Analyze the function of dance in animation

--- Take Swing Dance as An Example

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Abstract: Dance plays an important role in many animations which includes broaden the form and content of dance，produce better artistic effect than stage performances and real dance. , expressing the inner emotion of character and rending atmosphere of the scene. Swing dance actually is a kind of dance with swing and appeared in the early twentieth century in the United State. It has great charming in animation，which has many fans all over the world.

Key words: Swing dance, movement, dance in animation，artistic effect

1. **INTRODUCTION:**

Swing dance is not just a dance style, also witnessed the racial integration. It has important symbolic meaning in history and it is the main reason that make the dance animation about Swing Dance. Rock music is the best dance music at the time with melody lively and rhythmic, but it also has strong artistic and provocative. When people listen this music, they can not help but twisting the body and dancing with rhythm. So people call it Swing dance. Swinging is an entertaining and improvisational dance that does not need to behave rigorously. Dancers only need to learn some common combination of actions and you can dance freely. Dance animation is a new form of artistic expression which produced by the close combination of dance and animation. It can be a song and dance part in a commercial animation and it also can be animation art films take dance as main body. With more and more animators pay attention on requirement of visual from audiences. The proportion of the dance part in the animation has increased, so there are more and more people like dance part of animation. Then the paper will take swing dance as example to analyze the function of swing dance in animation. Firstly, this paper will introduce the history and culture of swing dance. Then the paper will pay attention on Lindy Hop which the most common style of swing and analyze the movement and draw animation planning for Lindy Hop.

2. SWING DANCE

2.1 history of swing dance

People usually divide Swing Dance into three stages: the early stage;
The Golden stage; the Post-war revival stage.

In the early stage: Swing Dance band is composed of twenty people around the huge team and play live performances for dancers. In the evening, they will go to Savoy Ballroom which in New York Manhattan north Harlem area of the huge area enough for hundreds of dancers.

The Golden stage: 1930s~1940s， The second generation dancers of Swing Dance grew up which include Tiny Bunch，Sandra Gibson，Frankie Manning，Norma Miller，Billy Ricker. They all are good swing dancer. In 1940s, Swing Dance was shot in Hollywood movies.

The Post-war revival stage：1980s
There was a group of young people in Sweden who saw some rocking videos and they are crazy for Swing Dance. So they came to the United States to find swing dancer, finally, they found the retired Frankie Manning. Since the 1980s, Swing Dance has brought new blood and started the Post-war revival stage.

2. 2. The culture in Swing Dance

Swing dance is considered a cultural phenomenon that broke through the race barrier when segregation was still the norm. in the 1920s-1940s. In the late 1920s and early 1930s, Swing Dance was originated in the United States. USA was under the Economic recessions and World War II in that time. It has inextricably linked between New York black living area of the the Savoy Ballroom in Harlem and the birth of the swing dance. It unlike many ballrooms, such as the Cotton Club, the Savoy always had a no-discrimination policy. Generally, the clientele was 85% black and 15% white, although sometimes there was an even 50/50 split. Lindy hop legend Frankie Manning noted that patrons were only judged on their dancing skills and not on the color of their skin.

In 1935s to 1938s, Benny Goodman was the most popular singer in the world. Benny Goodman breaks the inter-ethnic boundaries. He invited black pianist Teddy Wilson, Lionel Hampton and guitarist Charlie Christian take the show in his band. It was a great thing at the

time of the United States. In the time of American apartheid, there are forbidden that different colors often cannot go to a restaurant to eat, or cannot sit in a bus area. But rock music still can have magical influence to introduce racial music to white teenagers. The popularity of this music make black musicians have white listeners and white musicians have black listeners. Cross-cultural infection promotes inter-ethnic mutual understanding.

In the popular time of Rock and roll music, American racial conflict into a new time. After the abolition of slavery, the United States has been the isolation but equal policy. From the end of the nineteenth century, this discriminatory clause cause blacks to defend the civil rights movement, at that time some white racists have suppressed resistance. The problems of White teenagers listen to black music made racist very angry in society .Racists believe that the movement broken apartheid, it is wrong behavior for society which made America into trouble. And there are many critics argue that rock and roll indicate the end of apartheid. Black and white co-created made new forms of music, so that different races share the same emotional experience by music which promote cross-ethnic integration. In 1954s, Supreme Court of the United States canceled the separate but equal policy. We can dance swing together.

