

Animation Analysis

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Animation Analysis

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Abstract

This paper will start with the flight footage of the animated film “How to Train Your Dragon 2”, analyze the general process of animation production, and explain how a very real animation picture is processed and manufactured. This paper will start with the dynamic storyboard at the beginning of animation production, from the dynamic story version to the 3D story version to animation production and post-production. In these steps, we will analyze in detail how to create a complete and realistic animation.

1.Introduction

“How to Train Your Dragon” is produced by DreamWorks Animation, and the first film was a 3D computer-animated fantasy film released in 2010. The second film was released in 2014, and the third in 2019. All three films were produced by DreamWorks Animation. The film is based on Cressida Cowell's children's book of the same name, “How to Train Your Dragon”.

The entire film series is set in the fictional world of the Vikings. In the first film, Hiccup aspires to be a traditional dragon slayer, but because of his good nature, he becomes a dragon trainer. In the second installment, our protagonist, Hiccup, coexists peacefully with dragons on Blog Island. As Hiccup grows older, he and his toothless cub begin their adventures. In this adventure, Hiccup discovers that the mysterious dragon rider is his long-lost mother. To protect the dragons, Hiccup teams up with his father, a tribal leader, and his long-lost mother against the new dragon hunter, Drager. Good triumphs

over evil, and hiccup becomes the tribe's new leader. And our film series is based on this story background, allowing us to produce a fantasy animation world with a grand world view. The complete film animation production has a tedious process, from the initial script writing, story version, and screen storyboard to the production of 3D models, 3D animation, post-rendering, and editing. This article will introduce how to complete the production of a short piece of complete animation and seriously discuss the production process they have experienced in a certain piece.

2. Animation Production Process

Animation production is a very tedious and important work, and the division of labor is extremely detailed. It is usually divided into pre-production, mid-production, and post-production. The animation production engineering analyzed in this paper comes from the middle production and post-production of animation production, including storyboard, original painting, middle painting, animation, coloring, background painting, photography, dubbing, recording, editing, special effects, synthesis, etc. Animation production is very tedious, but every step is crucial, so I chose a slightly complicated part of the movie, full of a lot of flight action scenes, which will be analyzed from the sequence of the storyboard, sketch, 3D animation, and so on.

2.1 Drawing for staging

First of all, in the process of making the entire animation, the first step is to draw the storyboard script, also known as the story plate. This is a way to explain the composition of the image in the way of the story graph before the production of the film animation;

the continuous picture is broken down by a mirror as a unit, and the mode of the mirror, the length of time, the dialogue, etc.

The following picture is a more advanced production method of the storyboard, and it is also the most basic source of animation, which is called the dynamic story version. This kind of dynamic story plate is based on the story plate and painted; it is the video version of the story plate, but it is only a simple painting, and this simple painting is used to confirm the length of time required for each shot and the actions required by the characters in each shot.

The picture I chose is a dynamic story version full of a large number of flight action scenes. It can be clearly seen that in this dynamic story version, the background is pure blue, representing the sky, and there are some gray squares in the sky, which can play a role in positioning and reference objects. Otherwise, it is difficult for the figure to judge the flying speed and position of the painted flying object against a pure blue background.

In the main body of the black flying object, there is also an arrow indicating his next route, which is also an important reflection of the dynamic storyboard, while the green circle represents the network of objects avoided by the flying object.



Figure1:Dynamic Story Edition 1

In the next shot, the flying object follows the guide line to the left for a better display.

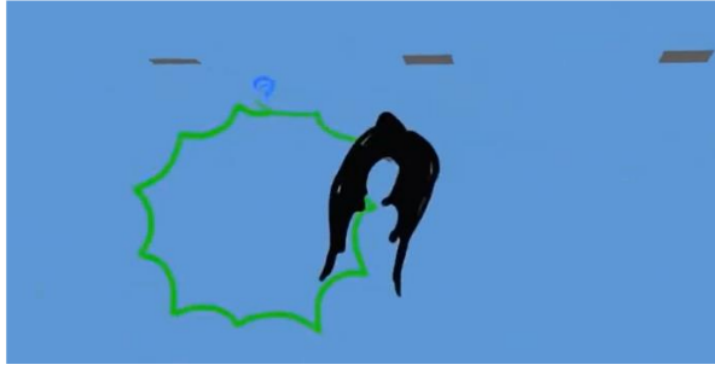


Figure2:Dynamic Story Edition 2

At the end of the shot, it is sketched with a relatively rough sketch, indicating the landing of the flying object, and with some scenes to show the time required from the sky to the landing of the ship and the actions required for production. These are simple MK animations with the 3D model that has been made for the transfer of the shot. This way of production can provide the producer with the clearest picture effect, so it can be easier to master the production of animation.



