

## Chapter 1

# Getting to Know Machinima

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### *In This Chapter*

- ▶ Understanding why you should care about Machinima
  - ▶ Filming Machinima
  - ▶ Choosing projects that are appropriate for Machinima
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**Y**ou may be a Machinima enthusiast already. If so, you can probably skip this chapter — you already know why Machinima is great, you already know at least roughly how it's made, and you've probably heard Hugh's funny story about how the name came to be.

But if you're just flicking through this book in the bookstore, or you've had it recommended to you, you're probably thinking, Machiniwhat? It's that thing where kids make movies with video games, isn't it? Why would you need an entire book on that?

## *The Future Is Here: Machinima Arrives*

It's getting hard to find anything that isn't easy to do. Publishing went first, arguably, with the word processor and printer turning any guy with a \$400 PC into a publishing house. Hugh remembers “publishing” his first role-playing game at age 12 using a ZX Spectrum.

Next, it was music. Professional recording quality came down in price, until suddenly it was possible to record and mix pro-quality audio in your bedroom. Johnnie has committed some music in his time, but prefers it stricken from the record.

And latest, it's been film. Cheap, digital video cameras and even cheaper hard drives mean that shooting and editing capabilities that would have had Lucasfilm drooling 25 years ago are available on the desktop. And with the rise of video-sharing sites like YouTube, you can even end-run the distribution chains and become a superstar from your own backyard.

Hollywood still holds the high ground, though. Unlike writing or music, many films require more than recording equipment. They need stunts. Effects. Locations. A cast of hundreds. A thousand elephants. And only Hollywood films can shell out the money for that. Hence, if you want to make *Clerks* on your own, you can do that, but to make *The Matrix*, you need Hollywood.

Enter Machinima.

## Shooting in a Virtual World

*Machinima* is the technique of making films inside virtual realities (see Figure 1-1). At its heart, lungs, liver, gall bladder, or other major organ, Machinima is a very simple concept. It's the moment when anyone — and this has happened over and over again — looks at a modern 3D computer game and says, "We could make a film in that!"



Machinima isn't a technology. There's no piece of software called Machinima. It's a technique — the technique of taking a viewpoint on a virtual world, and recording that, editing it, and showing it to other people as a film.

Using Machinima, you can create virtually any locations and any characters you can imagine, all within the same technology that powers 3D computer games. And inside those locations, you can do whatever you want.

**Figure 1-1:**  
As Strange  
Company's  
*BloodSpell*  
shows,  
you can do  
things with  
Machinima  
that would  
cost millions  
in other  
media.



Need a firefight? Games engines are good at them. How about a sweeping vista? Not a problem. How about a gigantic battleship swooping from the skies, firing plasma charges from its cannon, crewed by the ghosts of those who died to its guns, whilst below a thousand Vikings battle their way up a mountain pass? No worries, pal. Would you like fries with that?

Of course, you can already do all these things in conventional 3D animation packages. But normal 3D has two problems: It's expensive (\$900 minimum for a good 3D package, and much more for most industry-standard tools), and more problematic yet, it's slow. To create a five-minute animated film takes a single animator a year or more. *The Matrix* is well out of sight.

Machinima, by contrast, is fast. It takes about as long to shoot a film in Machinima as it does on Digital Video. And that means you can shoot a short film without giving up your life to it. In fact, it's quite possible for a bunch of dedicated people to produce an epic, *Star Wars*-scale feature film using its technology.

We know because we did it. Hugh and Johnnie originally began working together on the virtual set of *BloodSpell*, Hugh's first feature film (see Figure 1-2). Using Machinima, and with a core crew of five part-time volunteers (plus Hugh), they completed shooting a script that would have cost well over \$10 million in conventional filmmaking for a total cost of approximately \$5,000, in under three years.



**Figure 1-2:**  
*BloodSpell*,  
by Strange  
Company.

And that was using 2004 technology. Machinima has gotten a lot better since then, which means a feature film should take a lot less time.

Perhaps two years? One year? Go try it and find out.

We did it. We're going to spend the rest of the book showing you how you can do it, too.

