

The Making of the Evil Empire, Russell Lowe

The three acts of The Evil Empire utilize different approaches to digital animation.

The animation for the scenes in the first act is created using traditional key frame techniques in 3dsMax and employs character geometry and skeletal rigs from the popular first person shooter game Half Life 2 (HL2, by Valve software). To obtain this geometry and rigging the author uses two third-party pieces of software called "GCFscape" and the "StudioCompiler" developed by Ryan Gregg and "Cannonfodder" respectively. The StudioCompiler streamlines the computer game modification workflow for HL2 by providing one interface where two and three dimensional information can be input and that calls into action several executable files (embedded in the Software Development Kit) that in turn act to "compile" the information into a format that can be understood by the HL2 rendering and physics engines. As a secondary function it can be used to decompile existing game content. Before it can be used to do this however the user needs to establish the name and location of the file to be exported. This is not as easy as it seems because almost all HL2 content is stored in hidden GCF files. GCFscape, created early in 2007, provides an interface to the GCF files and makes it possible to determine the information required by the StudioCompiler. Once decompiled the character geometry is imported into 3dsMax and, in the case of the Pope, supplemented with a mitre (the Popes bullet shaped headgear), cope (the liturgical mantle) and retextured to include Federico Solmi's face. In a previous life the Pope of 2046 was Father Grigory, a survivalist monk from the "Ravenholm" chapter of HL2. Because the character model exported from HL2 was fully rigged (that is, it has a full skeleton of bones that are linked to specific parts of the characters visible geometry) any translation and/or rotation applied to the bones are passed to each other in a process called "forward kinematics" and then automatically propagated to the thousands of vertices on the characters geometry. In traditional key frame animation the starting and ending points of a particular action, or effect, are defined by the animator and all of the frames in between are created either by human assistants or by animation software. In the case of the Pope the animation to portray his hand moving up and down consisted of key-frames for linear translation and rotation on several of the "bones" in his hand, lower and upper arm. All of these key frames need to work in unison to create what seems to be a relatively simple movement. While these and other key frames control the movement of the Pope's body a second and third set of key frames defines the movement of cameras that alternatively zoom in and out or circle the Pope for 360 degrees. It is the video rendered from these cameras that provide the reference frames for Solmi's drawings.

The second act condenses several hours of trailers, technical demos and in game footage of the strategy game "Medieval 2: Total War" (Sega) into 30 seconds that represents Solmi/Lowe's version of the crusades. Some of these frames are customized by compositing them with three dimensional geometry in 3dsMax. An important consideration in the selection of each portion of footage is whether it is able to be looped. This consideration reflects two strands of thought. The first is practical; looping affords the seamless reuse of footage giving the authors the potential to maximize the exposure of each of the hand drawn frames. The second draws on the conceptual framework of audio sampling from contemporary hip hop cultures and while establishing a visual rhythm it also connects the Evil Empire to a wider body of work that takes a critical view on issues such as copyright, licensing and quotation (even the title "Evil Empire" is a loop, referring to both the video porn company owned by John Stagliano and a commonly used comic reference to Microsoft Corporation). Looping is also an important aspect of character animation in computer games. For example, when a player makes their avatar walk forward the computer game engine plays an animated sequence of one complete step which it loops until the player changes their instruction. When looped the individual steps combine to give the impression that the character is walking. More complex sequences, say running, jumping and firing, are a real time composite of many shorter loops. A contemporary game character will often draw on a library of around 100 short animations, but with these will achieve an enormous range of articulation. The second act of the Evil Empire used a core group of 13 loops and expanded this through manual compositing. In the priest, nun and sheep fucking scenes for example the background and Pope stay consistent while the priest is drawn over to create a nun, which is in turn drawn over to create the sheep. In this way each frame is a palimpsest with three loops coming from the one set of drawings. This reflects the total effect of the composite of short animated loops in a computer game character where that effect is a synthesis of many smaller actions occurring simultaneously.

The final act is called "Hell". Hell was filmed entirely within a modification of "GarrysMod". GarrysMod is itself a modification of the HL2 "first person shooter" computer game. A Modification, or "mod", is essentially the customization of an off the shelf computer game. Mod's can be as simple as altering the colour or texture of an object in the game right through to altering the underlying mechanism of the game itself. For the Evil Empire modifications include animated textures (every surface within our version of hell is "skinned" with multiple hand drawings that have been traced over

decompiled and modified game textures), world geometry (the walls, floors, ceilings and stairs of Hell itself), weapon modding (the Popes baseball bat) and character modding (the popes penis and mitre). Following Solmi and Lowe's use of the Unreal engine in "Rocco Never Dies" the HL2 engine affords much greater ability to mod the game environment from within the real time environment itself. The "stage set" for "Hell" is a hybrid of elements created in the world builder "Hammer" and elements brought together, during the filming itself, using the extended physics capabilities GarrysMod provides. Some of those elements include the characters themselves which include the Pope and three types of Zombies. These characters are either Non Player Characters (NPC's) which are controlled by the sophisticated Artificial Intelligence within the HL2 engine, or actual Players which are controlled by real people within a networked environment. For the "filming" of Hell two computers were networked with one becoming the game server and the other being used for video capture (we used the free version of Fraps to capture the in game footage). While Lowe operated the filming computer actor Mirelle Quin controlled the Pope character or one of the Zombies. Almost all of the scenes were shot several times. This not only achieved multiple perspectives but allowed us to experiment with different ways of developing the narrative. For example, the scene where the Zombie shoots the Pope, essentially ending his rampage through hell, was a critical part of this act and we developed three different treatments for it before the final one was determined. In just over an hour approximately 13 gigs (or 15 minutes) of footage was recorded which was subsequently edited into the 45 seconds included in the Evil Empire. During the editing process additional layers of hand drawn footage were superimposed. These layers included blood splatters and the flashing signs at the top center of the screen.

As you can see from the above the final video incorporates hand drawn textures applied to digital models that are compiled within a contemporary computer game that in turn provides footage that is overlaid with hand drawings and inserted within a video clip that itself began with computer models that provided reference frames for hand drawings which were scanned and edited digitally. This results in an animation with dynamic perspectives and complex camera angles that would be all but impossible to create using solely hand drawn techniques; while having a visual quality that is absolutely unique.

By simultaneously developing and mixing three approaches to digital animation (key frame, collage/composite, and machinima) "The Evil Empire" seeks to engage notions of time across the spectrum of the finished work as well as the processes throughout its creation. By extension it also questions the prioritization of speed as digital media's major contribution to creativity.

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