Figure3:Dynamic Story Edition 3

2.2 Staging

The second step of animation production is the 3D animation story version. In this stage, animators need to use the bound model in the 3D animation software to deduce the

story displayed in the dynamic story version. This method allows the director to more intuitively see the general effect of the image on the actual animation.

In this way, it is a technical visual preview, using rough movements to arrange and move the entire virtual scene. In this way, the overall scene layout, camera position, movement, and teaching AIDS of the animation during production are determined, and the technical parameters such as the scheduling of the overall scene and the time point of editing are helpful. In the story version of this 3D animation, the effect of the picture may be relatively rough and the action is not complete, but the accuracy of the space-time relationship between the various objects in the picture is more emphasized.

In the screenshot below, it can be clearly seen that the lines drawn before have been replaced by the model, but the square that used to be positioned in the sky is still there.

The space-time relationship between the three can be clearly seen in this picture. And because of the obvious model, it can also be clearly seen that in this picture, the two dragons in the original place need to approach in the direction of the camera and need to avoid the rope net from the near point.



Figure4:3D animated story version 1

But in this shot, it can be clearly seen that according to the previous dynamic story version's 1:1 fine movement restoration, you can clearly see the two dragons in the avoidance movement.



Figure5:3D animated story version 2

At the end of this shot, although a 1:1 restoration shot was made above, in the final landing link, because the action was too complicated, only a simple landing animation was made of the model, and it was not made in detail. After all, in this step, it is more to emphasize the space-time relationship between the various objects in the picture and let the producer grasp the rhythm of the production of this animation more clearly.

2.3 Aerial choreography plus landing

The third step is an important part of animation production. In the second step, it confirms the rhythm of animation production, such as the length of the entire animation, the movement, and the relationship between time and space. So came the time of 3D animation production, which is also part of the middle production of animation production.



Figure6:3D animated story version 3

In this stage of animation production, in order to better plan the process of later work and save the cycle and cost of fine production in the film, rough 3D animation is quickly produced to preview the final special effects. The shots are then post-produced by other special effects companies. Alternatively, a preliminary post-production visual preview can be done as a whole before the entire film is produced in order to have a clearer understanding of the required special effects elements.

The production of more rough 3D animation is less of a burden on the machine, and the rendering is more efficient, which can also reduce the production cycle. In the following figure, the whole film is produced in this way, with simple and rough materials and modeling for complete animation, and then processed by post-special effects production. As can be clearly seen in the following two comparison pictures, the production is to use a relatively common gray mold to produce animation, and only gray mold, while the above light source, material, and other details are made by the special effects company.



Figure7:3D Animation left, actual film right

At this stage, it can be clearly seen from the following pictures that the animators did not add natural light sources and detailed materials to the animation, which were relatively simple material maps. However, very fine movements and expressions are made so that the audience can clearly perceive the emotional changes brought by the characters' expressions. This provides great convenience for the subsequent special effects production.



Figure8:Animation production1

As for the production of animation action, it is the process of letting the controller of characters and items set key frames and relying on the controller to drive the 3D characters to move. In animated films, character animation can basically be equated with the performance of the actors in the film. In animation, the animator is required to act out the characters according to the story version and story details.

At this stage, 3D software such as MAYA is usually used for animation, but in the production of “How to Train Your Dragon 2”, DreamWorks used new technology software developed in collaboration with Intel, which is fast enough to help them quickly produce some animated content. In the following picture, it can be clearly seen that his controller is different from other software. Its binding controller is selected to pick up on the surface of the model, the details that can be controlled can be more diverse, and the digital board can be used for animation, which greatly improves the efficiency of animation production. This system is completely different from MAYA and belongs to a separate animation tool. And it can also pre-set commonly used expressions in the management library, improving the efficiency of animation production.