## *Machiniwhatnow?*

Where on earth did that term Machinima come from? To answer that, we'll have to cut back a few years. Boodliboop . . . Boodliboop . . . Boodliboop . . . It's 1999. The dot-com boom is in full flow. And on a small mailing list called *q2demos*, a small group of people dream of global domination for their new filmic medium, which uses computer game technology to make films, and was born about three years before. Only one thing's standing in the way of their triumph: the fact that said artform is currently known as *Quake Movies*.

Machinima grew out of hacks made to the game Quake, which allowed players to edit recordings of their gameplay into real movies. And while most of these movies were the equivalent of hip-hop songs explaining how tough and macho the game player was and how he would slap you down and steal your woman, or, you know, shoot you with an imaginary rocket and then laugh into his Jolt Cola, some filmmakers were using these Quake Movie hacks to make real films.

Among the early advocates of whatever-the-heck-we-were-going-to-call-it was Anthony Bailey, a frighteningly smart mathematics postgrad and the director of arguably the first Machinima hit, *Quake done Quick*. Anthony had been doing some thinking, and he'd come up with an idea. Combining the concepts of *Machine* and *Cinema*, he — very diffidently — proposed to the list that perhaps, maybe, they could call this new artform *Machinema*.

Also on this list was one Hugh Hancock — probably less smart, definitely less diffident (and one of the authors on this book). Hugh thought this new term was a great idea and started using it everywhere — in e-mails, in Web postings, in the name of his new super-site.

Some time later, Anthony contacted him and said he was very pleased with the fact that Hugh had adopted the name and popularized it, and that he really liked the change Hugh had made, in changing the *e* to an *i*, because now it didn't just contain *Machine* and *Cinema*, it also contained *Anima*, life,

which Anthony really thought, was the missing element in his original naming concept.

Hugh, meanwhile, hadn't realized he had made a change. He'd just not read Anthony's original message very carefully. He hadn't changed *Machinema* to *Machinima*, so much as misspelled it. And so he did what any decent person would have done — he took a deep breath and said, “Yes. I thought it was an important change, too. Glad you liked it.”

And that, ladies, gentlemen, and things of all ages, is how the word *Machinima* was born.

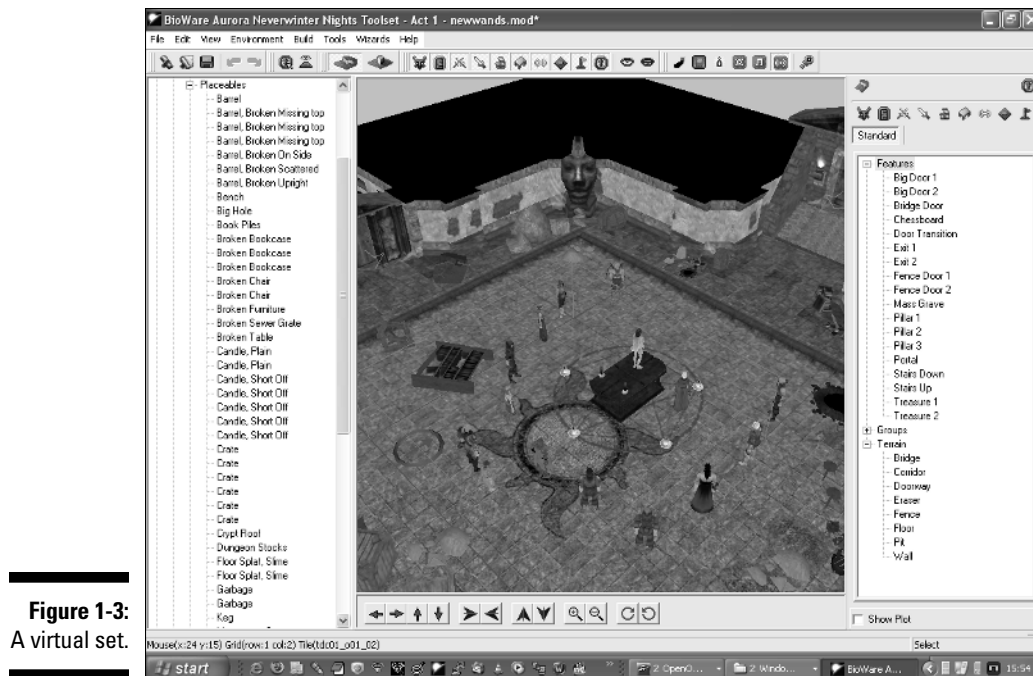
## *Using Machinima to Make Films*

When film was young, new, and shiny, around the 1900s, its creators thought of it just as a way of recording moving images — as we do today. But the pioneers of filmmaking soon realized that, in fact, what their artform involved was the creation of a new eye — a viewpoint on the world.

