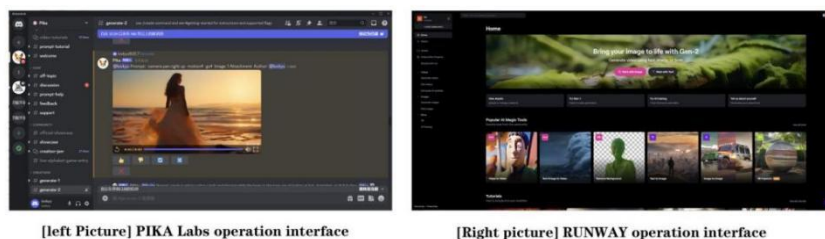
Figure 1. The Operation Interface of PIKA Labs and RUNWAY

PIKA Labs is currently still free to use, and the operation method is relatively simple. Choose to enter pictures and keywords in the only input box to generate a video. PIKA Labs can only generate a 3-second video at a time. If you want to generate a long video, you can only generate it again by intercepting the last second of the first video. On the other hand, RUNWAY requires payment to generate videos, but the operation is highly controllable. The operation interface of each function has an adjustable data frame. Although only 4 seconds of video can be generated at a time, RUNWAY's extension function can extend the video to 18

seconds. In general, RUNWAY provides a more intuitive and easy-to-use interface, which is highly friendly to new users. And has more derivative functions. However, the free-to-use PIKA can provide new users who have never been exposed to AI generation software with a low-cost opportunity to try it.

3.2 Generate Video Effect Comparison

The two basic video generation methods of PIKA Labs and RUNWAY are image generated videos and text generated videos. Therefore, this study tested image generated videos and text generated videos respectively, and conducted comparative analysis of the results to make the video more intuitive and accurate. Discuss the advantages and limitations of the two software applications.

Image Generated Videos. PIKA Labs and RUNWAY are fiercely competitive AI video generation software. Image generation video is the most basic and important function of both softwares. Therefore, the main content of test one is to compare the results generated by the two software through the same picture. Meanwhile, due to the unstable nature of artificial intelligence tools, 10 and 20 tests were conducted without any additional conditions, resulting in test two and test three, in order to ultimately obtain more accurate conclusions. Table 1 lists the results of three of the tests. Scan the QR code to see the comparison results of the generated videos.

As can be seen from the results in Table 1, PIKA Labs and RUNWAY show significant differences in different types of video generation. In video generation with humans as the main subject, PIKA Labs can more naturally express the character's facial state and body dynamics, including the smooth dynamics of wind blowing hair and skirts. In contrast, the video generated by RUNWAY pays more attention to the changes of light and shadow, especially in the test results of No.1 and No.2. For generation results with humanoid robots as the main body, PIKA Labs can still accurately identify the robot's facial features and generate smooth dynamics. RUNWAY focuses more on the changes in light and shadow on the robot and the dynamics of the surrounding environment, such as the test results in No.3. In animal video generation, PIKA Labs can accurately identify and generate dynamics when single or multiple animals appear at the same time. In contrast, In the test of multiple animals, RUNWAY could only recognize the animal character that occupies the main body and produce stiff and strange dynamic generation, as shown in the test results of No.4 and No.5. In the video generation of scene environment, both PIKA Labs and RUNWAY can generate dynamic and smooth videos, but the overall integrity of the RUNWAY picture is better. In the video images generated by RUNWAY, all objects have uniform dynamic amplitude and movement direction, such as the test results of No.6 and No.7. By comparing the test results in Table 1, we found that the videos generated by PIKA Labs are relatively conservative, but the dynamics of both people and animals are smoother. On the contrary, the dynamics of RUNWAY's characters and animals are more rigid, paying more attention to changes in light, shadow and environment. Even if the camera value is not set, RUNWAY generates different camera movements based on the screen content to enhance the visual sense. In addition, the video resolution output by RUNWAY can reach 4K, while the video output by PIKA Labs will be reduced in resolution from the original image.

