A Method of Making Character skeleton Animation Based on DragonBones

Zhiyong Bai

College of Arts and Design, Beijing Forestry University, Beijing, China

Keywords: Animation; Character Skeleton; DragonBones

Abstract: Character Skeleton is used very frequently in game animation and other cg filed, which enforces the whole animation and brings more high-efficiency to the animators with excellent expression for the animation story and full convenience for the makers. various advanced technical is employed in the method to use skeleton to making character action fluent including armature, bones, slot, boundingbox and etc. In this paper, a method using DragonBones is investigated throughout and final used to make a character called dragon to animate.It is showed that the character skeleton is useful to make animation, and DragonBones is good enough to deal with the bone animation.

1. Introduction

In the game and animation, there are many animation characters, these characters often have rich action effects, so they can show the character characteristics and emotional characteristics created by different characters. These action effects usually need to rely on the animation skeleton system to complete, through the skeleton and the character binding, can make the character's various natural smooth movement. This paper will study the basic theory of skeleton and character animation, analyze the technical characteristics and main functions of DragonBones, and propose a realization method of character skeleton animation based on DragonBones. The generated character skeleton animation can be applied to animation and games [1].

2. Character skeleton animation

Character skeleton animation is a kind of model animation. In skeleton animation, the model has a skeleton structure composed of interconnected "bones". By changing the orientation and position of bones, animation is generated for the model (see Figure 1).
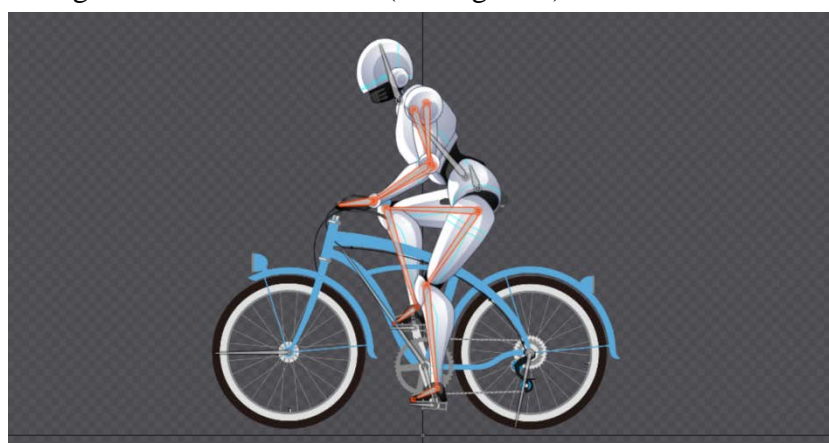

Figure 1 Character skeleton animation

Character skeleton animation requires high processor performance, but it also has more advantages. Skeleton animation can be created more easily and quickly. Different skeletal animations can be combined - for example, the model can rotate the head, shoot, and walk at the same time. Some engines can manipulate individual bones in real time so that they can interact more accurately with the environment - models can lean over and watch or shoot in a certain

direction, or pick up something from somewhere on the ground. Skeleton animation can accurately control the change and deformation of the affected character's map, and can simulate the various motion requirements of the character smoothly [2-4].

3. DragonBones

Dragonbones is an open source and free mobile game skeleton animation solution. It is mainly used to create 2D game animation and rich media content. It helps designers create more vivid animation effects with less art cost. It supports multi-language, one-time production and full platform release (see Figure 2).
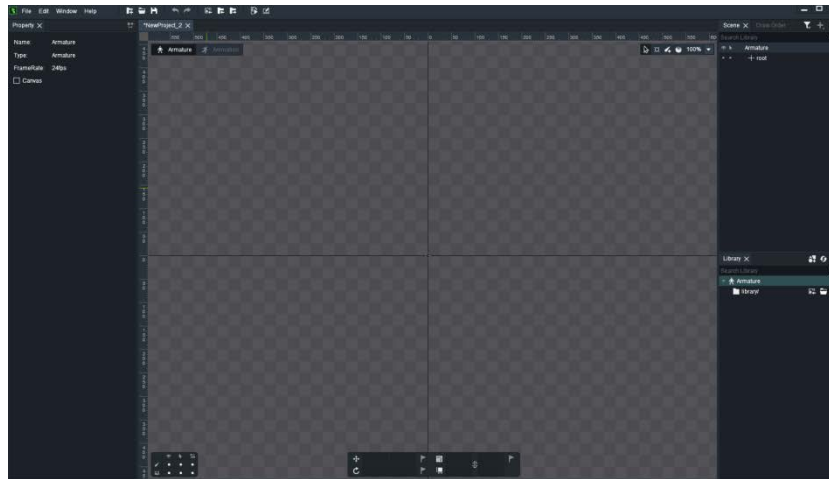