It was possible to cause this eye to skip from object to object, to view, and to frame scenes, in ways that a real eye couldn't. A real eye could never cut, or fade, or dissolve. By manipulating, directing, cutting, and altering what that eye saw — and only what that eye saw — they could create a completely new work of art.

Fast-forward almost exactly 100 years. Now, Machinima creators have another artificial eye — the viewpoint that a computer or games console generates onto the virtual world of a computer game. Just like the camera, that viewpoint is all that we ever see of the world. Just like a camera, it can be manipulated — made wider or narrower, fooled or faked by perspective. And just like a camera, with some simple software, it can be recorded and then its “experiences” cut apart and put back together to create what we've come to call a *film* — in this case, a Machinima film.

But this computer game world doesn't physically exist (see Figure 1-3). We can't walk into it. We created it virtually, and that means we can do anything we like inside it, without the limitations of our normal, physical universe. We can create puppets that look like people, and we can control their movements and reactions, through computer game code or with a mouse and keyboard. We can fire off explosions, destroy walls, summon helicopters, and create enormous planet-sized spacecraft.



**Figure 1-3:**  
A virtual set.

Machinima is, in essence, the simple realization that whenever we look at a computer game or virtual world, what we're seeing is a set, and that we're looking at it through a camera.

To put it another way, Machinima is making films with computer games. Choose the game you like, film what you want to happen, and turn it into a film. It's fast, cheap, fun, and cool.

## *What Machinima does well*

So, why would you want to make a movie using Machinima instead of using a video camera and real, live, human actors?

- ✓ **It's cheap.** First and foremost, Machinima is cheap. In fact, it's stupidly cheap. To make Machinima, you need a computer and a computer game. Personal computers are so prevalent that you'll have one already, or at least access to one, so your only real expenditure is the cost of your game of choice. If it's your favorite game, you may already own it as well, so your total costs are a very bank-balance friendly zero. We discuss the current choices for Machinima games in Chapter 5.

Of course, you can spend more money if you want, purchasing separate video-capture solutions, expensive video-editing packages, and the

like. All these things can be useful, but you can make your movie without them.

- ✓ **It's not limited by scale.** We can (and do) use Machinima to make movies that would require, a multimillion-dollar Hollywood budget if we were using any other technology. Huge, dramatic vistas, epic battles, and breathtaking stunts: Machinima can tackle all of these features without breaking a sweat.
- ✓ **It's great for learning.** Machinima is a great learning tool for a potential filmmaker. If you film something that you don't like, you've wasted nothing more than your time. There's no financial cost and no deadline other than whatever you impose upon yourself. That means that you're free to try different techniques and approaches and learn from your mistakes.
- ✓ **It handles action sequences well.** The nature of video games is such that they tend to lend themselves toward exciting gun battles, or vehicle racing, or huge magical duels between rival wizards. You can harness those features for your Machinima: If that's the sort of story you want to tell, then Machinima is the perfect tool for you.
- ✓ **It's quick and dirty.** Machinima is fast. You'll still get frustrated by tedious, fiddly things that you have to correct, but in comparison to other filmmaking techniques, Machinima is darn speedy. It's faster than 3D-rendered animation (the sort of thing that was used to make *Toy Story* and *Shrek*). It's far, far faster than traditional hand-drawn animation. Most impressively of all, it's still fast if you're the sole member of your production team. One person with one computer can produce a movie faster than entire teams of conventional animators.

## *What Machinima does less well*

Nothing! We're awesome! Honest. Okay, we'll fess up:

- ✓ **It's not great on people.** Honestly, there's one big disadvantage of using Machinima over using live film: Computer-generated characters are never going to be as convincing in the role of a person as, well, a person.