3. Lindy Hop

3.1 history of Lindy Hop

Lindy Hop is the most widely and representative of the Swing Dance, It is originated in New York Harlem Harlem area. Lindy Hop is popular in the 1930-1940s in USA, Lindy Hop is a social dance by two people, which also mix some solo action. Swing out is called Lindy Hop's iconic dance movement. At the peak time of Lindy, the dance movement from the floor to the air, it is called the Lindy Hop, the most ornamental movement.

Image 3.1

image 3.2

In 1927, Lindy Pop was showed basis by Breakaway and Charleston dance further development which combined with the tap dance. Lindy Pop became the mainstream of social dance. The basic rhythm of Lindy Pop is eight beat which absorb a lot of single dance, double dance action and many black improvisation dance movements. The basic pace is Swingout; the movement is male dancer's left hand pulls the right hand of the female dancer. In the Closed Position, the movement is dancers embrace each other.

Image 3.3

Image 3.4

From the 1930s to the 1940s, it was golden time for Swing Dance. But after Rock and Roll appeared, Swing Dance began to be replaced by Rock and Roll. In 1990s, Frankie Manning, a 70-year-old Swing master led a part of the young to promote the development of Swing Dance. In addition, as Vintage clothing be popular, swing dance start a new development.

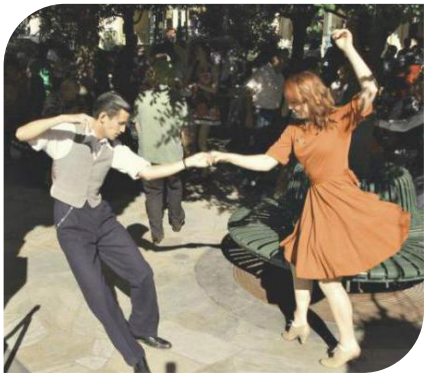


Image 3.5

image 3.6

3.2 The basic footwork: step, step, triple step, step, step, triple step

If we want put swing dance in animation, firstly, we need to understand swing dance deeply. The basic positions and weight changes are the first that we need to know. The basic footwork is: step, step, triple step, step, step, triple step.

The movement of step is very easy to understand, but a little hard to achieve it. Dancers always need a lot of training to practice the harmony of body, but it is not need in animation. Animator need understand the movement locus of body then they can build a wonderful dance.

The triple step is composed of three steps and the direction of movement depends on the move foot firstly. If we want to do the movement of triple step on the left, we should move left foot firstly which move one step(one step), then the right foot follow the left foot that move one step the left(two step), finally, the left foot move one step to the left again. Now we finish the triple step. Preparation movement: dance stand keep balance which put the gravity of the body in center; Step（one）, Left foot move on the left and front for one step; Step (two), Right foot move on the right and behind for one step; Then, it is for triple step (one), firstly, left foot move on the right and behind for one step, then right foot move on the left and front for one step, finally, left move on the left and front for one step quickly. There is “step, step and triple step.” In a similar way; Step（three）, right foot move on the right and front for one step; Step (four), left foot move on the left and behind for one step. Then, it is for triple step, firstly, right foot move on the left and behind for one step, then left foot move on the right and front for one step, finally, right move on the right and front for one step quickly. There are the basic footwork step, step, triple step, step, step, triple step. There is a image(3.7) to explain the steps about basic footwork.

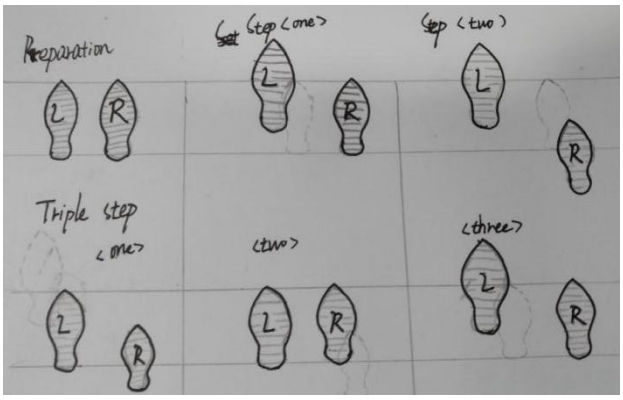


Image 3.7

3.2 Fundamental posture & footwork

About the fundamental posture, the first point that we need know is that Hold the position of the partner's hand. All the way is relax your hands on top. It’s the key for the position of hand. usually, dancer keep his thumbs out here which on partner's head of metacarpal bone, because in the dance, we need to hold partner's hand not about control. It is hard to understand about the position of hand, so I make a image(image 3.8) in MAYA for

understanding.

