

# Making *Coco*'s Pepita

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## ABSTRACT

Capturing the authenticity of Mexican culture was a major focus on *Coco* and was exemplified in making "Pepita". Being one of the film's most memorable characters, she was inspired by Mexican folk-art creatures known as "alebrijes". Balancing the performance needs of the character while retaining the cultural details presented several challenges. We needed to evoke the chiseled look of wooden alebrijes while maintaining the range of expressivity desired in animation. We had to keep the graphic patterns on the wings and fur from distorting by avoiding feather-with-feather intersections and

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orienting the design to work with simulated hair motion. Finally, we had to integrate these brightly-colored and fantastic creatures into believable environments.

## CCS CONCEPTS

• **Computing methodologies** → **Animation**;

## KEYWORDS

character, rigging, shading.

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## 1 RIGGING

We wanted to create a look that would evoke the original carved wood sculptures while ensuring that the stylized planes of the geometry weren't limiting the organic expressiveness of the character. To help create this fleshiness, we came up with a novel way of



**Figure 1: Compression driven wrinkles.** ©Disney/Pixar.

driving 'corrective shape' deformations of wrinkles which were driven by the compression of the geometry's edge lengths at rest. The wrinkles were no longer driven by specific controls but rather automated by the natural compression of the geometry. In addition, for non-physically-based poses, animators had controls for dampening the wrinkles in different regions.

In previous Pixar movies, our wing rigs resulted in many feather-to-feather intersections that were not perceivable because of the visual homogeneity in the shading. One of the distinctive aspects of alebrijes are their decorative and brightly colored patterns that pushed us to find new rigging solutions to prevent these intersections. For *Coco*, we authored a spline-based wing rig where the feathers non-rigidly adapted to the curvature of a membrane between the arm and tip of the wings. In addition, this rigging treatment resulted in more pleasant gestural shapes that required less manual manipulation by the animator.

## 2 ANIMATION

Pepita's carved wood look provided an interesting opportunity to animate her differently than Pixar has animated other animals in the past. Her pre-production clay sculpt captured a sense that the forms of her body were more hand-carved than purely organic and had a rough, faceted structure beneath her sleek, lioness anatomy. That design philosophy informed the development process and we worked carefully between rigging and animation to maintain and strengthen those sculptural elements, exaggerating some planes in the body to make them more prominent during movement and accentuating facial poses you would see at key moments in the film with details that evoked carved motifs.

We wanted Pepita's movement and resting poses to be informed by those same principles of stylized design. As much as we looked to fearsome lion reference in the pursuit of organic physics and believable animal behavior, we found a lot of inspiration in human-designed depictions of animals like carved gargoyles in Gothic architecture. When Pepita landed or spread her wings we tried to strike strong sculptural poses like those we saw in reference photos, and it seemed to elevated her status as a frightening mythical creature. In the afterworld, Pepita is both mythical spirit and a real, living, breathing animal. We tried to find a balance between a highly stylized aesthetic and something more organic, emphasizing

design in certain moments in the film and treating other moments as more animalistic and natural.

## 3 GROOMING AND SHADING

Traditional alebrijes often have highly graphic designs using small geometric shapes in bright, neon colors. Since Pepita is also a "real" creature, we had to find ways to blend the natural elements of animals with the folk-art designs. Her hair is groomed in a manner that supports the small, linear color details and also emphasizes the stylized sculpted planes of the underlying model. The dashed-line pattern on the fur is aligned with the groom direction so that the shapes are readable when the hair is simulated. We leveraged texture synthesis to generate an initial pattern for her fur color and then tuned the scale of the features to make it appear as if the finished groom was hand-painted. The textures on her horns and legs are non-organic but applied in a natural, organic fashion which supports the folk-art design.



**Figure 2: Pattern blurring on fur.** ©Disney/Pixar.

A key component of the fantastical look of the alebrijes is how they glow in the Land of the Dead. In illumination, glow tends to flatten the shape and obscure the details on the character. To compensate, we painted glow masks to suggest additional sculptural details. Additionally, Pepita's body was used as a light source. The shaded patterns are duplicated to a mesh light which influences the environment around her and helps connect her to the world.



**Figure 3: Pepita's glowing patterns illuminating the characters and scene.** ©Disney/Pixar.