We've borrowed ideas from Hanna-Barbera, Japanese limited-animation anime, stop-motion video, '80s cartoons, and pioneers of filmmaking. We use camera technique, high-quality animation, advanced puppeteering technology, the latest advances in game characters, brilliant voice actors, and psychological techniques. There are a lot of tricks you can use to get around Machinima's limitations.

But, if you're making Machinima, your visual actors aren't going to be able to carry a shot in the same way that a great human actor can. Working around that drawback is one of the hallmarks of a great Machinima director.

Or, as at least one well-known Machinima director has done, you can just tell stories about robots.

- ✓ **Small isn't beautiful.** Actually, Machinima's great at doing small. If you want to make the next *Bug's Life*, consider making it in Machinima. When we say "small" here, we mean in budgetary terms. If you want to make the next *Dogville* or *Clerks*, Machinima is the wrong choice for you.

If all you want to do is to shoot a film of two guys talking, it will be faster to shoot the film in real life than to use Machinima, and it will look better. There's no point using Machinima when you don't need its unique advantages (see preceding section). If you've already got access to the location you want to use, you've got the actors you want to play the characters, and there's nothing that you can't easily do in real life in your script, then we heartily recommend pulling up the Real Life engine. The resolution on that thing is amazing.

- ✓ **You're no oil painting.** If you want to compete with Pixar head-to-head, Machinima won't let you do it. Sorry.

Machinima leverages technology that's like nothing the world's ever seen, and it produces amazing visual results. At their best, Machinima visuals are in many ways equivalent to the best Hollywood 3D studios could produce seven or eight years ago.

Note the "seven or eight" bit there. Machinima uses games technology, which tends to look about as good as conventional computer graphics did about five years beforehand. And it takes a year or so before any game is sufficiently well-supported and understood for really good Machinima to be produced in it. Hence, if you're creating Machinima, you're not going to be producing cutting-edge visuals.

But, honestly, seven or eight years ago, computer graphics looked pretty good. And in three years' time, seven years back from then will look even better. So you can produce some slick-looking stuff using Machinima, as films like *Still Seeing Breen* and *The Return* demonstrate. But no matter how you cut it, Machinima isn't likely to have Pixar quaking in its boots.

- ✓ **Some things aren't cheaper.** Lots and lots of things are cheaper to do in Machinima. But some things aren't. For example, if you want to create entirely new, custom characters, it'll be as hard and as expensive as if you were working on a conventional 3D production. If you want to produce detailed animations of things that aren't in the game, that'll have to be done in conventional animation software, too. Some things are just hard, no matter how you do them.

- ✓ **You don't have total control.** Hugh sometimes complains that he feels like he spends half his life saying, "Machinima isn't animation! It's puppetry!"

3D animation offers its users total control over everything they see on the screen. Want that head turn a quarter of a second earlier? No problem. Machinima, on the other hand, doesn't offer anything like that





degree of control. You're not animating every facet of the characters' movement, you're using puppetry to control as much as you can, quickly and live. Some stuff will go wrong. Some stuff won't be possible. And some stuff will come out differently than how you expected and will look even better.

Machinima filmmaking demands a certain amount of flexibility and forgiveness in its shooting, as well as the ability to be patient about the point you're saying, "Okay, take 17, guys. Let's try and get it right this time."

On *BloodSpell*, individual shots would regularly have to be taken more than ten times to get the result Hugh was looking for. However, even counting that, we managed to shoot more than a minute of highly complex footage a day, with a crew of two or three people — a speed of production that George Lucas would envy.

- ✓ **You may not be able to make money.** Most *game-licensing agreements* — you know, the things that you click through when you install the game, the ones that contain clauses like "If your computer explodes as a result of this game, it's not Publisher's fault" — prohibit using that game for commercial purposes. That means, practically, that you can't make Machinima and sell it if you're using that game. That's a downer. Having said that, an increasing number of Machinima environments, such as Second Life, IClone, and Moviestorm, do allow you to make money from your creations. So, if you're interested in doing this as a living, just make sure to use one of them.

## Making a Machinima Film

You can make Machinima in dozens of game engines in a whole bunch of different ways. There are tips, tricks, shortcuts, round-about routes, break-throughs, and holy wars over how it's best to make a Machinima movie.