In addition to the above-mentioned most basic video functions, PIKA Labs and RUNWAY basically have other functions for video optimization. In the update as of November, PIKA Labs can optimize the dynamics and shots of videos by adding text keywords to images. We can find that after entering the keyword of the car reversing, the car is indeed reversing in the picture generated by PIKA Labs, but the surrounding trees are also retreating. It looks like it is moving forward and it seems like it is retreating, as shown in Table 2. RUNWAY can optimize videos through text, camera movement direction selection and smear functions. After adding text such as the car to move backward, it was found that the text did not play a big role. After adding smear to the car area, you can find that the smeared area moves exactly in the direction set. There is no big difference

between the video tested after adding smear and text at the same time and the video generated by adding only the smear function, as shown in Table 3.

Table 1. Image to Video

Serial Number	AI Software	Picture	1st Test	2nd Test	3th Test	QR Code
1	PIKA Labs / RUNWAY					
2	PIKA Labs / RUNWAY					
3	PIKA Labs / RUNWAY					
4	PIKA Labs / RUNWAY					
5	PIKA Labs / RUNWAY					
6	PIKA Labs / RUNWAY					
7	PIKA Labs / RUNWAY					

Table 2. PIKA Labs Image Generation Video Optimization
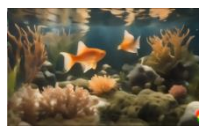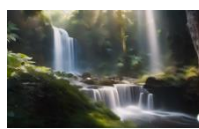
Picture	Picture-->Video	Picture+Text-->Video	QR Code

Table 3. RUNWAY Image Generation Video Optimization

Picture	Picture -->Video	Picture+Text -->Video	Picture+Smear -->Video	Picture+Smear +Text-->Video	QR Code

Text Generated Videos. In addition to image-generated videos, PIKA Labs and RUNWAY also have text-generated video functions. After the user inputs words to describe the content of the picture he wants, the AI tool will automatically generate a short video based on the description. Therefore, this generation method is more suitable for non-professionals who are exposed to AI for the first time.

Table 4. Text Generation Video

AI Software	PIKA Labs	RUNWAY	PIKA Labs	RUNWAY	QR Code
Character dynamics					
Keywords	At the seaside, beach, a dancing woman, woman in a long dress,		A cyberpunk robot, on the street of the city, night, neon lights,		
Animal dynamics					
Keywords	A wild cat in the forest at night, surrounded by fireflies, dreamy,		Two goldfish in the bathtub, goldfish swimming, plants in the fish tank.		
Scenes dynamics					
Keywords	Cyberpunk city, neon lights, streets, buildings, night		Waterfall in the forest, daytime, stream, trees, vegetation		

The video generated by PIKA Labs has high picture saturation, smooth and stable dynamics, and consistent picture quality. However, the movement of the camera is unstable and difficult to control. The pictures generated by RUNWAY are more cinematic, and the light, shadow and lens of the picture will move more

stably according to the content of the picture. However, the dynamic range of the video is large, so the stability is low. In general, the function of PIKA Labs and RUNWAY text-generated videos is completely sufficient for non-professionals, but it needs better improvements for some professional video creators who need more sophisticated content.

3.3 The Other Functions

On the basis of the basic video generation function, PIKA Labs and RUNWAY each derive other related functions. As of November, PIKA Labs has updated the text embedding function, video expansion function, and video partial redrawing function in just over four months since it was launched. In particular, the text embedding feature can turn elements in a video into text or images. RUNWAY has updated more than 30 related tools as of November. You can cut out images from online videos, delete any object in the video, track motion, automatically generate letters and video clips, and more. There are also some very distinctive functions, such as video stylization generation. RUNWAY has as many as 20 style presets for this function. And the image expansion function can introduce keywords and partial frame selection of the picture to effectively control the generated content.

4. Conclusion

To sum up, PIKA Labs and RUNWAY, as powerful and reliable AI video generation tools, have their own excellence in terms of stability and creativity. PIKA Labs can be used for free and is easy to operate, providing beginners with a lower cost trial path. The diverse functions and strong applicability of   RUNWAY provide professionals with faster video production methods. The two softwares are constantly updated, indicating that their competition in the field of AI-generated videos will become more intense. In the future, we may witness the emergence of more sophisticated tool updates and better AI generation software. The updates of multiple types of derivative functions have also diversified the application fields of PIKA Labs and RUNWAY. The rise of AI video generation software not only revolutionizes production efficiency, but also opens up new development paths and business models for the creative industry.

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