

Machinima Production

Major Qualifying Project Report

Major Qualifying Project Report completed in partial fulfillment
of the Bachelor degree at Worcester Polytechnic Institute, Worcester, MA

Submitted to:

Professor Joseph Farbrook (advisor)

Stefan Giusti

sgiusti3@wpi.edu

Charles Murphy

cmurphy@wpi.edu

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Abstract:

There are many advantages to creating a film using video games as the medium. Producing a film in this way is quick, cheap, and depending on the video game engine used can be a very visually appealing work. The greatest challenges of this method of film production lie in getting the medium to behave the way the film's script demands and most importantly creating an immersive production that does not seem like simple game footage with voices dubbed over it. The process consists of filming the action in the game, editing footage together and adding audio such as voice-over or sound effects as needed. For professional work the producers may wish to create custom game art/assets to enhance the visuals or get exactly the assets required for the script. Creating a film using a video game is called Machinima and the process of creating such a film is detailed in this document.

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Authorship:

This report was co-authored and edited by each contributing author.

The team assumes all responsibility for the authorship and editing of this report.

Charles Murphy

Stefan Giusti

Table of Contents:

2	-	Abstract
3	-	Acknowledgements
4	-	Authorship
6	-	Executive Summary
7	-	Chapter 1: Compiling the Script
9	-	Chapter 2: The Live Performance
11	-	Chapter 3: Adapting the Live Performance to Film
14	-	Chapter 4: Conclusions and Recommendations
16	-	Reference

Executive Summary:

The purpose of this MQP is to create a Machinima, an animated film or short produced by using a game engine instead of more traditional animation frame-based methods. This particular Machinima was based on the production of a live performance in Second Life®, a virtual world developed and provided by Linden Lab®.

Deliverables:

This MQP has produced the following materials:

- **Captain Conway's Mission**, the half-hour Machinima itself.
- **Production Report**, this document.

Conclusions:

This MQP has been a year-long endeavor to produce a quality film as a culmination of our studies within the IMGD program, and demonstrates our skills in that field. Even though the project was not completed within the original three-term schedule, the goals of the project were still met. This document is provided as a reference to others who may feel they wish to undertake a similar project in the future, either for academic purposes or their own.

Chapter 1: Compiling the Script

One cannot have a film without a script, so the first thing that needs to be done is to select or produce a script that will become part of the foundation for the entire Machinima. Several options are available to one who is working on this sort of project: using an already-written script, writing ones own, or a hybridization of the two, essentially augmenting another author's script with ones own material.

Deciding to use the work of another author can save a lot of time with the right script, however, many scripts will require permission from the author to use his or her work. This can be difficult depending on the specifics of your Machinima, for example whether it is for commercial purposes or for non-profit. There are an abundance of scripts available through the public domain that can be used for Machinima as well, but regardless of the source of your script, it is polite to contact the author and inform them of intent to use their work – they may even be able to help, if asked.

Writing ones own script allows one to tailor it to specific needs, but in most circumstances will be more time consuming and require more effort to ensure quality unless those writing the script have experience with that particular style. However, opting to combine ones own material with one or more pre-existing scripts not only allows for a great deal of flexibility when it comes to adapting the script to the chosen environment, but it also can help provide inspiration for ones own additions to the script, which in turn allows more time during pre-production focusing on other parts of the project, including asset creation and rehearsals.

For our Machinima, we elected for the last option, and wrote additional material to supplement several short plays by a single author. This allowed us to use a script that could be

easily accommodated by our chosen working environment, and provided us with what we felt was a fun and engaging plotline.

No matter how the script for a Machinima is produced, care needs to be taken that the script works with the selected working environment; if the characters need to be able to perform some sort of task that isn't supported by the environment either through built-in mechanics or third-party modifications, one may need to modify the script or find another. If one is very certain about using a particular script, finding another game engine may be the only viable solution.

Chapter 2: The Live Performance

Before producing the final Machinima, we had to produce a live performance of our script. Due to the nature of the script, as well as the requirements of both the “Creating a Virtual Performance” WPI IQP team and ours, Second Life was selected as our working virtual environment.

Once the script and virtual environment had been selected, the next task was to determine what assets were needed, as well as which of those would be created and which would be acquired from other sources. When creating assets, it helps to have some familiarity with the tools that are available for creating these assets. In our case, the decision to use Second Life meant that any physical assets (props, sets, some parts of costumes) could be created within the Second Life client (“viewer”) itself, without the need for external software. Textures and other media however, did require software that included Adobe Photoshop and Premiere (<http://www.adobe.com/>), CrazyTalk (<http://www.reallusion.com/crazytalk/>) and Audacity (<http://audacity.sourceforge.net/>). Due to time constraints, we elected to purchase a number of assets (some props, and a number of costumes and textures) through Second Life marketplaces such as XStreet (<http://www.xstreetsl.com>).

Once we had all of our assets, the next step was to prepare for the performance; pick who would be acting as which character(s), and who would be handling stagehand matters (sound and visual effects, set changes, etc.). Depending on how ones script plays out, it may work out to have everyone share the stagehand work by having anyone who isn’t acting in the current scene handle those tasks until they are needed to act again. In our case, one person handled most of the stagehand jobs because they had very few acting roles, and could focus fully on those jobs.