The basic process for making a Machinima film is much the same regardless of the film.

No matter what movie you're making, you'll go through the following steps:

### 1. Write the story.

Stop. Seriously, now, stop. Before you go any further, before you press *W* to move your character forward, before you set up your first shot, you really, really need to know what you actually want to film.

It's amazing how often Machinima creators miss this first step, but it's crucial. For more on storytelling and scriptwriting, see Chapter 4.

For a short film, you'll spend maybe a week writing the script. That week will be the most important factor in whether your movie ends up being good or bad.



Consider what your chosen game engine can do. If you're filming in *Battlefield 2*, a fantasy epic will probably be a little tricky to achieve. If you're in *The Sims 2*, it may not be the time to bust out the script for *Star Wars 7 — Return of Return of the Jedi*.

## 2. Create your cast.

Before you do anything else, you'll need your actors. In Machinima, these guys are your puppets. You'll move them around in your virtual world with mouse and keyboard, or with programmed scripts, just as if you were moving them around dangling from strings in a Punch and Judy show.



Some game engines will have a fixed selection of characters, and if you want to create more, you'll need to jump into a 3D modeling package, or at least a image editor. In other game engines, you'll be able to edit and alter characters inside the game itself, lowering their brows and tweaking their noses to your heart's desire. (See Chapter 7 for more information on casting.)

## 3. Create your sets.

Next, you create the locations in which your film takes place. Much like a set designer in the real world, you'll be putting your locations together from simple building blocks; instead of plywood and nails, you'll have polygons, and instead of paint and wallpaper, you'll be using Photoshop or the GIMP.

Some game engines require that you make your locations up from very simple primitives — cubes, pyramids and so on, textured and placed to form the world — while others allow you to place down pre-created “tiles” and decorate them from libraries of existing props. (See Chapter 6 for more on set design.)

## 4. Record your actors.

Yes, actual actors. Because Machinima is often quite limited in terms of how much you can express with your characters, a lot of the work of a Machinima film is done by the voice actors. Whether drama or comedy, a group of good actors are vital to a strong Machinima film.

It's fairly simple to record quality dialogue these days — a \$40 microphone, a PC, and a duvet do the job quite well. And a lot of very talented actors in stage schools, amateur dramatics, and student theatre are desperate for the chance to practice their craft. For Strange Company, recording voice actors is one of the most fun and rewarding parts of the entire Machinima production process.

### 5. Set your game up for filming.

Machinima creators record the visuals of their chosen game in many different ways. It's possible, for example, to take the output of your computer's TV connector — the one you usually use to watch your oh-so-entirely-legal downloaded Buffy episodes on your big screen — and hook that up to a camcorder or a video recorder.

You can also download a piece of software, such as the well-known FRAPS ([www.fraps.com](http://www.fraps.com)), that will record whatever's on your screen to a video file on your PC. Or you can buy a *frame grabber* — a moderately expensive piece of hardware that allows you to record from your video card's high-quality computer video output.

Finally, some games and programs, such as The Sims 2 or Moviestorm, have in-built video recorders. These recorders are the simplest and high-quality way of all to record your Machinima video.

You' also need to make sure that you've got a good "camera" to record from in the game. For *BloodSpell*, for example, we had to write a script to make our RPG character invisible, allowing us to film shots without a big pink dwarf in the way!

### 6. Record!

Here, you work just like a conventional film director. First, you set up your shot, you give instructions to your actors, and then you shout "Action!" and let the cameras roll. (It looks a bit funny shouting "Action" if you're the only guy working on the film, but Hugh likes to do it anyway.)

Depending on your chosen game and how you've decided to work, you'll either be giving instructions to your actors via *scripts* — simple computer programs that anyone can write, or graphical programs that do the same job — or you'll actually be talking to other people and telling them how to control your characters. These approaches have different advantages and disadvantages. It's quicker to explain what you want to a human, but they get it wrong more often, too!

You record the results to either a tape or a PC, and then you have your raw footage.

