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Storytelling: The creation of animation

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Abstract

It is common for amateur animators to feel overwhelmed by the process of animation, especially by the prices of applications used by many big studios. These applications are often thought to be necessary to produce work equivalent to that of bigger productions and can cause artists' financial strain. While paid applications are useful, often making the animation process faster and easier, they are not the only option. Open-source programs have the same abilities as paid applications but are overlooked for more mainstream products. I am seeking to prove that animators can create festival quality work using low-cost and open-source applications. By making an animation in this way, I can definitively prove that animators are not constrained by the products they use, but by their willingness to create.

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STORYTELLING: THE CREATION OF ANIMATION

By

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ABSTRACT

It is common for amateur animators to feel overwhelmed by the process of animation, especially by the prices of applications used by many big studios. These applications are often thought to be necessary to produce work equivalent to that of bigger productions and can cause artists' financial strain. While paid applications are useful, often making the animation process faster and easier, they are not the only option. Open-source programs have the same abilities as paid applications but are overlooked for more mainstream products. I am seeking to prove that animators can create festival quality work using low-cost and open-source applications. By making an animation in this way, I can definitively prove that animators are not constrained by the products they use, but by their willingness to create.

INTRODUCTION

My intention for this project is to create festival quality work using low-cost and open-source applications. Creating stories is innate to animators and storytellers everywhere and boxing their ideas to fit within the confines of an application they cannot afford restricts imagination. Even bigger studios will use open-source software. This includes the award-winning Studio Ghibli, who made their customized software, OpenToonz, free to all (*OpenToonz*). By making storytelling easier for all, we open limitless possibilities for creation, and animation is one of the most unique forms of storytelling there is.

I felt the need to do a project like this because everywhere I look there are animators and digital artists using equipment that I have only ever dreamed of owning. Animation, especially projects made by an individual or small team, can be intimidating. Most amateur storytellers do not have access to the equipment studios are lucky enough to provide their animators. That said, artists, and animators especially, need to use functions that these products possess. Whether it is something vital such as adjusting the pacing of a scene or a minor change like altering the lighting in a shot, applications such as Toon Boom Harmony and Photoshop are often the first places people turn.

There is nothing wrong with these products, artists use them every day, but their monthly subscriptions can quickly add up for lone animators on a budget. Animation, especially when made by a reputable studio, can cost upwards of thousands of dollars per minute ("How Much Does an Animation Cost"). This often dissuades hobbyists and beginners who believe they must use industry-standard applications to create quality work. It is for this reason that I am conducting a study of the creation of animation using

low-cost/open-source products to prove that animators need only a story and the will to tell it. This project aims to prove that equipment or a tight budget does not limit creators. The process I am going through supports the claim that animators can tell their own stories even without the backing of a major studio, something that was not an option to many only a decade ago. The ability to create is more accessible than ever, and I have set out to prove it.

RESEARCH

Open-source applications are available to animators that, with a slight acclimation period, can have the ability to rival that of larger studios. I have been researching and learning what these applications are, as well as how to use them. Utilizing this knowledge, I am tackling the challenges of animation by creating my own story using a mixture of 2D and 3D techniques. There are four stages that I ended up using in this process, concept, break-down, clean up, and cell shading. This is not considering the assembly phase, which includes adding things like audio as well as any final changes. The length of each stage varies, and often these processes overlap considerably. This is due to the fluid nature of animation, especially when done singlehandedly. That said, I created a realistic timeline to be certain I know what I need done and when.

For this project, I am using low-cost and open-source applications like OpenToonz, Blender, Shotcut, Krita, and Procreate. To prove that quality animation can be created solely with open-source materials, I will not use applications such as Photoshop or other Adobe products. Other materials consist of supplies already in my possession, a computer, an iPad tablet, and an Apple Pencil. Since I am creating digital animation, items such as a computer are typically already possessed and are therefore not

counted as expenses. Any software aside from those listed is also open source or low cost, between one and twenty-five dollars.

ANIMATION PROCESS

CONCEPT

The concept stage is by far my favorite part of the animation process. This is where I created an idea for my story. It can be difficult to explain, considering that much of this stage happens mentally. I spent time going over each shot in my head to try and create the most visually appealing shot while simultaneously satisfactorily telling the story. I did not have a script since there is no spoken dialogue, but I did break down every part of the story using a method known as the umbrella method. This is where the concept for the story is broken up into three sections, a beginning, a middle, and an end. These sections divided into subsections where actions are taken to get from one scene to the next. These actions are known as beats, which are acts or events that move the story forward (MasterClass, "Learn about Beats"). The subsections can be further broken down to plan out the most minute details, which helped me understand what scenes needed changing, and where I needed to add more. In addition to the umbrella method, I also implemented what is known as the "But & Therefore Rule," created by the writers of South Park. This rule stipulates that whenever a writer goes from one beat to the next, the two beats must be able to link together using either the word but, or the word, therefore. To put it in simple terms, action one happens, but/therefore action two occurs (Parker and Stone, 00:28–02:10). By following this method, it creates a dynamic and compelling story that can hold the viewer's interest. Using these methods, I was able to organize my thoughts and easily move on to storyboarding.