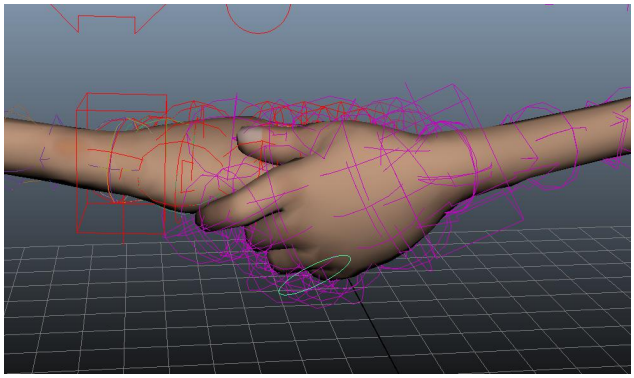
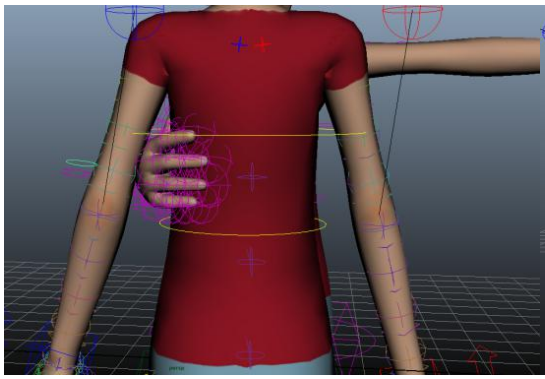


Image 3.8

Then there is close position. The dancer hand around partner's shoulder blade. There is a little bit under scapula, right always drop your hand over the top make sure your connect it to the back hand and then think up from the elbow (image 3.9, 3.10).



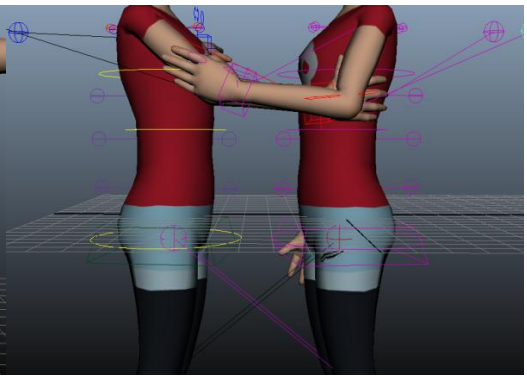


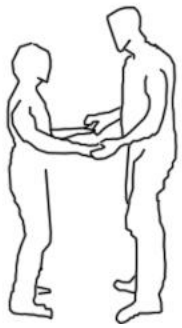
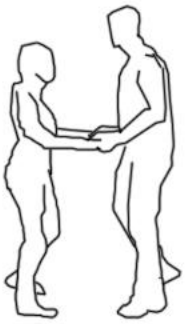
Image 3.9 image 3.10

3.3 Fundamental 6-count rhythm and basic moves

It starts with the basic 6-count but without triple steps. The "step, step, rock-step, step, step, rock-step" rhythm in side-by-side position. This is also called the "groove walk" rhythm. there you have the basic 6-count Lindy Hop rhythm.

The moves are: basic 6-count rhythm pattern, Basic step, Open position, Closed position, Simple turn and Change places (Side Pass), and Tuck Turn (from closed).

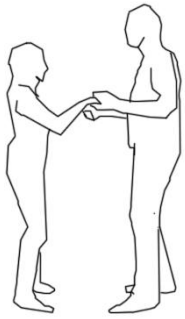
Leaders and followers, make sure that keep a bounce (pulse) going through your whole body when you do the triple steps and don't just do them with your feet and have nothing happening with your body. Dance the triple step with your whole body.