Figure 2 DragonBones interface

Dragonbones has the following advantages:

Get through the workflow of animation design and game development. Supports importing multiple animation formats. Support the release of H5 to facilitate the production of marketing animation.

Original interactive animation editor mode. Without animation foundation, rich special effects can be easily realized. One click release docking channel.

Output a variety of formats, such as video, web page, animation. It can be used in current mainstream game engine and programming language. Because dragonbones provides runtime libraries for various platforms.

4. Method

Let's demonstrate how to use dragonbones to make character bone animation. In this paper, we use the character data provided by the official from Egret for demonstration, and select dragon as the basic material to make an animation of a walking character.

Step 1: Import the created character data. It is officially recommended to use Photoshop for operation. First of all, you need to install the export script to make the character map data that can be used by dragonbones, and then export the configuration and map file through the script command, and then import it directly into the project. The imported material is shown below (see Figure 3).

Figure 3 Export to DragonBones

Step 2: Arrange the corresponding layer relationships in the scene, and add bones according to the subordination relationship between the organization parts (see Figure 4).
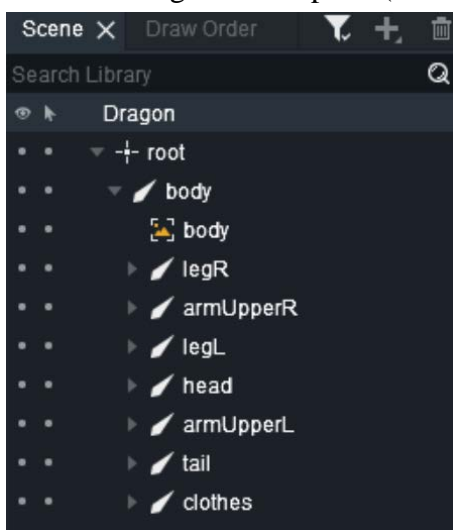

Figure 4 Scene

Step 3: After binding, view the skeleton as shown below (see Figure 5).
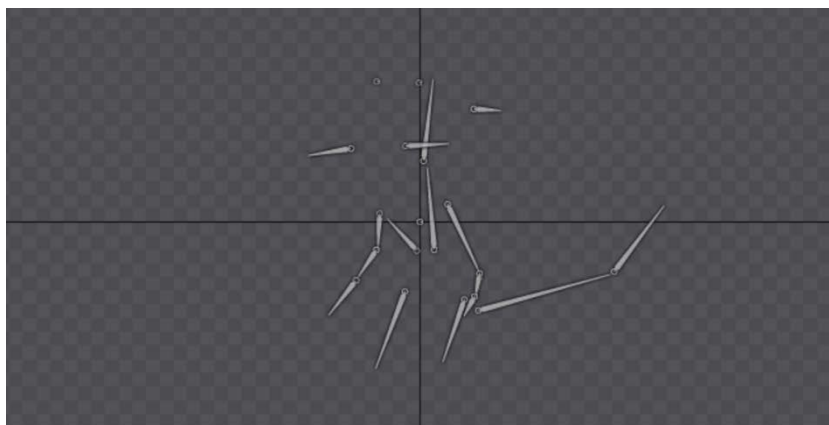

Figure 5 Skeleton

Step 4: Make the walking animation, enter the animation interface, set the animation of each part of the body, and add the corresponding key frame for the animation interval operation (see Figure 6).

