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Christmas Eve

By

Lingxiao Fan

A Thesis Submitted in Partial Fulfillment
of the Requirements for
the Degree of Master of Fine Arts in
Film and Animation

School of Film and Animation
College of Art and Design

Rochester Institute of Technology
Rochester, NY

Approval Date: 08/13/2024

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Abstract

Christmas Eve is a 3D animated graduate thesis film in length of 3 minutes. It is a story about a young Santa Claus who keeps getting distracted by everything around her and procrastinates from doing her job - preparing gifts for kids. The main character, Santa Claus No.077, who lives in the North Pole Village, has the whole year to prepare gifts for children. However, due to her procrastination, one year has passed and she hasn't finished her job preparing the gifts on Christmas Eve. Noticing the big day for Santa Claus is taking place today while reading the newspaper, she has to finish the gifts before the midnight bell strikes and send them to the kid by sunrise. However, things don't really go as smoothly as planned. No.077 keeps getting distracted by things around her while doing her job. These distractions happen for a reason at first. But as the deadline approaches steadily, No.077 gets distracted more and more easily and starts to behave increasingly further from normal.

The software used during the entire production process includes but is not limited to Maya, Zbrush, Houdini, Adobe After Effects, and Adobe Premiere.

This thesis paper will expand on the inspiration, research, the whole process of the film creation, technical experiments, and the film's first public screening.

Introduction

The production phase of Christmas Eve goes from August 2021 to December 2023. It is submitted in partial fulfillment of the requirements for my Master of Fine Arts degree in the School of Film and Animation at Rochester Institute of Technology.

This film is inspired by the fact that I never do my homework productively until the night of the due date. And I have a whole bunch of negative thoughts about my procrastination.

When I first proposed my thesis in the spring of 2021, it seemed a totally different story. Back in the first draft of the film, the story was about changing bad habits. I was trying to explore the relationship between me and my laziness. It was a story about a girl struggling to fight a monster symbolizing her laziness to clean up her room. Because at that time, I thought it was my laziness causing all the struggles in my everyday life. However, by the end of a whole semester working on the story and pre-production, I felt less and less related to the story. As I mentioned in my artist statement, I had a feeling that I might have confused laziness with something else that I wasn't able to tell at that time. So I anxiously wanted to change the theme of my film. But the harsh reality would not allow me to do so. Because it was already halfway through the 1-year thesis, all the pre-production was finished and I should have moved onto the production stage at that time. Meanwhile, I noticed that I was in need of more practice in storytelling and camera settings. Even though I was stressed and struggling at that point, I still wanted to make my thesis a good presentation of what I had learned in grad school. So I decided to take a LOA for a break and a chance to gain more experience in script writing, camera settings, and character acting.

I first worked as a 3D previs artist, where I practiced the skills of camera settings. Getting more understanding of how cameras could help tell a story, I decided to try my best to apply what I have learned in the industry to my thesis film. Then I took a comedy sketch course, which inspired me a lot as well. Instead of finding a solution to procrastination, there is another method of ending the story - that is

to heighten the joke and punch it to gain an ironic effect. After that, I also took an acting course and acted in several student short films. This gave me more insight into character development.

During the long leave, I experienced multiple identity changes. In that period of time, no matter what identity I was in, student, previs artist, or actor, I felt the same level of stress caused by distraction and procrastination. That is the point I noticed that this might not be a phenomenon that only happens at a certain stage of life, it might go through my whole life, no matter what kind of role I am playing in this world. It also might not just happen to some certain group of people, it is universal. Most people I met in my life have been in this kind of situation. All these experiences helped me figure out what was the topic I really wanted to talk about - procrastination.

The ultimate goal of this film is to help procrastinators, including myself, dispel the negative feelings towards procrastination. Being a procrastinator for my whole life, I always feel very stressed. Despite understanding that stress can not help me approach goals at all, I still lack motivation and can not stop being stressed. This leads to my unhappiness while doing my homework and jobs. Also, I have never seen a happy procrastinator in my life. Negative feelings usually don't help solve problems in our lives either. They only slow me down and hinder my goals. However, jokes and satires always help me get out of negative feelings, start to introspect, and take action to make changes. So in the same way, in this animated film, I am attempting to chase away negative thoughts by making jokes.

Below is my artist statement shared at the final presentation of my thesis:

What is the biggest achievement one could get before an urgent deadline? Mine is to take a long break from school right before my last semester as a grad student. I took a Leave of Absence and took acting classes, improv classes, comedy sketch classes, life coaching classes, and singing classes. I was not addicted to classes. I think I was getting distracted so easily and procrastinating from working on my thesis film. My life coach always believes that if you do one thing like this, you do everything like this.

That's true. I am always interested in everything except what I'm supposed to do. This is what my film is about.

This film is motivated by my negative feelings towards my procrastination. However, back in the first draft of the film, I was trying to explore the relationship between the character and her laziness. Because at that time, I thought I was just too lazy.

After working on that story for one semester, I felt increasingly unrelated to the story. I do my laundry frequently, I cook for 2 hours for one single meal, and I even hand brush the carpets. Even though they mostly happen before due dates. How could it be possible to depict me as a lazy person? So when I came back this semester, I brought a new version of the story. It's about a girl who keeps stalling and gets distracted while doing her homework. Then, my committee revealed the challenge to my new idea - the girl's goal was too normal, and did not take advantage of animation.

Luckily I immediately got inspired by my parents. I received my birthday gift from my parents right after the meeting with the committee. I've been receiving the same gift for at least one decade - money. It's actually a tradition to send money as gifts on Chinese New Year. So they sent money on my birthday, Women's Day, Children's Day, Christmas, etc. Everything was perfect until I learned that one pair of my boyfriend's shoes was a Christmas gift from his mom. So there are parents who prepare actual gifts. Then I started to wonder why my parents decided to send money all the time. One of the most convincing theories to me is that they are probably just like me, stalling and distracted by everything around them while preparing the gifts. And being old enough to understand that my Santa Claus is actually my parents, one idea popped into my mind - what would happen on Christmas Eve when Santa Claus procrastinates? So in the final deliverable, I decided to follow a young procrastinating Santa Claus, telling her story on Christmas Eve.

In this work, I explored the Arnold aiToon shader, which fits the best to the art style I pursue. I was totally new to the Toon shader so it took me way longer than planned to figure out how this shader

works. Besides, I researched comedy sketches. Instead of solving a problem at the end of a story, we might also heighten and punch the joke.

Review of Research

Scriptwriting

I've always wanted to write a story about my own life for my thesis film, so the first thing I researched was scriptwriting.

At the very beginning, I was trying to look for the structure of the story. I wanted to write a linear story so I first studied Hero's Journey. The Hero's Journey is a classic narrative structure widely used in literature, film, theater, and games. Joseph Campbell proposed this structure in his book *The Hero with a Thousand Faces* and it's further developed by Christopher Vogler.

However, stories with this structure are mostly long features. Also, the protagonists usually come over their troubles and grow. However, in my situation, I don't empathize with this. Because I myself may not have "solved" my problems in my life.

During a long break from my thesis, I got inspired by sketch comedies while taking my Leave of Absence in Beijing. Sketch comedy is one of the comedy genres. Most of the sketch comedies are short (around 10 minutes), focusing on one specific game in one simple scene. What interested me most is that the sketch comedies are mostly exaggerating the situation instead of solving or overcoming the protagonist's problem. Shows like "Saturday Night Live" (SNL), "In Living Color," and "The Kids in the Hall" brought sketch comedy to mainstream audiences. By studying these shows, I decided to follow this structure for my story: Exposition - Introduce the Joke - Heighten the Joke - Punch the Joke - Buttom.