After that, the only thing left to do was rehearse for the performance. We started by focusing on getting individual scenes ready, then moved on to stringing the entire production together. As we neared the date(s) of our performance, we began running through the entire production several times a week. We had someone who wasn't acting (someone with a second account) record the rehearsals from where the audience would be viewing from. These recordings were used to help spot a number of things that needed to be changed that might not have been noticeable from the perspective of the actors. Treating the rehearsals as if they were live performances helps get the actors into a routine, and with frequent enough rehearsals, by the time the actual performance dates come around, the performances feel no different from the rehearsals; the whole thing comes as second nature.

Chapter 3: Adapting the Live Performance to Film

Just as there is an astronomical amount of difference between a live performance, and an online live performance, there is also a great deal of difference between the live online performance and creating a Machinima. It is not enough to simply record the live performance. There is a lot that can be improved and taken advantage of in order to make the Machinima even better.

There are several important things needed to create a Machinima. First and foremost, a video game or game engine is needed, in our case we converted a live performance in a video game into a Machinima, so the medium (Second Life www.secondlife.com) was already chosen for us (See “Creating a Virtual Performance” WPI IQP for further tips on choosing a video game). Next, recording software is needed. For our Machinima we used Fraps (www.fraps.com). This software can be downloaded for free however the free version places their website address on the top of any video files that one records and is limited to thirty second shots. Our team switched to the full paid version of Fraps halfway through the production so we compensated by cropping the logo off the footage in post-production editing. This brings us to the editing software; for our Machinima we used Adobe Premiere Elements 8.0.

The first and most important difference between a live performance and Machinima is that during filming there is no audience, the camera can go places a live audience cannot. That said, it is imperative that when filming a Machinima, the camera should be able to take advantage of all manner of dynamic angles and shots. It is important to change the perspective of the camera often. In the making of our Machinima, most shots never lasted more than thirty seconds, and if they did, they often had to be cut short in post-production. We took advantage of

many techniques that would be otherwise impossibly difficult in a real world performance or live online performance. We had several shots of miniature scenes to help put the Machinima in perspective. For example, during a scene that takes place in the spaceship, there were numerous times when we cut away from the actors on set to show footage of a miniature spaceship to represent an outside view of the ship. This was especially useful to convey scenes such as when the spaceship was struck by a wave of energy. It would have been otherwise confusing or boring to simply watch the actors stumble and say aloud that they were hit by something. The video game medium that we used allowed us to create moving objects with which to sit the camera on. Using this method, we were able to make the camera pan around a subject as they spoke or view a miniature from all angles. Moving camera shots add a lot to the immersion of the Machinima as a whole, but beware of using the mouse to control how the camera looks around as a human hand is not nearly as precise as a camera rig and may falsely convey to the viewer that the camera is now watching from a character's perspective. Naturally if this is something you wish to take advantage of, it is another advantage Machinima has over a live performance; one cannot stuff a theater's worth of audience members into the eyes of an actor. When trying to find new camera angles to use, it is important to think of the many things that can be done uniquely in the game engine of choice. For example, in Second Life the camera can be bound to something other than the player, which allows for the camera to follow the actors as they move around the set.

Learning to use the editing software is crucial. There are many useful things that can be done to raw recorded footage in post-production. For example, there are many times when scene transitions are appropriate such as fading out to end a scene. Our Machinima used a great deal of sci-fi effects and so there were a lot of sound effects that we added in during the editing process. But more than just extra effects, the editing software is used to overdub voice acting, which is

essential for a compelling Machinima. In addition, it was also used for cleaning up the recorded footage by cutting short long pauses between lines of dialogue or extending clips that are too short for the line being delivered by the voice actor. It is important to be careful when cutting footage short, as seeing the same shot a few seconds ahead may cause the actors to suddenly ‘snap’ into whatever position their idle animation brought them to. This sudden transition is visually jarring and depending on the focus of the shot, can take the audience out of the immersion of the film.

Chapter 4: Conclusions and Recommendations

From our experience in producing this Machinima, we have learned a lot about what needs to be done and what is a priority. First and foremost, we found it was very important to pick a script that the team would enjoy and could be proud of (having a motivated production team does wonders for the productivity of the group). We also recommend that the team practice the production as a whole or at least scene by scene before shooting. This extra practice can drastically reduce the amount of bad takes during the filming process.

The greatest recommendation we can make is that one keeps the production team well informed about how the project is proceeding. By keeping everyone informed and up to date, the team can more easily create, record, and edit assets that work with the production as a whole. Setting up a list of assets, shots and audio that will be needed can greatly speed up the process by allowing the team to take individual assignments and split the work more effectively. Our team distributed a list of sound effects that were needed for the production so that the individual members could collect the necessary files on their own without having to have the task assigned to them.

The software used in the making of a Machinima can greatly influence how the final product emerges. When using free demo software or trial versions, it is important to be aware of the limitations such as shorter clips, watermarks, exporting ability, etc. Once one has the software needed, we recommend becoming familiar in its use, or have a reference that can help along the way, be it a manual or an online help forum.

As for the production itself, the golden rule is to identify what cannot be done in a live performance or live virtual performance that can be done in a Machinima. Taking advantage of

what Machinima can do is an excellent way to produce a creative and interesting film. Taking interesting angles and shots can add a great deal to the interest of the Machinima as well as moving shots. It is important to identify what the game engine can do and take advantage of what it has to offer. A first person shooter is ill-suited to a drama, while a strategy game is likely unsuitable for an action film.

Reference:

Bolkhovsky, Jeffrey. Tardanico, James. Gianotti, Dean “Creating a Virtual Performance”
WPI IQP Advised by Joseph Farbrook.