Ace script

Begin in a clearing overhead view — slowly spirals downward until a vague human shape can be seen. Cut to half body of dead V. Forest Ambiance plays over the wind gently blowing. A butterfly emerges from left screen and flies over and onto V's open right eye. Butterfly spreads it's wings once before cutting to right side view where BF closes wings + opens to reveal title screen BF

B - Ace finds V + decides to help

/ • Ace finds V's dead body
TF • Curiously walks over to body / Curious - Intrigued
   • Examines body to confirm death / Examines body - Confirm death
   • Ace pulls out equipment for autopsy / Prepares for work

TF / • Ace begins harvesting V's body
   B • Pulls out eyes + tongue   Satisfied - Diligent
     • Cracks open chest   Cleaning - Checking work
     • Stops when he hears forest creature   Surprised - Turns attention

   • Forest spirits make him pause
     • Looks up spirit   / Searching - reading
     • Realizes V must be important to the forest / Debating
     • Ace decides to help V   / Begrudgingly helps

M - Ace prepares spell

/ • Ace brings V to his home
TF • Ace carries V through the forest / Carries V - walks heavily
   • Ace returns tired   / exausthed + tired
   • Ace drops V   / Drops V

TF TF / • Ace looks up ressurection spell
   • Reaches desk   / Falls into chair - Weary
   • Looks through spell book / Flips to page - researching
   • Finds component list   / Reading - confirming

   / • Ace gathers the spell components
   TF • Searches shelves   / Gathers components
     • Can't find   / Realizes Ace is out of slime
     • harvests from plant pet / Cautiously gathers slime

   • Ace prepares V's body for the spell
     • Lays body out   / Aranges V's body
     • Lay out components   / Organizing - plainting sigills
     • begins ceremony   / Reading spell - starting spell

E - V is revived

/ • Ace starts spell
TF • Ace starts spell   / Confidently begins
   • Magic encircles V   / Focusing on magic
   • V begins the transformation / Amazed - Awe - Falters

/ • V transforms
B • The spell ends   / Sloppy finish
   • The power throws Ace   / Follows through - thrown
   • Ace fears the spell failed / Panics

• V attacks
   • Ace checks on V   / Checks on
   • V pins Ace to the wall   / Ambushes - Surprises Ace V - Attacks Ace - Scrambles
   • Ace grins at V   / Realization - Proccesses V - Threatens Ace - Processes/grins

Figure 1. *The earliest version of my animation, using the umbrella method.*

This is where I was able to play around with different angles and views to best portray the story. My storyboard was different from my final product. Some alterations were made throughout the animation process which led to the final product being slightly different than the storyboard.
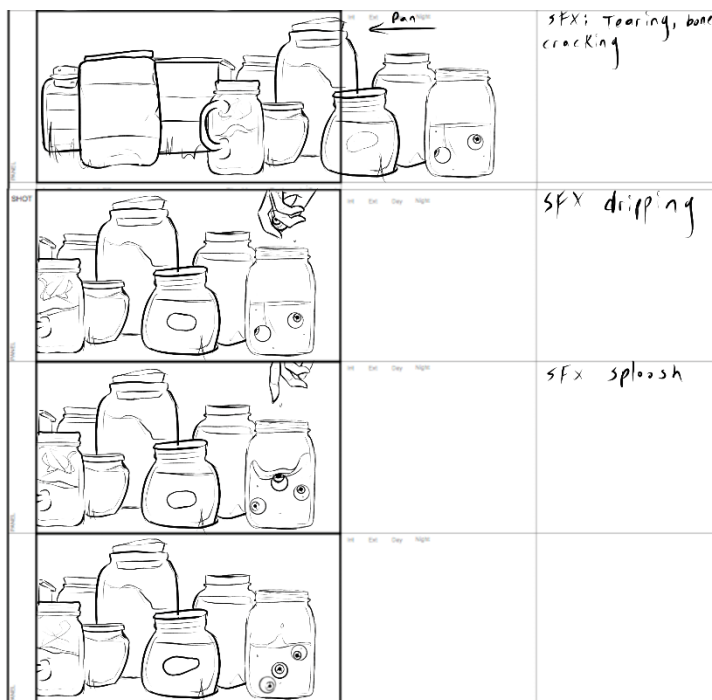

Figure 2. Early storyboard panels.