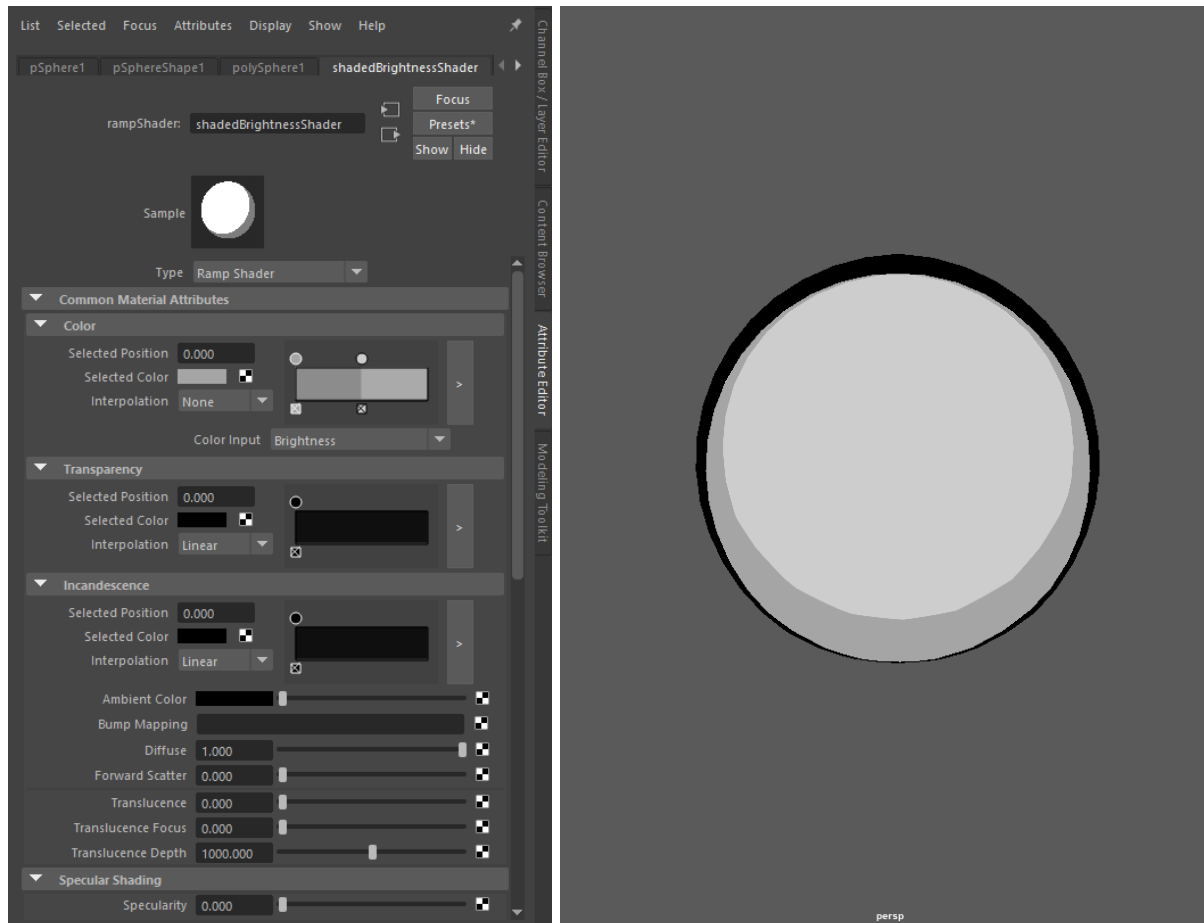
Visual style

Based on my character design and background design, and referencing the visual style of the games "*The Legend of Zelda: Breath of the Wild*" and "*Jet Set Radio*" and the animated TV show

“*Beastarts*”, I decided to go with some stylized visual style. So I researched Toon Shaders to see if this could be adapted into my thesis film.

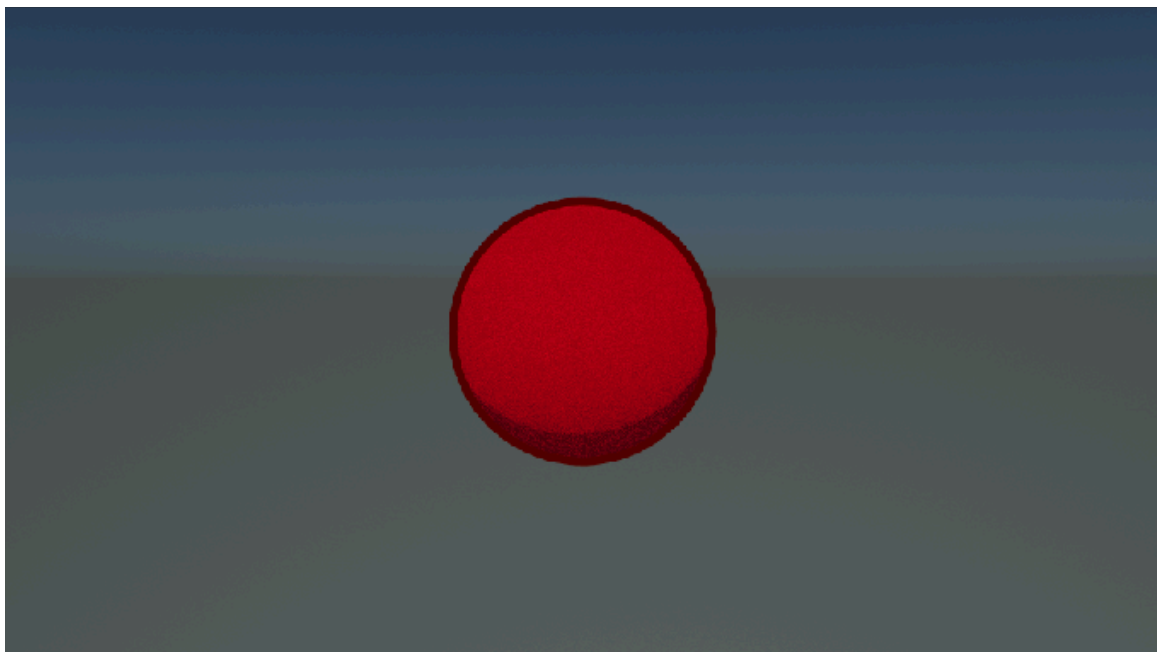
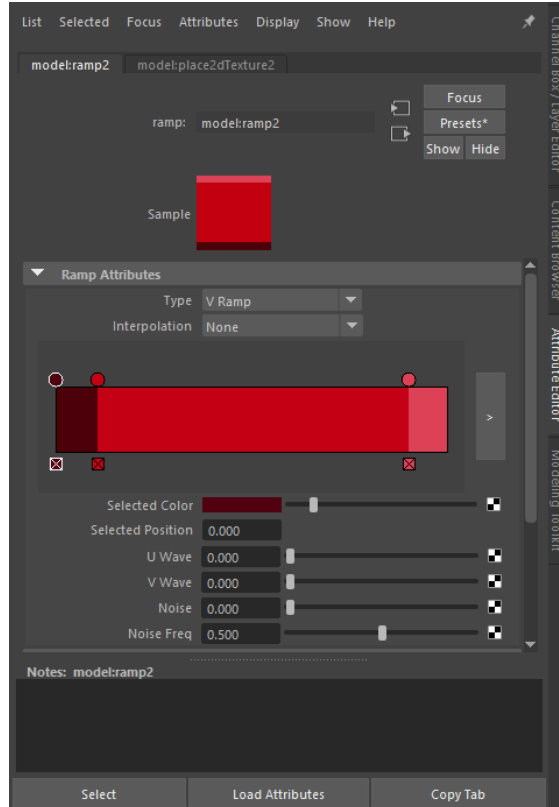
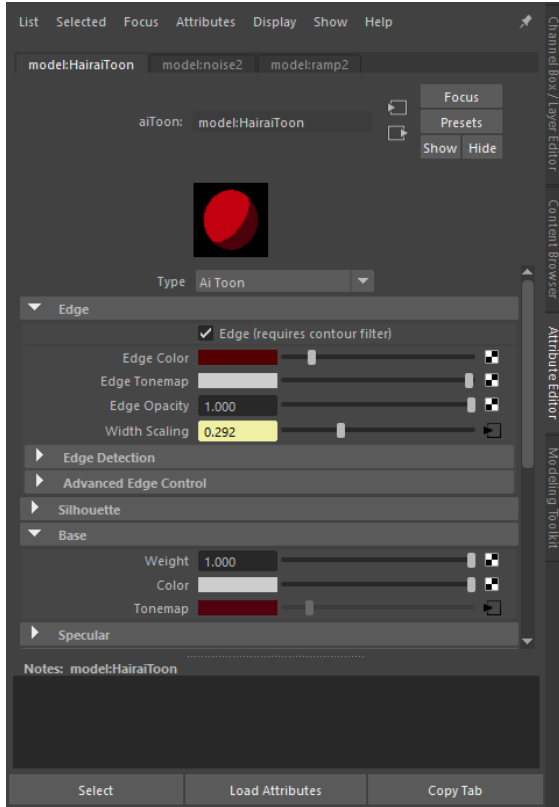
Toon shading is a non-photorealistic rendering technique. It usually helps give a cartoony visual style look by making 3D models look flat like 2D. I examined Maya’s Toon Shader and Arnold aiToon Shader during my thesis project.

I first researched Maya Toon Shader. Maya’s Toon Shader is very powerful and effective. With Maya Toon Shader, I can not only achieve the 2D flat visual style but also have access to tools for creating outlines and 2D look lighting effects. Also, I can customize the outline thickness, and color, and add randomness.



Also, I researched Arnold aiToon Shader. Similar to Maya’s Toon Shader, Arnold aiToon Shader is part of a non-photorealistic rendering (NPR) solution. It is provided in combination with the contour

filter, which generates outlines with control of line color and width. To give a more flat and 2D-like visual style, ramp maps can be used for both base and specular.



Process

Pre-production

As I previously mentioned in the introduction, the theme was primarily about changing bad habits. I wanted to focus the most on character animation. Also, I wanted to make my own original characters. So my schedule was planned as below:

	Aug		Sep				Oct				Nov				Dec	
Assignment/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Pre Production																
Story Treatment																
Storyboards																
Animatic																
Character Design																
Character Modeling																
Rigging																
Other Models																
Texture																
Production																
Block																
Spline																
Polish																
Lighting																
Post Production																
Render																
Title																
Compositing																
Composer Meeting																
Sound																

	Jan		Feb				Mar					Apr			
Assignment/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pre Production															
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Title															
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Composer Meeting															
Sound															

-Story development

First proposal

My thesis film began as a story about changing bad habits. The statement was: To break a bad habit, all you need is a start. The main character suffers from her laziness. She desires to make a change, but a monster always stands in her way. The monster symbolizes her laziness. She makes several attempts to overcome it but always gives up halfway. Until one day, after she “throws her first punch”, realizing it’s not that hard to make the change.

