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>
> —Kevin Martel
>   Lead Animator
>   Industrial Light & Magic

Cowboy Chameleon.

Industrial Light & Magic uses Autodesk Maya software to animate Gore Verbinski's *Rango*.

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Summary

While he was directing the blockbuster films of the *Pirates of the Caribbean* trilogy, Gore Verbinski was actually thinking about the spiritual journey of a colorful chameleon trying to stay alive in the old west. The result is *Rango*, a funny but deeply loving and respectful homage to the western movie genre, and an impressive first fully animated film for George Lucas' legendary studio, Industrial Light & Magic (ILM).

Voiced by actor Johnny Depp, the character of Rango is a pet chameleon and an aspiring actor within the confines of his terrarium. When his glass house is literally shattered on a stark stretch of highway in the New Mexico desert, the little lizard looks to be done for. A meeting with a shamanesque armadillo (Alfred Molina), however, sends Rango on a quest for the mystical spirit of the west. Along the way, Rango meets a menagerie of desert critters, most of them living in the old western town of Dirt, and all brought to exuberant life by the ILM animation team using Autodesk® Maya® software.

ILM's Kevin Martel served as lead animator on the title character of Rango, and was just one member of a team that, at the height of production, needed 65 animators to keep up with the large number of characters. According to Martel, one of the big benefits of using Maya revealed itself during the hiring of new animators.

"The power and popularity of Maya made it much easier to integrate animators into the show," says Martel. "Everybody knows Maya, so they were all able to hit the ground running. There was no need to teach anybody the basics of the software."

The Challenge

From the outset, it is clear that *Rango* is not a typical animated feature. Even as the various desert creatures are speaking with western accents and sporting 10 gallon hats and petticoats, the level of authentic detail to each makes them anything but cartoons. That approach would ultimately make for a remarkable film—and some daunting creative and technical challenges. Take Rango's eyes as an example: while most animated characters are adorned with large, ping-pong-ball-like eyes to express all manner of emotion, Rango the chameleon's eyes are largely covered with protective, but not terribly pretty, lizard skin.

"Rango's actual eyes were really tiny, so we weren't at all sure how to make them sufficiently emotive," says Martel. "He is such a sweet and colorful character that he needed to express a whole range of emotions. As we explored his character more and more, we found a solution in all the wrinkles around his eyes. Any emotion in his smaller eye echoes out through those wrinkles. There was so much intricate detail and subtlety required just for those eyes but, on *Rango*, the biggest challenges proved to be the most rewarding achievements."

"This is such a detail-rich world, and we needed software that would enable us to see and show as much of that detail as possible as we were animating. We needed to see all of those wrinkles, bumps, ridges, hairs, and scales as we went along, so we'd know what it was going to look like on the big screen. Maya was simply spectacular at letting us do all of that."

Autodesk®

Indeed, Rango's face alone would eventually require over 300 controllers for the 1100 shots he inhabits. And, of course, Rango is just one of well over 100 characters in the film, all of whom have eyes of their own.

"A lot of the other characters have extremely refractive eyes," says Martel. "There's a large outer shell to the eyeball, but the inside of the eye is much flatter, which causes the light to reflect and refract a great deal. When we rendered our scenes, we noticed that all that distortion was changing the eye direction. The refraction looked amazing, but the eye pupils were like lazy eyes. Using Maya, we built an eye refraction tool that was like a little deformer. It would distort the volume of the eye and give us a better idea of what the eye would look like once it was refracted. Thanks to Maya, we were able to fine-tune all of our eyelines and it worked out great."

In addition to the minute detail required for each character, the sheer numbers of the varmints presented still more challenges.

"There were some huge crowd scenes with 100 or more extremely detailed characters," says Martel. "We knew that was going to be a big challenge, but Maya handled it all extremely well. Using references, we could turn off certain characters at different times, and load them into the scene at low resolution, then switch to high resolution when we had to render. We were able to easily move and render lots of characters at once. Even though the character rigs were often very heavy and had a lot of detail, using Maya meant we were always able to render our scenes."

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The Results

Despite Verbinski's stated desire to make a "small" film following the *Pirates of the Caribbean* movies, his story of the little chameleon with the big heart has been a significant success, topping the box office lists and earning raves from the critics. It is also an impressive first fully animated effort from the legendary studio that has already given filmgoers so many unique offerings.

"It sounds strange, but we never treated *Rango* as an animated film," says Martel. "We really approached the film as a bona fide theatrical experience. Even though it's about a heroic lizard wearing a sheriff's badge and packing a six-gun, *Rango* is a western, not a cartoon. Gore thought of it that way, and we approached it that way as animators."

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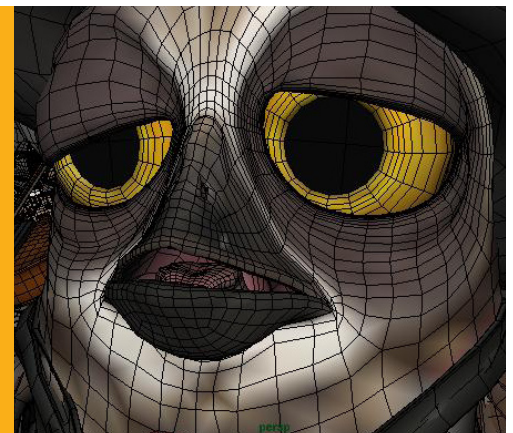>   Lead Animator
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