

Challenges of the Homeland Pan in “Spirit”

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Abstract

The opening shot in “Spirit” runs a full 3 minutes without scene cuts, and introduces the audience to the breathtaking scenery of the mythic Old West. This elaborate scene was accomplished with every possible technique by mixing traditional drawing and painting art forms with 3D environments, effects, and digital characters. This Sketch will attempt to summarize some of the key challenges in producing this scene, which took over two years to complete.

1 Introduction

The Homeland Pan scene in “Spirit” is used as a way to welcome the audience into the film and introduce them to the vast and beautiful wild landscapes inhabited by the hero character. Originally conceived as a complex multi-plane camera move utilizing mostly 2D artwork, it quickly became evident that the true depth of the features like the Grand Canyon, Monument Valley, Yosemite, or the redwood forests couldn’t be expressed as just a series of flat panning images. Ultimately, the shot was designed with an entirely 3D layout and camera move, and we inserted 2D paintings, drawn characters, and a slew of 3D digital effects and characters into the environment to complete the effect.

2 Breaking it down

The animatic of the sequence was in development for approximately 9 months while the Directors and Layout leads tweaked models, compositions, and camera paths to get things just right. At a total of 4183 frames, we knew we’d need to split it into more manageable pieces for production. We went through the shot and spotted possible transitions, where we could use natural elements of the environment for wipes or to hide transitions from one set to another (such as the archway, canyon walls, forest trees, water-fall mist, and geyser spray). In some cases, we simply had to switch in mid shot, using matching portions of two separate sets to hide the transition (horses coming over the hill). Once we had broken it down into 7 distinct pieces, it was possible to begin production in the various departments.

2.1 3D Matte Paintings

The concept of projecting traditionally painted artwork onto 3D geometry as a form of non-photorealistic rendering is not new, but this technique has never been used in such volume in one



sequence before. The entire environment for this flythrough sequence was accomplished using a mix of 3D models with projected paintings and 2D multi-plane backgrounds. Custom tools had to be developed to streamline the process so that we could paint, project, and blend together over 1800 separate pieces of painted artwork. Approximately another 700 separate pieces of flat 2D paintings were assembled together to add trees, skies, and mountains.

Maya was used for the modeling of all geometry, creating the camera move, and setting up projectors for the 2D paintings. Paintings were executed in traditional media first, scanned into the computer, and finished in Photoshop before being projected onto the geometry and rendered in RenderMan.

2.2 CG Effects

To complete the detail of the natural environments, digital effects were used throughout the sequence for rushing water, grass, light rays, dust, splashes, and the occasional geyser. Traditional drawings were used to enhance the digital effects through use of our proprietary Spryticle system.



We used the CG water systems developed for the raging river rapids sequence in the film to realize the idyllic waterfall environment. Maya particles were used for the geyser effects, hoof splashes, and to animate the opening clouds. Maya was also used extensively for the dust, and for CG grass in the forest section.

2.3 CG & Traditional Characters

In keeping with the enhancements made to digital character use in other portions of the film, the Homeland Pan used fully digital characters for the Eagle, buffalo, and all of the running horses. Traditional drawing approaches were used for the deer, bears, and salmon. Despite the heavy use of CG characters, there were still over 2500 individual drawings created to realize the 2D characters in various parts of the sequence.

3 Conclusions

The Homeland Pan is a culmination of several different art forms into a single integrated whole. It represents a landmark achievement in animated filmmaking, and is the result of thousands of hours of effort by some of the most talented people working in this industry.