This is common, as the storyboard is more a guide to how I had originally anticipated the animation to look. Once the storyboard was finalized, I was able to take many of the frames used in my board as keyframes, or a starting and ending point of movement. These key positions allowed me to move on to the break-down phase.

BREAK-DOWN

After having completed roughing out any remaining keyframes for the entirety of the animation, I was able to move on to the next step, breaking down each movement to create a rough version of the final animation. This is the stage that I found the most relaxing, considering it allowed me to be as creative as I wanted. I was able to move certain shots around at my leisure and was also able to get a sense of what the final animation would look like. The frames created during this phase were unfinished but do give a glimpse as to how the final product looks. I allocated four weeks to complete the

break-down phase from start to finish, and I had no trouble keeping to this time.
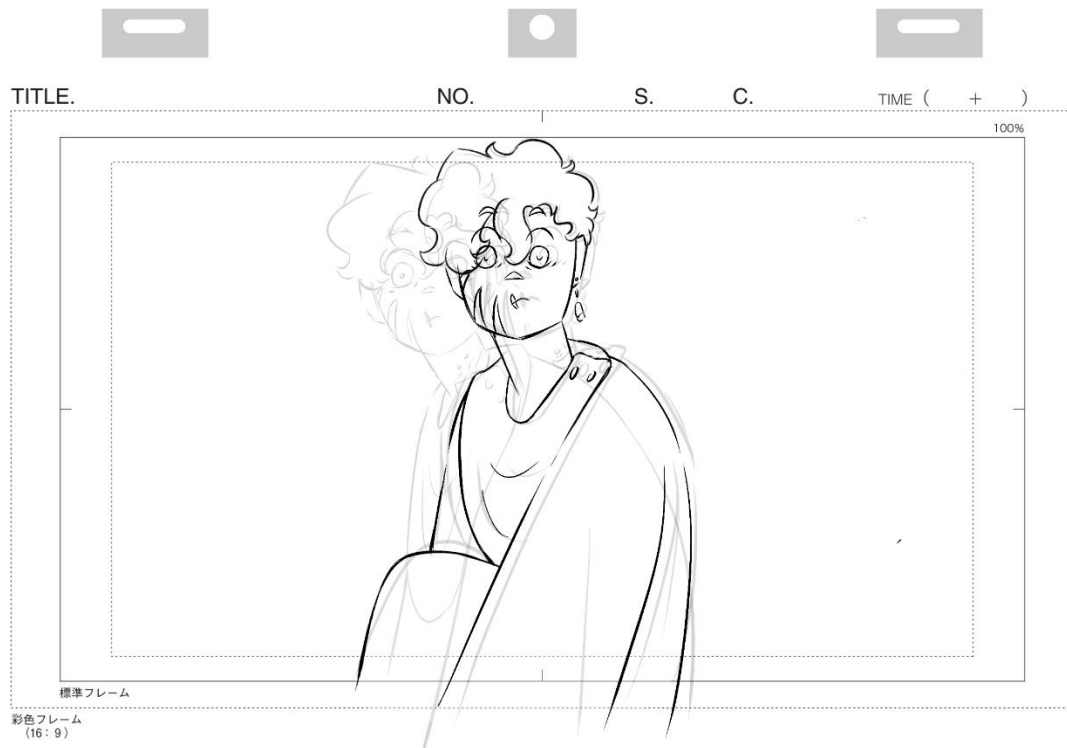

Figure 3. An early break-down frame depicting the main character moving to the side.

I did however have a minor setback early in my break-down process. My computer ended up failing, and I had to relinquish it to a repair site for weeks. This complicated my process because I ended up having to do my break-downs on my iPad using Procreate. The reason for this complicating things was because, due to all rough frames being on my iPad, I ended up doing the process there rather than on my computer using software such as Krita, a digital painting and 2D animation application. This was not a setback so much as an inconvenience. I have used Procreate for an exceptionally long time, so it was not any trouble changing the animation process to work primarily on my iPad. It was advantageous at times since I was able to work on the go, but it did make me have to rethink my plans.

Figure 4a. *A breakdown frame from early in the animation. This scene depicts a butterfly landing on a corpse.*

3D REFERENCES

Out of all the shots created for this animation, four required more sophisticated references. Two were created using open-source software, while the others were created using references of myself, and were filmed using my phone. Using the free 3D computer graphics software Blender, I was able to create rudimentary versions of complicated shots within my animation. To do this, I utilized two free human models I found online. Both models were rigged, which means that I was able to animate them without having to create controls. Once I obtained the references, I exported them and began animating. I used a process like rotoscoping, where animators trace footage frame by frame to obtain a more realistic result. Unlike rotoscoping, I did not simply alter the image already there, and instead created my own.