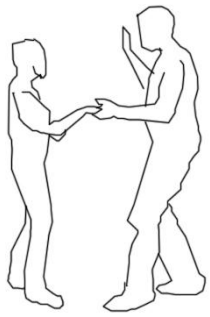
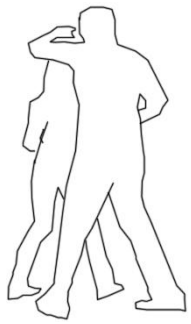
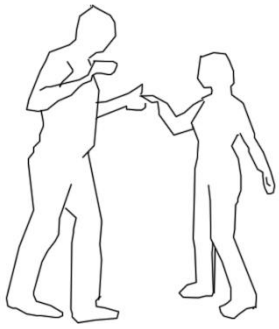
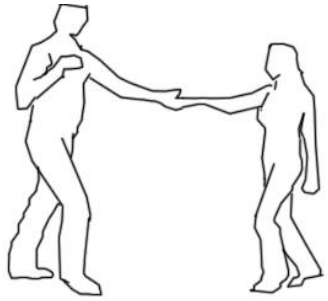
Preparation movement		Step（one）	
Step（two）		Rock-step	

In a similar way, then it is step, step, rock-step round an round.

Simple Turn

The movement is added behind “step, step , rock-step, step, step rock-step”. But there are a little change in steps. After finish the movement of first rock-step, dancers relax one hand and have a Simple Turn. There are a table to help understand the movement of body, then there are a image(3.11) for helping to understand the movements of steps.

Step(one)		Step(two)	

Rock-step(one)		Step(two)	
Step (three)		Rock-step(two)	

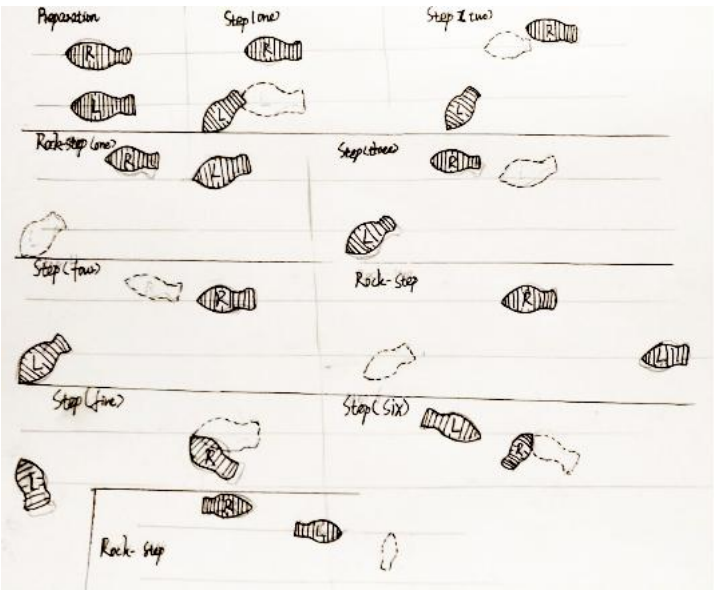


Image 3.11

The history about Air step

Frankie Manning is a very famous person in Swing Dance history. People always call him for Ambassador of Lindy Hop. Frankie Manning is the most important central role in the development of Lindy Hop. Although he is not the first generation dancer of Lindy Hop, But he is most influential in the innovation and contribution of Swing Dance. He created

the new form of Swing Dancing and make Swing Dance from the ballroom to the big screen. He made swinging be popular again in the 1980s. After the first generation of Swing dancer came back and found that many prominent newcomers grow up. So Savoy have some match for them. Normally the champion of match is Shorty George, but Frankie Manning got champion in 1935 at Savoy, Frankie Manning and his partner Freda Washington created the first air step (image 3.12). Since then Swing Dance has Aerial and dancers began to have innovation which invented a lot of new movements for Swing Dance.

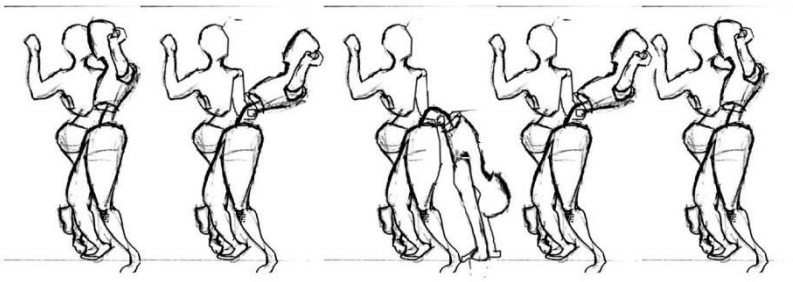
Image 3.12

Dancers only need to learn some common combination of actions and you can dance freely.