Figure 6 Animation keyframes

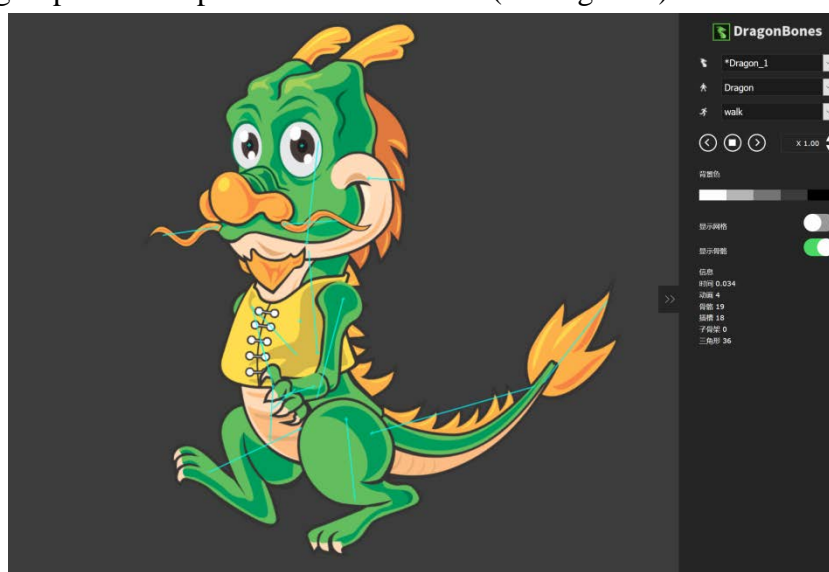Step 5: Use Egret preview to preview the animation (see Figure 7).

Figure 7 Final Effects

Step 6: Export character skeleton animation data and texture files, which can be used by games and other programs (see Figure 8).

Dragon_1_ske.json   Dragon_1_tex.json   Dragon_1_tex.png

Figure 8 Configuration and texture

Step 7: Export the sequence frame picture of character skeleton animation, which can be used conveniently in animation (see Figure 9).
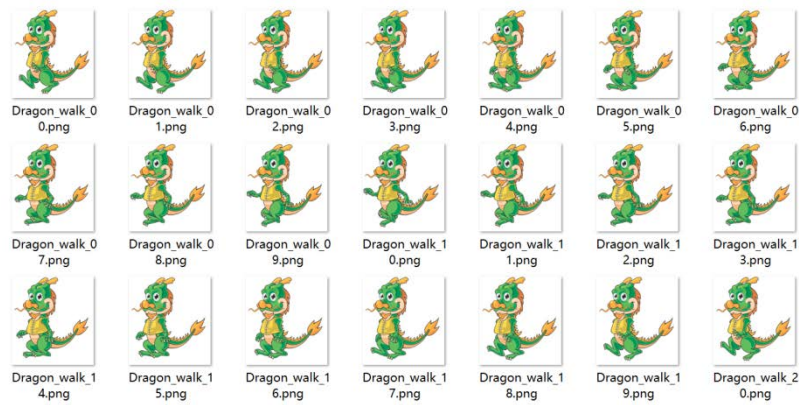
Figure 9 Animation Sequence

Step 8: Export HTML separate page for animation and display page independently (see Figure 10).
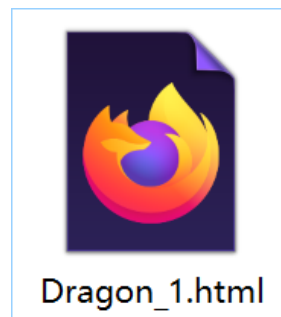

Dragon_1.html

Figure 10 HTML

5. Conclusion

Character skeleton animation has been widely used in many fields. It can simulate all kinds of real animation by supplementing the bones of animals in the real world for the characters in animation, so as to show the characters' own characteristics. The method introduced in this paper is based on dragonbones to complete the animation of a character moving, and exported to three different document formats for different application environments. This method can provide reference for the production of character bone animation in other animation.

References

[1] Saima Majeed, Ammar Ul Hassan, Jaeyoung Choi. Rendering high-quality PK bitmap font in Linux environment. Cluster Computing, 2020.

[2] He bingdong. Design and Implementation of Bitmap Font Vectorization System Base on Deep Leaning. Shandong University.

[3] João Bosco Ferreira Filho, Helder S. Pinho, Riverson Rios, Rossana M. C. Andrade. A strategy for memory traffic management of bitmap fonts for text visualization in mobile devices. Applied computing, 2008.

[4] https://docs.egret.com/dragonbones.