### 7. Edit.

Machinima films are mostly edited just like real films. Some games offer in-game editing, where you can take your recorded footage and modify it inside the game engine itself, but most of the time you'll be editing your work in an external package, such as Adobe Premiere, Avid Free DV, iMovie, or Sony Vegas. See Chapter 9 for more on editing your movie.

With the growth in powerful home-video editing software, there's a lot you can do during the editing process. You can add titles, special effects,

and a huge variety of transitions between shots. You can composite shots on top of each other, or modify how they look through paint-like techniques. You can even take static shots and animate them in your video editor for shots that you just couldn't create any other way!

#### 8. Release.

Personally, we think that you've only really made a film when you've released it to an audience and heard their reactions. Fortunately, with the boom in Internet video fostered by YouTube and similar sites (see Chapter 10), that's easier than ever.

You can either upload your finished movie to a movie-hosting site like YouTube, or you can host it yourself. Either way, there are dozens of forums and Web sites out there whose viewers will be eager to watch and comment on your film — perhaps you'll become famous, or perhaps you'll just learn more about being a filmmaker so that you can make an even better film next time!

## Controlling the Action: Live Versus Scripted

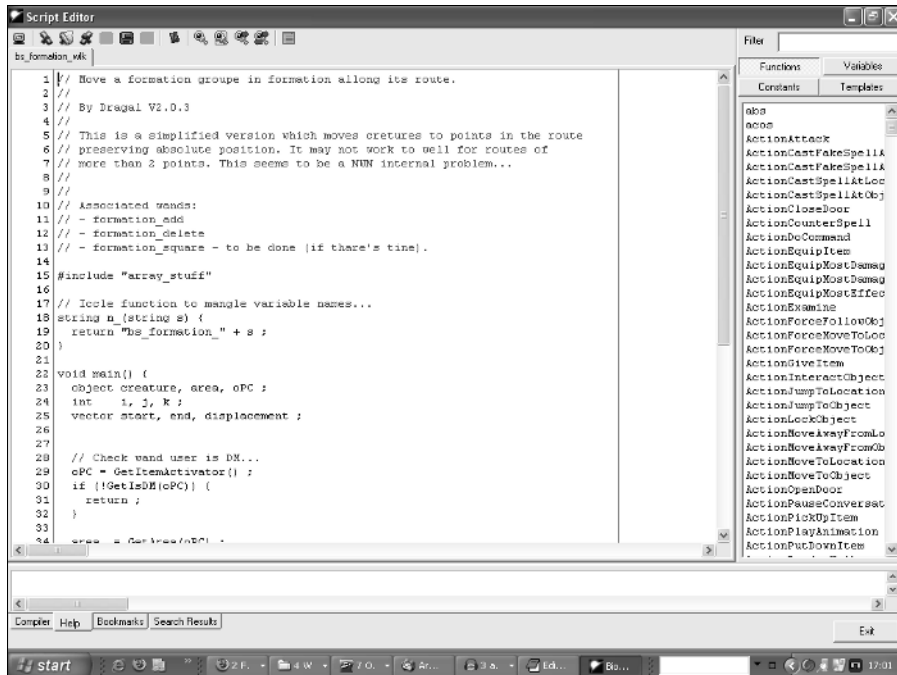
When making a Machinima movie, you can control the action you're filming in two ways: scripted or live. Each has its advocates and detractors. Which method you use is essentially up to you, but your choice will probably be dictated (at least in part) by the game engine in which you choose to make your movie.

✓ **Scripted sequences:** Scripting allows you to preprogram the sequence you want to film. When we use the word *scripting* here, we don't mean writing the lines and dialog of your film, but rather writing a series of computer code instructions (a *script*) that tells your actors, cameras, and other peripherals what to do (see Figure 1-4).

Although writing line upon line of computer code may seem pretty intimidating, many games provide an editor program or some other similar interface. By using the editor, the amount of actual code that you need to write is reduced dramatically. Often, an editor will eliminate the need for manual scripting altogether.

When you come to shoot the footage, you simply trigger the script, sit back, and record the on-screen action. If you run the script a second time, the resultant action will be (or at least should be) exactly the same.