For myself, I was disorganized before and always lost some tiny daily items like hair ties, keys, etc. I couldn’t find them until I almost forgot them and didn’t need them anymore. I usually found them gathering dust in a corner of my room. When I was a kid, I used to imagine that there was an invisible little monster in my room picking up these tiny items. One day I decided to make a change. Then I

realized it's actually not as hard as I thought. Things went very smoothly as soon as I started. Also, the monster I've been fantasizing about is just an excuse I've made for myself. People often make all kinds of excuses for not changing their bad habits. They stubbornly believe that breaking the habit is an extremely difficult task. In fact, starting to do one thing is like a valve, once the valve turns on, breaking a bad habit is as smooth and simple as water flowing.

The treatment of the story that first passed the proposal is like this:

There is a photo of a family in a clean and tidy apartment on a porch cabinet. A calendar hangs above the cabinet. It is the 26th today.

A girl comes back home from campus. She takes off her coat and is about to hang it up on the coat tree next to the cabinet. At this moment, a little monster flies out from the apartment, pulls the coat out of her hand, and throws it on the ground. There are already several coats on the floor by the hanger. He pushes her from behind towards the sofa. Together they collapse on it, ignoring how messy the apartment is.

Cut to a desk, the girl pulls out the chair and opens her textbook, attempting to do her homework. But the little monster lies in her book, preventing her from doing homework. The girl tries to separate him from the book, but the little monster clings too tight to it. Then the girl finally gives up.

Another cut to the living room, the girl and the little monster sit by a tea table. The girl finishes a can of Coke. She is about to clean up the table, but the monster holds her waist to prevent her from moving. So, she attempts to throw it into a distant garbage bin without walking there. While the monster intercepts the can in the air. The can is kicked back to the girl's side. She makes several attempts, which all fail. She gives up again.

When the girl and the little monster are chilling on the sofa again, she receives a phone call from her parents, saying they will come to visit her in two days. She jumps out of the sofa, intending to clean up her apartment. The monster seems terrified, and he tries to stop her by holding her leg. But he fails. The monster gets angry and transforms into a huge and fierce monster. They both hop into a game scene (like the Street Fighter interface). The girl is given a mop by default as her weapon. But she is so scared, so she flinches. She keeps jumping, trying to reach for the exit button over her head. The system decides that the girl fails, and the monster levels up, becoming even bigger. Then the background switches back to her messy room. And the monster turns back to normal.

The other day, when it's one day before the girl's parents come to visit her, she gets tripped over by a can, which she once threw to the floor, and the monster is playing with. She gets hurt by her bad habit and kind of gets annoyed with that this time. Also, she stares at the calendar, feeling compelled to clean her apartment up. The monster pops into the big and fierce form, and they hop into the game world again. The monster is bigger than last time. The girl tries to summon up the courage to fight him. She holds her new weapon, a huge cleaner spray, tighter. But when the monster throws the first punch, the girl is knocked down. She sits on the ground and starts being lazy again. Also, she still has one day left, so she flinches again. Unsurprisingly, the monster levels up again and gets bigger.

On the day the girl's parent plan to visit, she is pushed by the monster walking from the porch towards the sofa, then she gets a text from her mom, saying they will arrive in half an hour.

She freezes in panic for a while. But very soon she runs towards a nearby desk, about to start cleaning up. The little monster pops on her way to stop her. They hop into the fighting game. The monster looks bigger. The girl is a little terrified. She struggles a lot but finally decides to fight the monster. As she determines to punch, she trips over by herself and falls. But it happens that her fist hits the monster when she falls over. The monster seems not to fight back and even gets panicked. The girl stands up quickly, attacks a few more times, and the monster is defeated surprisingly fast. The background switches back to the room, which is already cleaned up. The girl wipes the sweat off her face.

The girl collapses to the ground with relief and satisfaction. Meanwhile, the doorbell rings.

Main changes

I received a lot of helpful feedback from my proposal committee. The feedback that stands out the most are: (1) I use the girl's parents' visit as motivation for the girl. It is a convenient choice, but also requires more relationship establishing. (2) Considering the limitations of time and technique, this story seems ambitious. I was suggested to keep things simple and not overly complex for the sake of the story and production. (3) It could be a more gradual change in the girl - acquiescing to the monster, having fun, being lazy until it's almost too late. More progress of the girl changing could be shown in the film.

Agreeing with their feedback, I made some changes to the story. Firstly, I changed the motivation of the girl from her parents' visit to her landlord's warning. If her room keeps being dirty and untidy, she

will be charged an unaffordable fine by the landlord. Secondly, I made the monster grow as the girl's laziness grew. Also, I put more effort into how the girl tries to fight against the monster and shrunk the length of building up her relationship with the monster.

In the midterm of the first thesis semester, I met with my thesis committee. They offered me some feedback: (1) The girl's emotional reaction to the monster could be more accurate. (2) There are too many plateaus in the actions. There can be a graph of the general arc of the story. (3) A lot of actions are happening in the film, which might be too ambitious. (4) The relationship between the girl, the monster, and the monster's size is confusing. (5) There can be a stronger incident to spark her rededication to the task of cleaning.

By that time, I noticed that the motivation for the girl's change didn't necessarily happen at the very beginning of the story. Also, her laziness itself could be the straw that broke the camel's back. So I removed the landlord's warning, which did not sound convincing to the audience. Also, I found her reason for changing: the monster grows so large that the girl can not live comfortably in her apartment. Thus she has to make a change to make the monster shrink.

However, a weird feeling grew in my mind and I could not get rid of it by the end of the first thesis semester - I do not like the story. I felt that I could not feel the girl character anymore. I lost the connection to the story and I found no immediate way to fix it. That is when I decided to take a break.

In terms of the story, what influenced me the most during the leave of absence was the comedy sketches. As I mentioned before, by the end of the first thesis semester, I did not feel related to the story anymore. One of the reasons I figured out during the study of comedy sketches is that I was always trying to find a solution to her "problem" - laziness. I myself had not yet found my own solution yet. And the girl character is representative of me. Then how could I know the solution to her? Also, with a huge quantity of negative feelings, I was not in a place that was ready to solve my "problem". However, in comedy sketches, the scriptwriters usually do not focus on solving the problem. Instead, they reveal the

problem and even exaggerate the problem to an unreasonable degree. Then the satire and comedy effects come into being. Seeing their negative feelings turn into funny stories and make people laugh, the script writers' bad feelings are always dispelled more easily.

The other reason for feeling unrelated to the story is that I mixed up the concepts of procrastination and laziness. As soon as I noticed that procrastination was the most accurate topic I wanted to talk about, I modified the story again. I first removed the monster, for he is making the relationships truly complex instead of benefiting the story. Then I changed the girl's goal to finish her paper. Because I myself procrastinate the most while doing homework. Even when I was working as a previs artist and an actor, each time I started to stall on doing my job, I felt that I was still a college student procrastinating the night before the submission of homework. That is the scenario I felt the most related to.

When I came back in the fall of 2023, which was my second thesis semester, my thesis committee was shocked by these drastic changes. However, they still very kindly offered some practical advice at that time. The most important thing is that a paper being due is a too commonly seen element in the educational environment and it is not strong enough. I strongly agreed with that because I was having a similar feeling but I could not tell until they pointed it out. I felt that was too similar to our daily life and too straightforward, but I wished that in my animation there could be some metaphor that was worth more deeply thinking about. Noticing that things should be changed, I started to brainstorm with my boyfriend.

After crossing out a lot of ideas, we felt very dejected because none of our ideas could work at that time - only six to seven weeks left before submission, and most of the blocking was done. What a coincidence that my parents sent me my birthday gift at that moment - money. It's actually a tradition to send money in red pockets as gifts on Chinese New Year. My parents had been doing this instead of real gifts for at least one decade. I was thinking if they were just like me, procrastinating on preparing for the

gifts until it was too late so they had no choice. One idea popped into my mind - what if Santa Claus procrastinates in preparing gifts?

With some more practical great ideas from Professor Mari Jaye Blanchard, I finally made the Santa Claus story fulfilled:

At the very beginning of the story, Santa Claus No.077 comes back home with today's newspaper. She surprisingly notices that it's already Christmas Eve today, but her gifts for children are not ready yet. Putting down the newspaper, Santa Claus No.077 makes up her mind to finish the gingerbread man in front of her first. However, when her hand approaches the dripping bag, she gets distracted immediately by her cell phone beside the dripping bag. She watches trending funny videos and giggles. She follows workout short tutorials and exercises. She even attempts to lick her elbow because it is said that no one can do this on her cell phone.

Noticing the gingerbread man is not finished yet, No.077 comes back to her job. However, after a sneeze of her own, she gets distracted again. Throwing all the trash, wiping the outside of all windows of her high-level apartment, and cleaning the needles of her cactuses, she finishes all the difficult housework that she would never touch in her usual life.