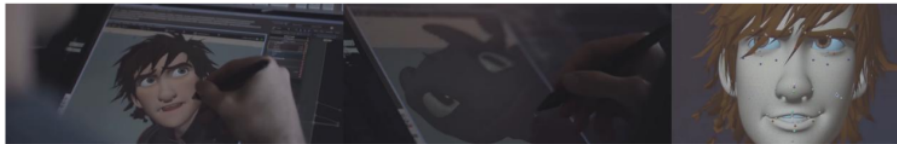


Figure9:New software interface left center right

2.4 Final shot

The last stage is the production of special effects in animation production, which is mainly to adjust and improve the places that have not been done before and edit, dub, and add special effects to the animation that has been made. The main scope of special effects is water, smoke, hair, clothing, and other places.

In the picture below, it can be clearly seen that after the post-special effects production, the overall background changed from pure blue with small squares to a normal sky background, and the cloud smoke effect was also made, and the mountain background was added, which was made by the post-special effects particles. At the same time, in order to have a real outdoor picture, the lighting artist added a large ambient light to simulate the real light and shadow effect for the overall atmosphere.

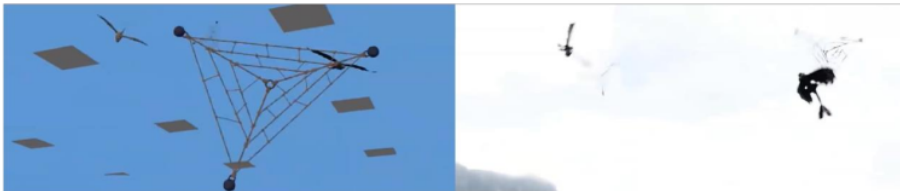


Figure10:Animation left ,actual film right

In the following two comparison pictures, you can feel the different feelings brought by post-production more intuitively. First, the real light and shadow effect provides a real-world feeling for the lens. Secondly, the details of the material are adjusted to show a more real physical property. On the background are added a background image of mountains, particle effects of water mist, and waves of water in the water of a boat. At the same time, other character details were added to the shot, and even the shaking movement of the ship was added to the landing, which needed to be adjusted and improved in post-production. Such details can show us a more real animation world.



Figure11:Animation left ,actual film right

3. Conclusion

The above are the four necessary stages for the production of an animated segment: the dynamic story version, the 3D animated story version, the action production, and the final post-production.

Animation production is a complicated and delicate production process; each step needs to be carefully designed and produced, and each step is responsible for subdivision professionals in large-scale projects, each of which has a deep background and technical support and is constantly developing. It is these small details that constitute the more and more real animated films we see now.

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Animation Analysis

GRADEMARK REPORT

FINAL GRADE

75 / 100

GENERAL COMMENTS

The document delves into a detailed breakdown of the animation production process, specifically centered around "How to Train Your Dragon 2." However, clearer organization and section headings could enhance navigation.

Content Depth:

Thorough and informative, the content covers various stages of animation production, exploring detailed steps from storyboarding to final post-production.

Visual Aids:

The inclusion of figures and screenshots enhances the explanation. For improved reference, consistent labeling of figures (e.g., Figure 1, Figure 2) is recommended.

Grammar and Style:

Though generally well-written, occasional instances of awkward phrasing or grammar issues are present. A final proofreading pass would refine the language.

Specific Section Feedback:

Introduction:

While providing a good overview, consider adding a more explicit thesis statement to guide readers on what to expect.

Animation Production Process:

Drawing for Staging:

The explanation of the dynamic story version is clear, but figures could be referenced more consistently within the text. Additionally, expanding on the role of the green circle in Figure 1 would enhance understanding.

Staging:

Transition to 3D animation story version is well-explained. Terms like "bound model" could benefit from brief definitions or clarifications. Ensure explicit text references to Figures 4 and 5.

Aerial Choreography plus Landing:

The explanation of rough 3D animation for previewing is well-done. Emphasizing the importance of this stage in streamlining production would be beneficial. Providing additional detail on new technology software mentioned could enhance comprehension.

Final Shot:

Detailed explanation of post-production, especially regarding the addition of real-world elements like lighting and background details. Figures 10 and 11 are valuable, with captions effectively explaining changes made.

Conclusion:

Effectively summarizes the four stages of animation production. Reiterating the significance of each stage in contributing to the final animated segment could strengthen the conclusion.

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