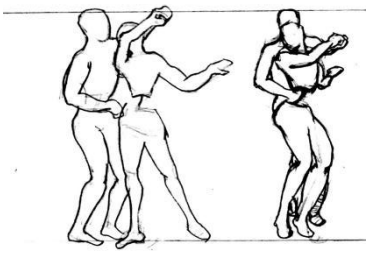
4. Animation planning for Lindy Hop

The keys of making dance moves rhythmic and smooth have two: the first key is that we

need consider the elasticity of the body in the movements of character. The animation character's action have a important movement that the last movement after the character finish the a series of movements, we can call it for “the movement of hit” . and the music also have a important point that the most prominent tone in a series sound, we can call it for ”the music of hit”. in the dance, we need pay attention how to make music and hit exact match at the same time. Animator need to match “the movement of hit” to ”the music of hit” precisely to make the dance movement of character flexible. Dealing with flexibility is a important part in dance movements. It is very complex that completing a good dance movement in real dance. We are hard to understand the run way for dance movement in body of human. But we can do finish it in animation, we just need know some keys for characteristic of movement. A important way to find the rule of dance movement is rhythm. Firstly, a good animator need to achieve the action of character in the natural way and concept flexibility when they design for movements. It is a good way that draw the animation planning then replenish the other actions. There are two aspects We can pay attention on two way to understand the rhythm of the dance movement. Firstly, we can squeeze and stretch the body of character. the rhythm can easy to express in the process of movement. Disney animation have proved it.



The second key is overlapping movement. A professional animator would not finish a series movement in a frame, it would cause the movement lose a lot of detail which meaning a failure movement. It is significant that should not put all movements at the same time. Because the movement would not happen at same time in real human. For example, if people want pick up a penny on the floor, he would move head down in the first movement, then he would bend waist and pick up the penny with his hand. The principle can also apply to animation. Following the principle we will get a beautiful movement and make body move more real.



The dance part of animation always display the emotion of character by dance with the rhythm. dance can reflect real social life with strong vitality of rhythmic art. It main includes the intensity of the dance action, the magnitude of the action, the speed of the action. displaying the rhythm of dance is the key for animator to show the charm of dance. Dance movement is always follow the rhythm and the relationship between dance movement and rhythm is inseparable. However, there are many differences between reality and animation. The rhythm of people real life may be lack of artistic. In addition, it will be difficult that put the real dance movements into the characters in animation. Animator need to understand the real dance movement and re-build it to animation. A rhythmic dance is the key of the dance animation. It plays an significant role in shaping the characters and expressing the feelings of the characters. The character in animation have different forms, everything can be character in animation such as animal, wind, sun. animators need to understand the structure of characters and combine their characteristics to make charming dance.

5. The characteristic of dance in animation

With development in animated film, the dance of characters become more and more important in animated films. Most of the animation are creative by a happy story which suit for most of audience. It is a significant part for make people laugh in animation film. There are no limit for characters in animation, such as machines, animals, moon and earth. In addition, animation film have a lot of unique animation performance style of dance, but to some extent, the dance scenes need make sure the entertainment of the film. There are lot of movies such as in the *Rio* series of movies. The dance movements of the birds are rhythmic and dramatic in the party and the monkeys can dance with the music, it makes the character be vivid and full alive. These dance movements are animator follow real dance made up which give real life for character. And it is a good way for animator to make a good landscape design and editing for animation can ensure animation combined with performance of character action and montage which shape the soul for film.