The sunset brings her back to the reality that she still has a lot to work on. And this time, she gets distracted easily again by her daydreams of flying a rocket to space. She feels excited in space. However, the midnight strikes bring her back to her room and she has to face the unfinished gifts. After working hard for a while, No.077 seems to eventually finish her job. However, what she actually finishes is a gingerbread sculpture of her licking her elbow, which turns out to be very low quality and collapses. Turns out that she was not doing her job after all.

-Storyboard & Animatic

Storyboard & 2D animatic

While storyboarding, I tend to start by throwing every single thumbnail image that I think helps the storytelling onto the board. So when I was working on my thesis, I worked the same way. I made substitute sequences of thumbnails for some shots. Also, I kept adding thumbnails to clarify the story.

Consequently, I made my first storyboard extremely long and not realistic enough to fit in the length of 3.5 minutes. Even though I was reminded a couple of times that this might be too long, I had no realization until I went to the animatic stage. Trying my best to put every shot to the animatic and keep my film at a reasonable length, I eventually sacrificed the timing. Every shot looked truly fast in the animatic, which is the last thing I wanted. I had to give up some shots and keep those actually worth the time.

Also, from the animatic, my film seemed like two stories. One is about the girl and the monster enjoying their lazy cozy life despite how messy their room is. And then something happened, the growing monster threatened the girl's chill life. The story turned to the other story, which is about the girl going through all the hardships to defeat the monster. Both stories take an even length of the film, which might confuse the audience about which parts the story focuses on. The decision I made at that time was to focus on the second part - fighting the monster. This eventually led to me feeling unrelated to the story. Because I realized later during my leave, I had not defeated my own monster yet. How would I know the waking moment or the solution?

When I came back with a new version of the story, I redrew the storyboard. Due to my previous experience in the first semester, I aimed to keep the shot number as little as possible. So when I finished the new storyboard, I immediately put the thumbnails into the animatic and tested taking each shot off to see if the story still read well. Meanwhile, I also had to tell the story clearly. Besides, based on what I learned from work as a previs artist, as well as the knowledge from my life coach, I designed my shots mostly in the order of "circumstance - thoughts - feelings - actions - results".



(storyboard at the early stage)

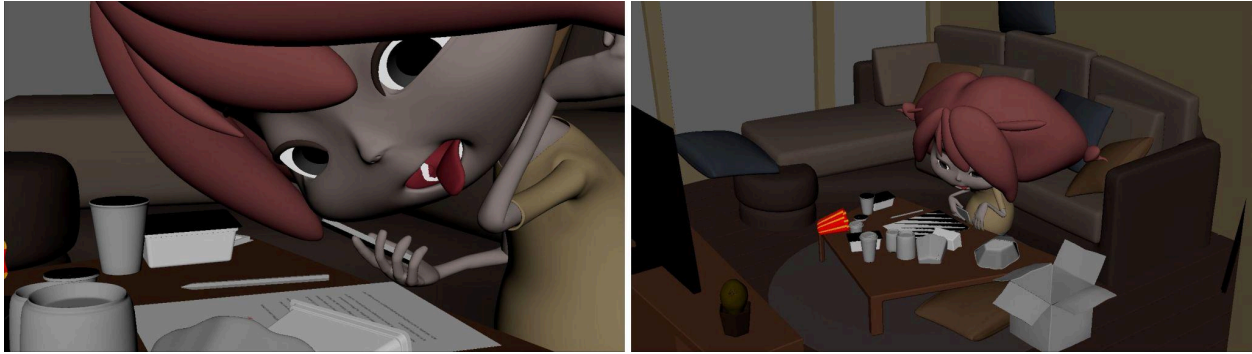
Then when it came to the 2D animatic stage, I mostly focused on adjusting the timing, making sure the story was told clearly, and last but not least, creating some breathing moments in the fast-paced story.

3D camera test

As soon as the timing looked acceptable to me, I started the 3D camera testing round. Because according to my experience making my workshop film at RIT, I realized that when everything is put together in 3D, it might feel different from 2D animatic. Quite a lot of adjustments might happen.

Learning that different focal lengths lead to various feelings for the audience from working in the industry, I mostly focused on adjusting the shot sizes and focal length in this 3D animatic round. Also, it

was suggested by Meghdad that I could use different shot sizes to exaggerate the contrast between the two states of the girl. I eventually utilized closer and narrower shots, which are more subjective when the girl character gets distracted and procrastinating. And on the contrary, I had wider shots, which are more objective when she is pulled back to reality.



(Close-up subjective shot VS wide objective shot)

In spite of the shot size and focal length, I also attempted to exaggerate the contrast through the cutting pace and the girl's action. The fast pace goes for the procrastination moments, for the girl is happier that time. And slow pace goes for the reality world, for that brings a lot of stress and pain to her. This could make for some breathing moments as well.

In addition, because the most shots I worked on when I was working as a previs artist were science fiction CG shots in need of plenty of camera movements and I was taught by my supervisor the same, I had a misunderstanding that every shot needed to move all the time even if they might move very slightly. I made all my cameras move at first, which turned out to be very distracting. So I removed some camera movement if the shot was pretty neutral and still kept those that could kind of suggest the mood.

-Character Design, Model & Rig

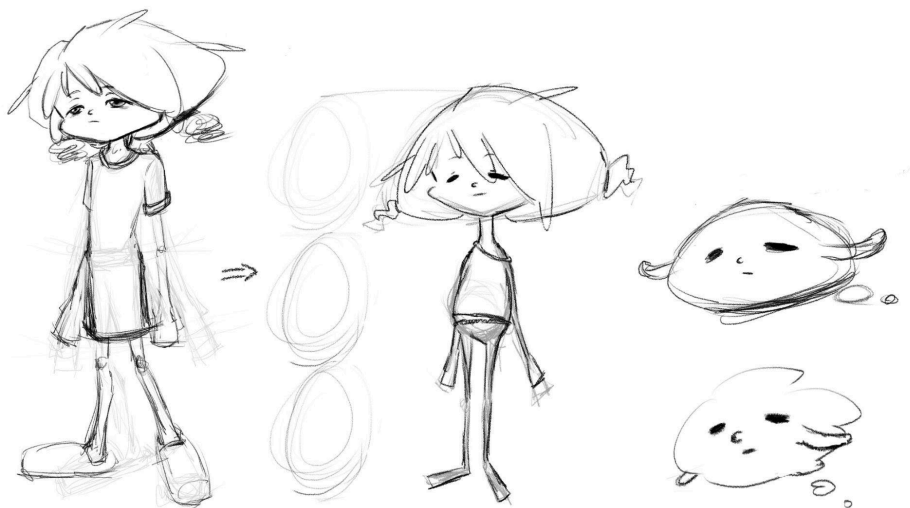
My goal was to have my own characters that fit the story most, so I decided to design, model, and rig them by myself. Originally, there were two characters in my film. One is the girl and the other is the monster.

Character Design

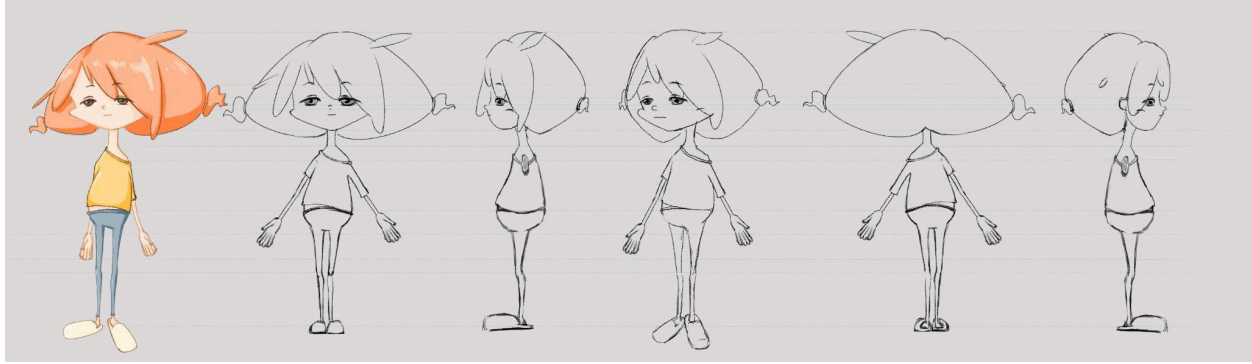
The original character design of the girl character is a skinny lazy girl in her long T-shirt with only one sleeve rolled up. Some of her bangs stick out, and her dark eye circles are obvious. I designed her this way because she is actually an exaggerated and cartoony version of myself. However, according to the story, her skinniness does not make sense to some degree. Because she is too lazy to work out, how could she be that skinny? It might also lead to some confusion about whether she is anorexic.

Therefore, I reconsidered the body shape of the girl. I keep her limbs skinny because she is so lazy that she skips meals sometimes. Meanwhile, I gave her a big belly. I got this inspiration from my own body shape. Even though my limbs look not fat, my belly gets the most fat because I am always too lazy to exercise. However, skinny limbs and a round belly might also disorient the audience whether the character is pregnant. To avoid this misunderstanding, I made her shoulder neutrally narrow and drooped to suggest more about her characteristics and low energy.

