

First Sun Case Study Polhemus' Handheld 3D Laser Scanner is used to Create Digital Images for Character Animation in Movies

Background

First Sun is an associated company of The Gibson Group. It is dedicated exclusively to feature film production. In 2000 it premiered writer/director Glenn Standring's *The Irrefutable Truth About Demons* at the Cannes Film Festival.

The Gibson Group is recognized as one of New Zealand's leading independent film and television production companies. It has built an international reputation based on creativity and professional excellence and specializes in the production of high-end television drama for both primetime and children's audiences. Arts magazine, comedy and information programming also contribute to an output of between eighty and a hundred hours of programming each year.

Nigel Streeter, who was the Special Effects Supervisor for *Demons*, designed and set up the Gibson



Group CGI facility three years ago. He has remained at the helm ever since, producing a steady stream of impressive visual effects. As well as creating visual effects, Nigel and his team are skilled at 2D and 3D animation, specifically the creation of 3D environments and 3D character animation. They also write their own CGI scripts, and develop software for specific graphic requirements.

The challenge for Nigel and his team when working on *Demons* was the daunting task of developing special effects on a budget that was considered very limited, based on the effects they planned to create.

The Polhemus 3D Scanning Solution

As the industry's most compact handheld laser scanner, FastSCAN™ is a fast, flexible and attractively priced system for scanning 3D objects and significantly speeds up the 3D modeling and animation processes. Instead of bringing objects to the scanner, users take FastSCAN directly to the object – anywhere in the world. Built with Polhemus' world-renowned FASTRAK® tracking technology, FastSCAN combines handheld convenience with the ability to “auto stitch” 3D models together in real-time. The scanner knows at all times exactly where it is in relationship to the object that it is being scanned. This information is transmitted to the imaging software that instantly joins the pieces into a single, exact three-dimensional replica of the object being scanned. When you're done scanning, the files can be easily exported into nearly all leading CAD, graphics, and animation applications.

Using the FastScan

To keep production of *Demons* on schedule, a quick digital solution was needed. After an intense review of digital technology options, they came upon FastSCAN. First Sun determined that FastSCAN was the only viable scanning solution, and decided to go for it.

Streeter stated, “The scanner arrived Friday evening and we began scanning within 30 minutes of unpacking the unit. We were extremely surprised with how easy the scanner was to use, and how portable it was.” The Gibson Group quickly learned why Polhemus FastSCAN has been dubbed the “magic wand”.

The Producers immediately became at ease with their decision to go digital as they saw how simple it was going to be, and how much more detail and realism they could achieve by using FastSCAN. First, Nigel and his team digitized a small scale Marquette of the whole creature, then the full-scale model of the head and



shoulders (bust).

Above is the Marquestte of the Demon and a screen print of the scan that was digitized with FastSCAN. This scan was created in just 15 minutes.

The scan of the head was used to get the detail of the creature. The scan of the small Marquette was used for the body, which was matched up to the head, scans in the digital domain. The scans were exported as obj.wire frames, and imported into Maya for manipulation, which was limited, as the scans were so clean and accurate. “The high level of textural detail that we were able to capture was beyond what we ever imagined possible. It provided us with the ability to create creatures that look very real,” said Streeter. “In the end, the FastSCAN allowed the movie to be truer to the original concept without filming the creatures in the physical world. FastSCAN also enabled the producers to view the special effects on screen in seconds. This helped to eliminate errors and made the entire creative processes more efficient.”

Summary

The Gibson Group not only recognizes a need for the scanner as they utilized it here, but they would also like to have FastSCAN on every set to scan images that can be imposed into the film during post-production. According to Streeter, “We feel that FastSCAN is a great tool and reasonably priced solution. We would like to continue to use FastSCAN to produce high-quality, innovative, special effects for future projects. Scanning as a means of creating digital images, provides us with a fantastic solution for creating lower cost effects without having to sacrifice quality.”