5.1 Dance animation can produce better artistic effect than stage performances and real dance.

Animation technology is decomposed the characters of the movement and shape, then restore creatively. It means that drawn a series of different moments of movement, such as the paper draw animation plan for Swing Dance. Then animator description one by one and according to the order to the picture encoding. Finally, animator calculation the time and grid-by-shot, these are process of animation technology. The animators can build image of the character better by making the dance movements of role be appropriate exaggeration, deformation and artistic. Movement is the most important part of dance

animation and the process of change is the creative part of dance animation. In addition, dance animation can achieve movements creatively that the reality of dancers can not do. Animated dance can demonstrate the deformation of body and movement in movements and can produce better artistic effect than stage performances and real dance. Dance moves has a certain artistry in the dance movies. It requires dancers need have good control of body and do some high level action, such as Jumping, spinning, churning. Dancers must follow to the natural laws of human movement and constrained by the structure and ability of the human body. But dance animation can get rid of restrictions from the structure of human body and ability. The animators can build the role of the dance animation and make dance movements be exaggerated, deformed by frame-by-frame shooting and processing technology, so animator can build better the shape of character, such as make character limbs and waist thin and long to highlight the beauty of modeling; Animator often exaggerate the magnitude of the key action and make the speed of movement slow down to highlight the beauty of action. Animator can make the character jump higher and stay in the sky longer. Even dancers can exaggerate the dance moves and make dancers get rid of gravity. Jumping to the sky to stay spinning and fall slowly. It would be a very charming dance movement.

5.2 Dance animation broadened the form and content of dance

Animating means "giving life" in the dictionary which meaning of creating life. It gives life to character, such as paintings, statues, dolls, material, symbols. Dance is a kind of movement by organized and artistic. Real dance takes dance movements as the main way of artistic expression which express the emotion, thought and personality of character. It shows the conflicts between people and others; between people and nature; between people and society. Real dance needs stage, props, background music, clothing, lighting, scenery and it is same as animation that have spatial, temporal and comprehensive dynamic character art. Dance animation make animation as a manifestation and dance as the content. It both have characteristics of animation and real dance .

Dance animation broadened the form and content of dance. The role of dance animation does not need to be a professionally dancer. It can be animated image from draw, it can also be a three-dimensional modeling. Dance animation can be a part from animation movies, it can also be animation movie which take dance as main form of performance. Dance part in movies have distinctive rhythm and strong visual impact and it can express the emotion of characters. Director always make dance part as the climax of the film. There are many film have great dance part, such as *Happy Feet .* There is a part is about penguins and walrus danced the Irish tap dance (River Dance) . It through fast switch lens, fast changes queue of character in 40 seconds which reflecting a strong visual effects. The performance of dance animation movies can use abstract images to

create a more vivid dance image and action. Erica Russell's *Triangle* (1994) followed her 1988 debut, Feet of Song. Both are part of a dance trilogy that concludes with the 2001 film, SOMA. It through a series of dance moves by a man and two women to express their rich emotion. Even the simple, over. The remembrance, disputes and reconciliation are all acted out through dance and tones and drawing styles that aptly report the different stages and temperaments of the relationships. Some art short films even use special materials and techniques to create a unique aesthetic of dance animation. For example, in 1968, Canadian animation Norman McLaren created the *Pas de deux* , a stunning meditation on form and movement considered by many to be McLaren's masterpiece, was created by photographing backlit dancers dressed in white against a black backdrop. McLaren then used an optical printer to expose individual frames up to 11 times. The dance moves in the film are mysterious and abstract and it allowing us to feel the mystery and temperature of the action in the darkness.

5.3 The character of dance animation can show amazing imagination.

In dance animation, anything is possible. we can make the elephant dance Ballet and pig dance Swing Dance. We can make the reality of non-life things dance, and even abstract visual elements, Such as *The Dot and the Line,* the wardrobe, candle dance in *Beauty and the Beast.* In the animation, we can easily show difficult moves that real dancers can't do. Animator can show animal dance that make the animals have anthropomorphic dance moves, such as 《Boundin》a cute sheep dance Tap dancing in animation.

6. Conclusion

Swing dance is not just a dance style, also witnessed the racial integration. It has important symbolic meaning in history and it is the main reason that make the dance animation about Swing Dance. We need to understand swing dance deeply which know common combination of actions, so we can creative Swing dance in animation freely. We need account the elasticity of character and overlapping action in the movements to make animation charming. Dance have many characteristics in animation such as; Dance animation can produce better artistic effect than stage performances and real dance; Dance animation broadened the form and content of dance; The character of dance animation can show amazing imagination. We need understand the function of dance in animation and put these on our animation.

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10. Credits: Models and Rig by John Doublestein, Design by Craig Scheuermann, Textures by Ying-Chih Chen. Some rigging techniques inspired by Jason Schliefer, Aaron Holly, Javier Solsona, Michael Comet and Hamish McKenzie (2008) Andy rig

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