The other character, the little monster symbolizing laziness, is in the shape of comic thinking bubbles. Because I believe that essentially laziness is some thoughts stopping people from doing what they should do. As the story changes, the monster character is removed in the end.



(Early character sketches)



(Girl character turnaround)

Model

I started modeling immediately after the design was finished. I was about 2 weeks behind the schedule, so it was kind of a rush at that moment. The most time was spent on the girl character because she is relatively complicated. At first, I blocked her with cubes and spheres in Maya. After the basic shape was confirmed, I exported the polygons to Zbrush to sculpt the details. The polygons were in a highly dense topology in triangles, so I had to retopologize the model. I first retopologize in ZBrush to reduce the density. And then the model was imported back to Maya and retopologized with the quad draw tools in Maya.

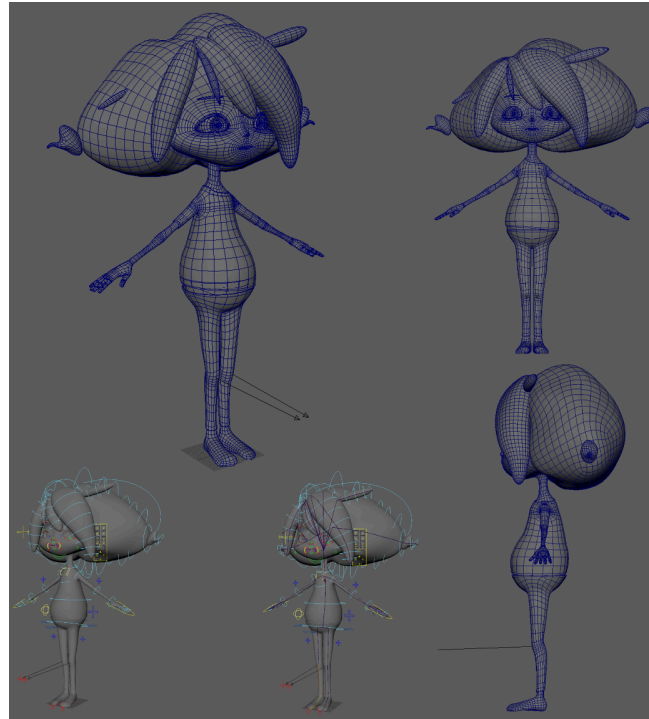
The modeling process of the monster character is much easier. It is in the shape of thinking bubbles. So I blocked him with several spheres. The largest one is his main body, two stretched spheres are the arms, and the rest follows the main body as his tail. I also decided to utilize comic facial expressions as his face so I drew a series of faces as his face texture instead of modeling the actual face.

Rig

The girl character is rigged with the Advanced Skeleton, an add-on in Maya. It is a very handy tool. However, the outcome was not perfect, which was foreseen, it still saved me a lot of time. I repainted the skin weight by myself to make sure everything looked correct when each joint moved. I did not have much experience with face rigging, so I decided not to touch the skin weight of her face to avoid any error

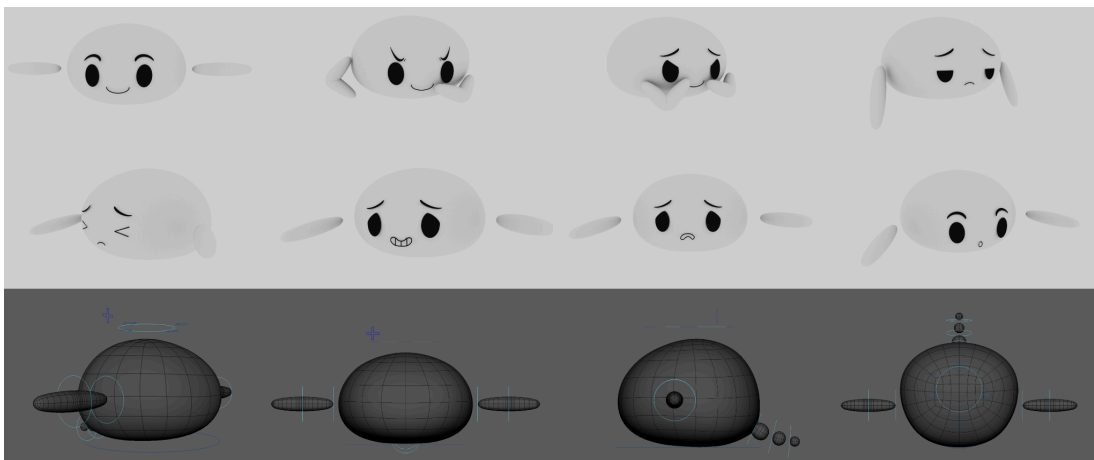
caused by me. Instead of repainting the face, I used the blend shapes while the facial expression did not look accurate enough to me.

After repainting, another problem appeared. Some of the faces were intersecting with each other in some poses and I was not able to fix them with the weight paint. Also, I could not simply delete unexpected faces because it was rigged and those faces might be necessary in another pose. Finally, as suggested by Meghdad, I hid unexpected faces scene by scene.



(girl model and rig)

The monster character was hand-rigged by myself. The process is simpler as well. The biggest challenge for me was his face. I had a series of drawings of facial expressions but I did not know how to make them switch from one to another. Luckily, I found the answer with the help of a YouTube tutorial. I set the drawings as the texture image sequence, so I can set keys on the image number when I want to animate the face.



(Monster model and rig)

-other assets

I had only one environment in this film. It is the girl's room with lots of unfinished gifts scattered around the room. To make sure I had enough time for character and animation, I ultimately decided to go with a room and some other props from CGTrader. I made some adjustments to give the room a more cartoony look and to make everything look less inflexible. Besides, to enhance the atmosphere of Christmas and to reveal that the girl's job is to be Santa Claus, I drew a picture of my imaginary modern North Pole Village as the background. I used the drawing as the skydome, which can be seen through the windows. It also allows me to animate the color balance attributes of the picture in Maya to differentiate the daytime and nighttime. I also drew a newspaper page as the texture of the newspaper prop.

In addition, Tianran (Troy) Xia, who is also an RIT grad student, helped me with many of the Christmas props.

Production

I was quite behind my schedule because of the drastic changes to my story. I noticed that I could not wait until everything was perfect and then started the process of production. So I ended up starting with many details not sorted out.

-Animation

Animation is the part I get most excited about. I eventually would like to be a character animator. So this was the part I truly wanted to focus on and put the most effort into. I did not go through much experience in the pipeline of a 3D animated film. I once made a 3D film in the workshop course in my second year. Based on my limited experience and my personal habits, I decided to have three rounds. The first round would be the blocking round, where I should figure out the major motions and lock the story. In the second round, I would start to add more in-betweens and spline. The third round was designated for refining the details and locking the timing.

For the first round, since there was a camera test round in the pre-production stage, I was able to block the animation based on those previous Maya files, which is basically adding key poses, adjusting the timing, and replacing the space holders as more models were finished in the process.

At first, I split the whole story into four parts, and each part had its own MAYA scene. I organized the shots in each scene with a camera sequencer in MAYA. This is a pretty handy tool I used often when I was working as a previs artist. It helps with the consistency of the props. Also, it is pretty convenient to change the order of shots and preview the whole timeline. However, as the blocking process began, the MAYA scenes started to run increasingly slow because plenty of keys were inserted. Also, it got hard to organize because of some adjustments of length and timing to each shot, which led to some intersection of the adjacent shots. That was about time to split each shot into their own MAYA scene. In order to keep track of the process and organize my shots, I made a shot list as below:

Scene	Shot	R1	finished	total	Scene	Shot	R2	finished	total	R3	Render	finished	total
Sd1	Shot01A				Sd1	Shot01A				boxes, tools, sky, light, texture	140		
Sd1	Shot01		11	11	Sd1	Shot01		12	12	boxes, tools, sky, light, texture	18	12	12
Sd1	Shot02				Sd1	Shot02				boxes, tools, SKY, light, texture	190		
Sd1	Shot03				Sd1	Shot03				tools on the desk, sky, light, texture	97.5		
Sd1	Shot04				Sd1	Shot04	R2U, eye			sky, light, texture	85		
Sd1	Shot05				Sd1	Shot05				boxes, tools, SKY, light, texture	140		
Sd1	Shot06												
Sd1	Shot07				Sd1	Shot07				pipng bag orientation, tools on the desk, sky, light, texture	90		
Sd1	Shot08				Sd1	Shot08				animation hand, boxes, tools, SKY, light, texture	204		
Sd1	Shot09				Sd1	Shot09				tools on the desk, sky, light, texture	130		
Sd1	Shot10				Sd1	Shot10				boxes, tools, SKY, light, texture	130		
Sd1	Shot11				Sd1	Shot11				boxes, tools influence the framing SKY, light, texture	16		
Sd1	Shot12				Sd1	Shot12				boxes, tools, SKY, light, texture	190		
Sd2	Shot01	01B	5	5	Sd2	Shot01		6	6	tools on the desk, sky, light, texture	240	6	6
Sd2	Shot02				Sd2	Shot01B				coffee stove, tools on the desk, sky, light, texture	80		
Sd2	Shot03				Sd2	Shot02				boxes, tools, sky, light, texture	90		
Sd2	Shot04				Sd2	Shot03				boxes, tools, need to be same as SKY, light, texture	97.5		
Sd2	Shot05				Sd2	Shot04				animation, boxes, tools, same as above, SKY, light, texture	200		
Sd2	Shot06				Sd2	Shot05				boxes, tools, SKY, light, texture	11		
Sd3	Shot01		7	7	Sd3	Shot01		7	7	boxes, tools, sky, light, texture	165	8	8
Sd3	Shot02				Sd3	Shot02				tools on the desk, sky, light, texture	85		
Sd3	Shot02B				Sd3	Shot02B				sky, light, texture	85		
Sd3	Shot03				Sd3	Shot03				offset, boxes, tools, SKY, light, texture	85		
Sd3	Shot04				Sd3	Shot04	R2U			shoulder offset, boxes, tools, sky, light, texture	84		
Sd3	Shot05												
Sd3	Shot06				Sd3B	Shot01	R2U			sky, light, texture	11		
Sd3	Shot07				Sd3B	Shot02				prop, SKY, light, texture	11		
Sd3	Shot08				Sd3B	Shot03				SKY, light, texture	11		
Sd3	Shot09												
Sd3	Shot10				Sd3	Shot10				light, texture			
Sd4	Shot01		6	6	Sd4	Shot01		7	7	boxes, tools, pipng bag position, sky, light, texture	140	7	7
Sd4	Shot02				Sd4	Shot02	R2U			tools on the desk, sky, light, texture	10		
Sd4	Shot03				Sd4	Shot03				skbin, SKY, light, texture	195		
Sd4	Shot04				Sd4	Shot04				animation spine break/ribs, SKY, light, texture	390		
Sd4	Shot05				Sd4	Shot05				boxes, sky, light, texture	85		
Sd4	Shot06				Sd4	Shot06				animation motion change, boxes, sky, light, texture	111		
					Sd4	Shot07				fracture, cam, sky, light, texture	80		
					total			32	32		3651	33	33
											3500		
											104.31%		100.00%
											-351 frames left!!!		

(shot list)

As the animation process entered the second round, I had my midterm committee meeting. That was when my committee brought out that the paper being due idea was a bit weak and truly common in this educational environment. There could be a stronger motivation with metaphor. I was pretty stressed

because it was in the spline stage, and very limited changes could be made. It was the biggest challenge for me in this round. Very luckily, I got inspired by my boyfriend and parents immediately. And this Santa Clause idea allowed to change only a few opening and ending shots, some of the environment, and props.

Overcoming this challenge, I was able to continue with the spline. I enjoyed this part the most. From my perspective, the blocking is to tell the story clearly, while the first round of spline is when character performance gets shaped the most. My favorite animation was also created in this round. I like the sequence when the girl cleaned her room best. In this section, there were big motions and unreasonable actions. They were such a contrast with the subtle movements while she was doing her job. It helped with an ironic comedic effect that I really wanted. Also, except for throwing all the trash shot, the girl was doing things I wanted but dared not to do. I got acrophobia while she scraped the windows in the upper air with Kungfu. Besides, I was scared by sharp needles while she kept cactus and cleaned the needles.

The third round was mainly for refining the animation. As designed, there were active shots with big motions when the girl was procrastinating and doing all kinds of things other than doing her job. Meanwhile, there were shots with less big motions when she was back to reality and preparing the gifts. These reality shots looked a bit too still with those limited motions. So I decided to add some breath animation to her. Also, to make her more lively, I also felt like adding blinks. Technically, adding breath and blinks is not difficult. But the amount was huge and with those animations inserted, it would be hard to adjust keyframes. So I learned a bit about animation layers in MAYA. With the animation layers, I could place all the major animations in one layer, while the breath and blinks animations were on their own layers. Each layer does not influence the others, which is perfect for my case. Besides, the animation layers were exportable, which meant I could work on the breath animation and the blink animation only once, export them, and then import them wherever they were needed. Although adjustments were eventually made, it still saved me huge amounts of time.

The third round was also the round when I had the last touch of all the props. I made sure all the props were not space holders anymore and everything was ready for the next step.

I am proud that I eventually finished it and managed to stay on track for most of the animation rounds. I was able to make readable and lively character animation.

-Texture

At the very beginning, I was a bit torn between the Arnold aiToon shader and the Maya Toon shader. I had been working with Arnold for three years, so Arnold aiToon shader definitely sounded more familiar to me. However, I really liked the flattened look and those sketchy outlines of Maya Toon shader which led to a comic book visual style. Also, the Arnold aiToon shader can not be viewed in the Maya viewport really bothered me. So I went for Maya Toon shader at first.

However, some problems appeared during the render test. One is that those sketchy outlines were fixed in the default A pose no matter how I moved the rig. I tried my best but was not able to manage it. I decided to go without the outlines.

Then there came the second problem: Maya Toon shader was not designated for rendering, it was for preview on the Maya viewport. So I had to either go with another shader or go with Maya Toon without rendering. Even though I truly liked the look of Maya Toon shader, I eventually switched to Arnold aiToon shader because I preferred to have a high-quality render rather than a playblast. The process was not easy. Switching from Maya Toon to Arnold aiToon basically meant reassigning the shader from the beginning. After spending a couple more days than expected, I eventually made it.

Afterward, I was trapped by the third trouble. There were faces intersecting each other in some poses found in the rigging process. So I hid those unintended faces. However, during the render test, the Arnold renderer did not recognize this and rendered everything out, including the hidden faces. Searched online, and submitted a ticket to Autodesk, I got no solution to this situation. The best but not perfect

solution I eventually went through was assigning those unintended faces with an aiClipGeo shader. This solution was not perfect because it only worked well with the faces with the right orientation. It did not work with faces outside and only blacked out those faces. I also used blendshapes to move the vertices so I could get rid of those black faces.

-Lighting

The lighting process was pretty straightforward. As I mentioned, I drew my own background, and I assigned it as the skydome. Then to create a convincing indoor environment, I had an area light on the ceiling. The rest of the lights are adjusted scene by scene.

At first, all the lights were casting shadows. This led to crossing sharp shadow lines cast on objects, which were truly distracting. To improve that, I turned off the casting shadows of most of the lights and had only one main light to cast shadows.

In addition, there was one scene where the lighting played an important role. The sunset and the moon came up, which notified the girl character that she did not have much time left. There was a drastic lighting change. It was achieved by animating the light and the color balance of the skydome image.

Once all the animation, iteration of props, texturing, and lighting of one scene were done, I sent it to render.

Post-production

-Sound

For the sound, I worked with Naifu Cui, who was also a graduate student at Rochester Institute of Technology. He was the sound designer of my thesis film. We once worked together on an independent game project. I reached out to him by the end of my first thesis semester. Even though he did not have

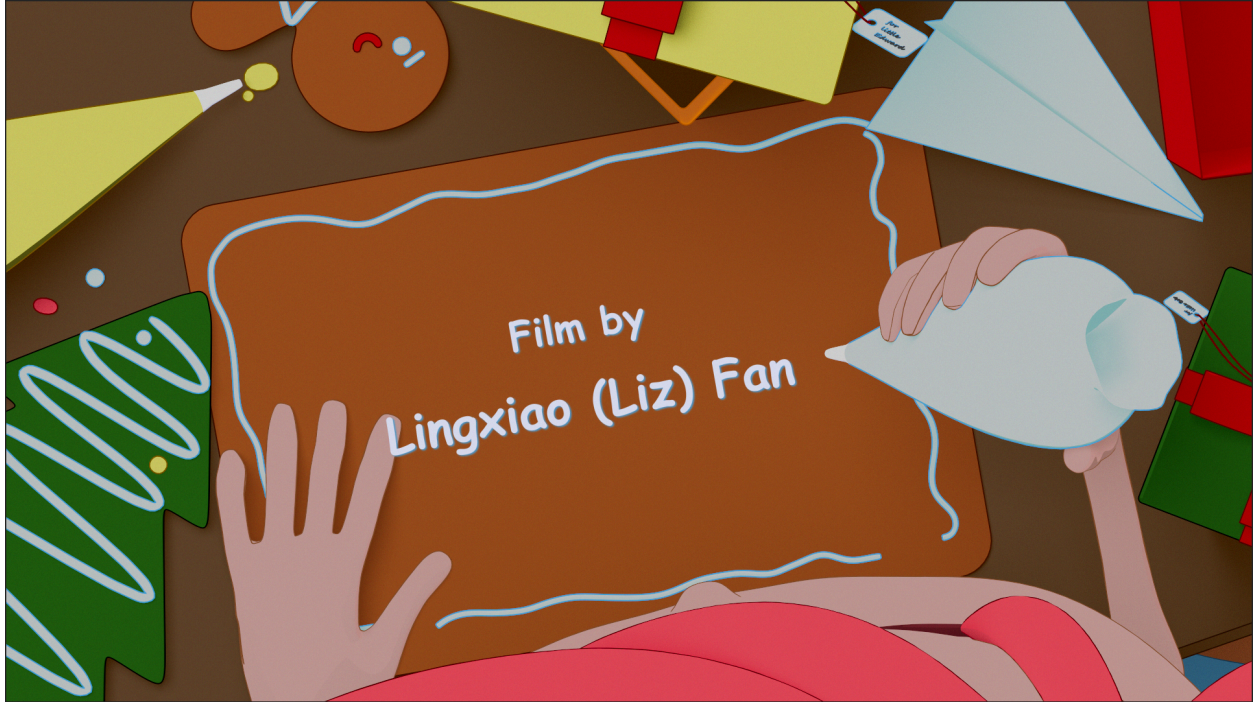
experience in film, his style in games left a deep impression on me. Also, luckily, he was interested in my film and willing to make his first attempt.