Figure 5. *A single frame from one of the two references created in Blender.*

Blender was a new application to me before this project, so learning how to do animation in entirely new software was a definite challenge. Luckily, there is a plethora of information regarding Blender on the internet, and with helpful guides, I was able to complete my references without additional strain on my part.

CLEAN-UP

The next phase in the process was the clean-up phase. This involved going back to my break-down frames and redrawing each frame using clean lines to be colored in the next phase. Though this phase seemed the simplest to me at the time, it is also the phase that gave me the most trouble. I allocated the same amount of time for clean-up as I did for the rest of the animation, about four weeks, and it turned out that this was not enough time. I had anticipated clean-up to take a short amount of time, considering that all the process entailed was me redrawing my break-down frames, however, it turned out to be a more daunting process than anticipated. Unlike the other phases of this project, where I

was able to finish with relative ease, I ended up spending more than one day working

from dusk till dawn to finish the clean-up process on schedule. Luckily, I was able to do

so and moved on to the next phase without any issues, however, the fact remains that this

was by far the most difficult part of this assignment.

Figure 4b. This image is of the clean-up phase for Figure 4a. The line art is made concisely and with closed borders in preparation for cell-shading.

CELL-SHADING

Cell-shading is the last intensive phase of my animation process. This is where

each frame, after the clean-up phase, was given color. For this part of the process, I was

able to quickly make my way through each frame by using the fill tool in my software.

This tool floods an area with color, until it encounters a border of some nature, for

instance, lines or the canvas edge. Using this tool for coloring the animation was simple.

Of course, I could not use it for everything, but for what I could it certainly helped to

shave valuable time off my process, which I later used to polish any final edits. This is

the phase where I also drew the backgrounds. The stage itself was not hard, but I found it

to be tedious, nonetheless. It became repetitive at times, but the product is well worth it.

Certain shots where there is little animation, or a frame held for a long time, were given

more color. Doing so added a layer of depth and helped to balance out the simpler

shading done on the main character, who moves quite frequently and thus required more

simplistic coloring for me to meet my deadline. I would say that this phase was the

easiest, but certainly not the most enjoyable.

Figure 4c. *The cell-shaded and fully rendered version of Figure 4. This is prior to any edits done in post.*

REFLECTION

By the end of this project, I learned a lot. I have never created an animation of this

scale before, my experience comes from ten-second animated shorts, done as practice in

my free time, so going from that to a full scale five minute long fully animated, and

colored short film was an incredibly intimidating task. That said, I had support from both

school and home, and by breaking the animation process down into its most simplified

steps, I have been able to animate this short from step one of the process to the end.

Using strictly open-source and low-cost software was an interesting experience as well. I

have had experience with applications like Photoshop and other paid for applications, so

going from that to low-cost and open-source material meant that there was a definite

learning curve.

After having used both, I have concluded that there is no difference in the

capabilities of open-source software when compared to paid for software. The real

difference lies in the details. Mainstream paid for applications are by far more user-

friendly and convenient. While they have the same capabilities, low-cost software is not

as intuitive. There were times when I was frustrated with the way applications like

OpenToonz ran, and not because anything was lacking in the application, but simply

because being able to use the features, such as adding a filter, meant having to go through

a convoluted process. Whereas in Photoshop I could accomplish the same by simply

pressing a button. However, as stated before, once I was able to get over this learning

curve, the applications ran quite similar.

I began storyboarding for this short in August 2021 and only started animating at

the beginning of this semester, Winter 2022. There was not much that surprised me, but

there were times when I found myself having to change my way of thinking to continue

making progress. The concept and break-down phase were both as difficult as expected.

It was when it came to the clean-up phase that things started to go awry. I have never

animated something of this length before, so I allocated the same amount of time for each

phase. Knowing what I know now, I would have given myself twice the amount of time

to do clean-up as I would have the other stages. I never realized before how intensive

creating line art could be. For the few weeks that I was in the clean-up phase, I ran off

coffee and extraordinarily little sleep. There were not any huge issues with this phase, but

the sheer amount of time that it took to go through every individual frame and make them

all look neat and orderly was not something for which I had properly accounted. Just

getting to the end of the phase felt like an achievement, and after that, cell-shading did

not seem so difficult. When the animation started to come together, I had a feeling of

vindication. Seeing a finished shot made all the pain I went through getting there seem

small. Despite all the stress getting this project done caused me, I have never felt prouder

of the result. I have proven that animators can animate using even the simplest of means,

and it has left me excited to start my next project and move on to even grander

animations.

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