**Figure 1-4:**  
An exam-  
ple of a  
Machinima  
script.



Using a script gives you a great deal of control over the on-screen action. You can experiment and refine your pre-scripted sequence until it's exactly the way you want it. Preparing the script in the first place is often a lot of work and requires a good knowledge of the editor or scripting language that the game uses. Some of the more powerful game engines have a horrendously complicated scripting back-end, which require a considerable investment of time to learn even the basics.



While, in theory, scripting gives identical results every time, the combination of game physics and artificial intelligence means that sometimes things can go a little wrong. Don't expect animation-level accuracy; game events may interfere with the AI characters' attempts to play the script. If this happens, it's usually simple enough to restart the sequence, but sometimes this sort of behavior can cause problems.

Engines that offer scripting include Half-Life 2, Unreal Tournament 2007, Neverwinter Nights, and Second Life. Depending on how you look at it, The Sims 2 and Moviestorm arguably work in a similar way, but their scripts are generated live in the game, which we think makes them more like . . .



✓ **Live recording or virtual puppeteering:** The other way of filming is to control the on-screen action live, in real time. When you're playing the game you're using to film with, for example, you might use the mouse to change your in-game character's viewpoint. When you're using the game to make Machinima, you'd use the same mouse movement to pan your virtual camera about your set. The footage that you record will feature a camera pan at the same speed that you chose to move.

Likewise, you issue commands to your virtual actors by moving them around in the game and record the results as they happen. That's why we call this method *virtual puppeteering* — you're controlling the actors as you film, just like you would if you were making a puppet show.

If you use this technique to record a sequence that you don't like, you've no option but to go back and do it all again. The results won't be exactly the same the second time around, which can be a good or a bad thing. Using this technique on anything but the simplest shots requires practice, particularly if you're on your own.

Most movies made in this way are made by a team of people, all of whom control characters within the same multiplayer game. Controlling and instigating action live gives your movie more of an organic feel and can often inject life into your characters, but you sacrifice a degree of control over the precise on-screen action.

Engines that allow live filming include World of Warcraft, Unreal Tournament 2007, Battlefield 2, and Halo 2.

There's actually a third option for Machinima production. The third option is downright devious, but can produce some great results if used properly.

Many games provide a *model viewer* tool that allows you to examine each of the game's character models without loading the game itself. Often, you can also trigger any of the model's animations from within the model viewer program. If you capture this footage, you can then mix it onto a background at a later date. It's like a virtual green-screen studio!



If the game you're using doesn't come with a model viewer, it's quite possible that an enterprising fan of the game has written one. Search online. You may be surprised at what you can find.

You can use this same technique to generate a background, using a map viewer program. A *map viewer program* lets you view any of the game's maps (the sets, from our point of view) and move around it. Composite footage from a model view and a map viewer, and you've got yourself a film. Engines with map and model viewers include World of Warcraft and Half-Life 2.

In practice, you might not use any one of these techniques exclusively. Many Machinima creators adopt a combination of these techniques, scripting the more complicated aspects of their movie, instigating the rest of the action live, and faking anything they have to.



*BloodSpell* was shot in this manner. Although we filmed the entire movie live in the game, many of the more complicated sequences were (at least partially) pre-scripted. As well as that, we wrote scripts to control much of the game's behavior, as well as scripts to control the camera and to return a character to a specific location.

Wondering which to use? Use live filming if

- ✓ You like working quickly and spontaneously.
- ✓ You've got friends who want to help.
- ✓ You're working in a Massively Multiplayer game.
- ✓ You're shooting shorter shots without complex camerawork.
- ✓ Your engine doesn't support scripting!
- ✓ You've got film experience or want to work in a way similar to conventional filmmaking.
- ✓ You want split-second control.

Use scripting if

- ✓ You're working alone.
- ✓ You're a computer programmer or enjoy programming.
- ✓ You're shooting very complex shots, particularly ones with complex camerawork.
- ✓ You want as much control as possible over your Machinima.
- ✓ You're working in an engine where multiplayer control is impractical, or where you can't easily pause the game action.
- ✓ You want to control some aspects of a live filmed shoot, such as camerawork or background characters.



Remember, you don't have to stick to just using scripting or just using live filming. Many engines, like *Neverwinter Nights*, *Unreal Tournament 2007*, and *Half-Life 2*, support both. We list which engines can use which method of filming in Chapter 5.