I was seeking some cartoony sound that fit the visual and increased the comedic effects. Naifu got the idea immediately. I tried to give him enough direction and then kept it open for his creativity. He started work on the sound effects one week before the rendering. He did a great job on that and we both liked it. However, there was a concern that the sound effects might be too full and that if we continued to add background music, the film might sound too busy. In particular, we wanted to use two pieces of music to make a contrast between the real world and the girl's procrastinating happy world.

In spite of our concerns, we still made an attempt. Naifu chose a peaceful soft Christmas carol "*Away in a Manger*", which is a public domain piece, as the background music of the real world. Meanwhile, he chose another public domain work "*Go Tell It on the Mountain*" for the girl's procrastinating world. The result turned out to be a success. The music went perfectly with the visuals and the sound effects. We were satisfied and so proud that we insisted on the attempt.

-Credits

I started to work on the credit only one day before the final meeting with my committee, which is also only one week before the screening. With all the time spent on rendering, I did not get a chance to design the credits at first. It was just Times font white letters on a black background with simple cut transitions. Highly recommended by Professor Mari Jaye Blanchard that even using a simple frame of rendered image as background would help the credit look more finished, I rethought the design. I eventually made a rectangular gingerbread as the background. Also, I made an idle animation loop of the girl's hand holding a white dripping bag and had it repeat. The texts are changed to a cartoon font in white. I also added some shadows to the text layer to make them look more like decorative cream icing on the gingerbread.



(Credit)

-Title

The title was originally “I will do it tomorrow” when I wrote the first draft of my thesis. I truly loved it because it was such a pet phrase of mine for a while. However, as the story changed and the whole story happened in only one day, Christmas Eve, the title would not work no matter how much I loved it. I did not notice that I had to think of a new title until composing. So I decided to keep it simple - Christmas Eve.

Evaluation

Throughout the whole thesis year, I had a lot of meetings with my thesis chair Meghdad Asadi, at first weekly, and then 2 meetings a week in the second semester. I presented to him what I accomplished last week and then shared my goal the next week. Each semester I had two meetings with my full committee, which included Mari Jaye Blanchard and Kevin Bauer. Also, there were some extra meetings with my committee for more feedback. I am so appreciative of the precious feedback and creative inputs they offered.

In addition to my committee, my friends and composer saw my process pretty often. The most common comment I received was “Oh this is literally me doing my blah blah blah”. Except for my boyfriend, his was “This is exactly YOU working on your thesis”. I was glad that they got the idea, thought it was funny, and even sympathized with the girl character so much.

The film was screened in Wegmans Theater on campus in December 2023. It excited me so much that I heard laughter from the audience at those comedic moments. After giving my artist statement, I received various feedback. I heard a lot of positive feedback on the animation and visual style. Meanwhile, there were things that I could improve afterward. There were comments on the flattened shader and high-saturation color palette I chose. Also, there was confusion about the ending. Some also thought the opening shots for establishing the girl as Santa Claus were a little overdone. All the feedback was very helpful in adjustments afterward.

Conclusion

Throughout my thesis year, I went through various challenges and struggles, but I eventually managed to complete my thesis film. During the process, I was able to figure out and face my negative feelings, and I was more capable of dealing with them. The drastic changes in the story once were my biggest challenge, but I was able to find solutions to them in the limited time. The second challenge was rigging the characters, and with the help of Advanced Skeleton, I managed to complete my own character.

In this film, I made a couple of first-time attempts which turned out to be successful as well. For the first time, I fully rigged a character and used toon shaders.

Even though I have not found the perfect way to deal with my procrastination, I believe I have been living a less stressful life now.

Appendix

Thesis proposal

TITLE

I will do it tomorrow

DIRECTOR

Lingxiao Fan

KIND OF FILM (technique and style) (approximate length)

3D animation (approximate length: 3.5 minutes)

LOGLINE:

A girl suffers from her laziness, but she is too lazy to overcome it. One day she is informed that her parents will visit her, she decides to fight with her laziness and clean her apartment.

THESIS STATEMENT:

To break a bad habit, all you need is a start.

RATIONALE:

The story is about changing bad habits. The girl suffers from her laziness. She desires to make a change, but a monster always stands in her way. The monster presents her laziness. She makes several attempts to overcome it but always gives up halfway. Until one day, she “throws her first punch”, realizing it’s not that hard to make the change.

For myself, I was disorganized before and always lost some tiny daily items like hair ties, keys, etc. I couldn't find them until I almost forgot them and didn't need them anymore. I usually found them gathering dust in a corner of my room. When I was a kid, I used to imagine that there was an invisible little monster in my room picking up these tiny items. One day I decided to make a change. Then I realized it's actually not as hard as I thought. Things went very smoothly as soon as I started. Also, the monster I've been fantasizing about is just an excuse I've made for myself. My life was totally changed after that.

People often make all kinds of excuses for not changing their bad habits. They stubbornly believe that breaking the habit is an extremely difficult task. In fact, starting to do one thing is like a valve, once the valve turns on, breaking a bad habit is as smooth and simple as water flowing.

TREATMENT:

There is a photo of a family in a clean and tidy apartment on a porch cabinet. A calendar hangs above the cabinet. It is the 26th today.

A girl comes back home from campus. She takes off her coat and is about to hang it up on the coat tree next to the cabinet. At this moment, a little monster flies out from the apartment, pulls the coat out of her hand, and throws it on the ground. There are already several coats on the floor by the hanger. He pushes her from behind towards the sofa. Together they collapse on it, ignoring how messy the apartment is.

Cut to a desk, the girl pulls out the chair and opens her textbook, attempting to do her homework. But the little monster lies in her book, preventing her to do homework. The girl tries to separate him from the book, but the little monster clings too tight to it. Then the girl finally gives up.

Another cut to the living room, the girl and the little monster sit by a tea-table. The girl finishes a can of coke. She is about to clean up the table, but the monster holds her waist to prevent her from moving. So, she attempts to throw it into a distant garbage bin without walking there. While the monster intercepts the can in the air. The can is kicked back to the girl's side. She makes several attempts, which all fail. She gives up again.

When the girl and the little monster are chilling on the sofa again, she receives a phone call from her parents, saying they will come to visit her in two days. She jumps out of the sofa, intending to clean up her apartment. The monster seems terrified, and he tries to stop her by holding her leg. But he fails. The monster gets angry and transforms into a huge and fierce monster. They both hop into a game scene (like the Street Fighter interface). The girl is given a mop by default as her weapon. But she is so scared, so she flinches. She keeps jumping, trying to reach for the exit button over her head. The system decides that the girl fails, and the monster levels up, becoming even bigger. Then the background switches back to her messy room. And the monster turns back to normal.

The other day, when it's one day before the girl's parents come to visit her, she gets tripped over by a can, which she once threw to the floor, and the monster is playing with. She gets hurt by her bad habit and kind of gets annoyed with that this time. Also, she stares at the calendar, feeling compelled to clean her apartment up. The monster pops into the big and fierce form, and they hop into the game world again. The monster is bigger than last time. The girl tries to summon up the courage to fight him. She holds her new

weapon, a huge cleaner spray, tighter. But when the monster throws the first punch, the girl is knocked down. She sits on the ground and starts being lazy again. Also, she still has one day left, so she flinches again. Unsurprisingly, the monster levels up again and gets bigger.

On the day the girl's parent plan to visit, she is pushed by the monster walking from the porch towards the sofa, then she gets a text from her mom, saying they will arrive in half an hour.

She freezes in panic for a while. But very soon she runs towards a nearby desk, about to start cleaning up.

The little monster pops on her way to stop her. They hop into the fighting game. The monster looks bigger. The girl is a little terrified. She struggles a lot, but finally decides to fight the monster. As she determines to punch, she trips over by herself and falls. But it happens that her fist hits the monster when she falls over. The monster seems not to fight back and even gets panicked. The girl stands up quickly, attacks a few more times, and the monster is defeated surprisingly fast. The background switches back to the room, which is already cleaned up. The girl wipes the sweat off her face.

The girl collapses to the ground with relief and satisfaction. Meanwhile, the doorbell rings.

SCHEDULE:

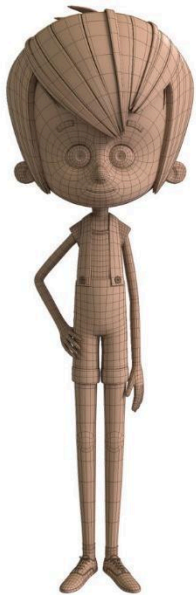
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Assignment/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pre Production															
Story Treatment															
Storyboards															
Animatic															
Character Design															
Character Modeling															
Rigging															
Other Models															
Texture															
Production															
Block															
Spline															
Polish															
Lighting															
Post Production															
Render															
Title															
Compositing															
Composer Meeting															
Sound															

	Jan		Feb				Mar				Apr				
Assignment/Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pre Production															
Story Treatment															
Storyboards															
Animatic															
Character Design															
Character Modeling															
Rigging															
Other Models															
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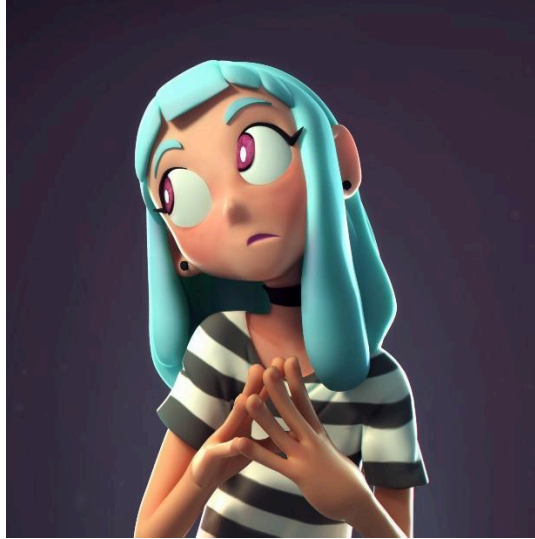
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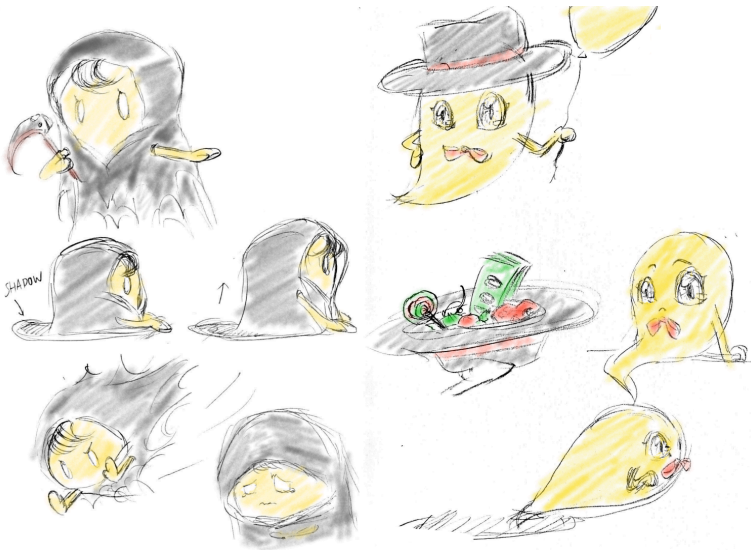
Required Items	Cost	In-kind
External Hard Drive	\$150	No
Autodesk Maya	\$3500	Yes
Composer	\$200	No
Sound Designer	\$200	No
Asset Models	\$200	No
Rigs	\$200	No
Adobe Creative Cloud	\$264 (\$22/mo. for 1yr)	No
Blue-Ray Disc	\$50	No
Festival Fee	\$200	No
Total	\$1464	

REFERENCES:



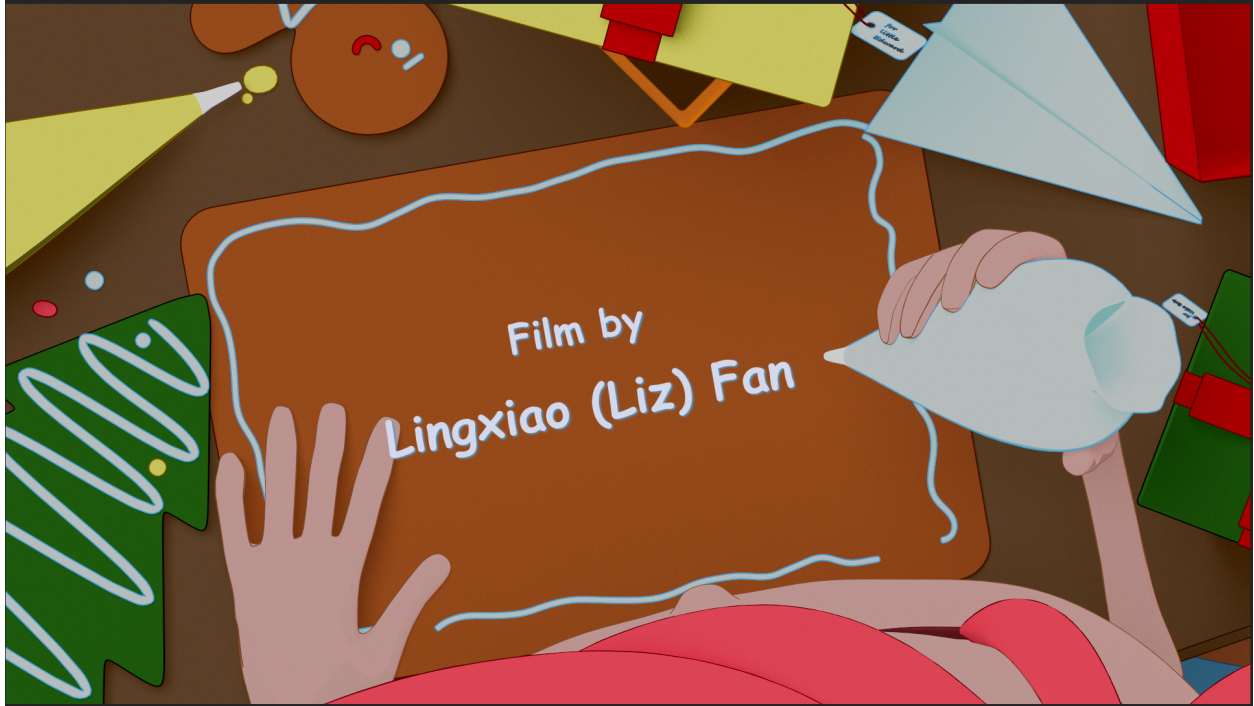
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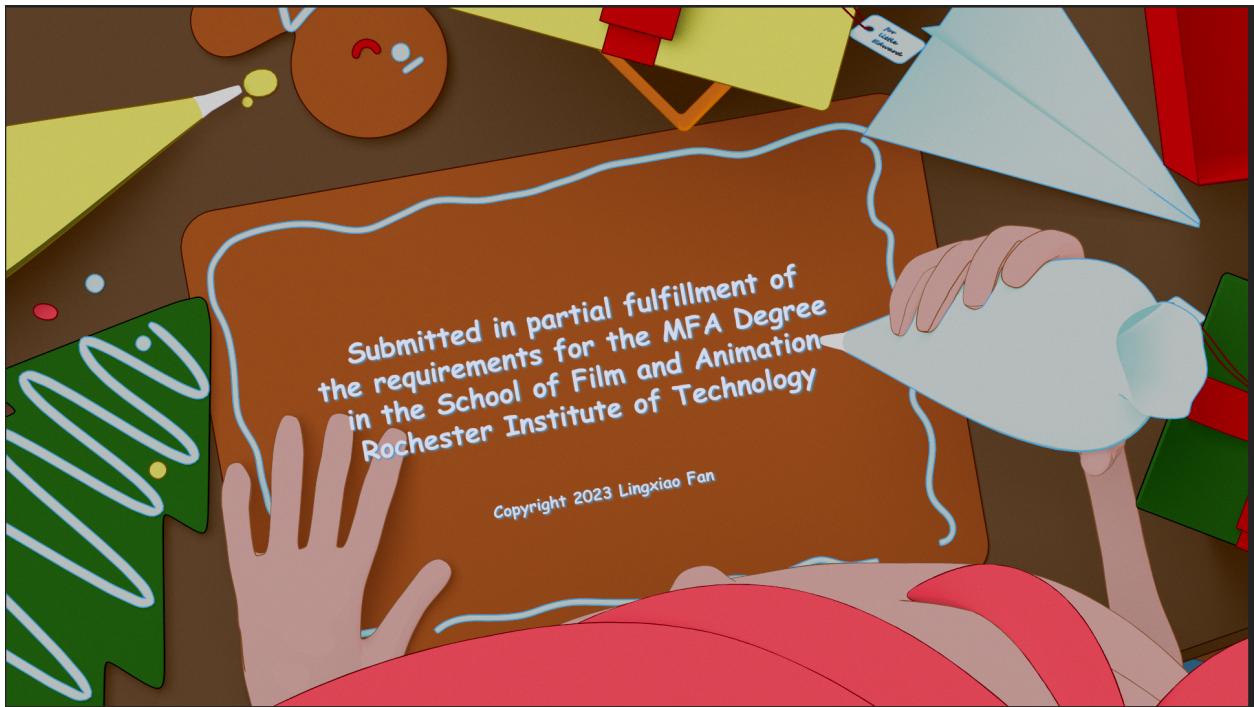
Screenshots











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