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I Need You

Hao Shen
hs9782@rit.edu

I Need You

By Hao Shen

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Committee

Stephanie Maxwell, Professor/School of Film and Animation

Shaun Foster, Associate Professor/School of Design

Tom Gasek, Associate Professor/School of Film and Animation

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Abstract

I Need You is a 4-minute 3D-animation thesis film. This 3D animation film premiered on May 12, 2017 in the School of Film and Animation's End-of-Semester screenings program at Rochester Institute of Technology.

This story is about a grown son who returns to his father's house to help his father find the source of a mysterious ghost-like, screeching sound inside the house. However, the son is really confronted with his relationship with his father. The thesis film was inspired by my single mom who has stayed in China by herself and alone and who misses her son, me Also, lots of my friend's parents have the same situation where they miss their children and are not able to be with their children because of the geographical separation and personal reasons.

I Need You is a 3D Virtual Reality animation that combines traditional 2D, 3D software and game engine to create a new-tech 3D animation film. The software include Photoshop, Maya, Zbrush, Substance Designer and Painter, Unreal 4 game engine, 3D coat, Marvelous designer, After Effects and Adobe Audition.

Introduction

I Need You is a scary story that takes place in an old, big with two characters, a father and a son. The father is actually creating the scary environment to attract his son's attention, because he misses his son so much and he wants to see his son as he is nearing the end of his life. His son rarely comes back to see his father because he is so busy with his own life.

I wanted to tell this story to bring attention to the problem that so many people ignore their parents because they are too busy. I am an international student, and I haven't seen my parents for two years. I miss them so much, but I can't go back home since there are many opportunities for employment in the U.S., and I want to find a good job to improve my skills in my field after graduation. This means I have to be separated from my parents for at least five years. I think there are too many students who have the same situation as mine. We are young and have a long time to do what we want, but our parents become older and older without us as we grow up. My film tells us to pay attention to your parents before it is too late. No matter how brilliant your work is, you must take care of your parents because they need you.

I spent a half year to find the best way to express my idea during pre-production. I redrew storyboards and refined the script three times, and finally *I Need You* appeared

in my mind. In addition, I volunteered at the Siggraph conference in 2016, which was the first year of new Virtual Reality technology. I gained a lot of new ideas and inspirations from different people at this conference, and after doing extensive research, I decided to make a new tech Virtual Reality 3D animation.

Acknowledgements

I received a lot of help from my thesis advisor Stephanie Maxwell and my thesis committee members Shaun Foster and Alejandro Perez Sanchez. Stephanie introduced me to many amazing frightening films about family and relationships between fathers and sons. One such film, is *Citizen Cane* by Orsen Wells. Later when I was designing my interior scenes in the house, she inspired the storytelling to relate to the designs, especially the designs by Fornasetti. Their style is really amazing, so I spent plenty of time doing research and tried to combine their style with my style of interior design. The Fornasetti design really influenced me a lot. Also, when I had times of being stuck in the storytelling, Stephanie provided quite a lot related materials to help me figure out my problems, and I in time felt very confident about my final animation film. My other committee members, Shaun Foster and Alejandro Sanchez helped me a lot with the technology aspects of the film. I learned Unreal 4 and VR technology in Shaun's class. He not only taught me Unreal 4 and other software skills, but also shared plenty of new knowledges about VR tech which really opened my eyes. Whenever I encountered software questions and problems, Alejandro, as my Maya software teacher, always

went over step by step issues that needing fixing and for no matter how long it took. There are so many people I should say thanks to, including my teachers Thomas Gasek, Mark Reisch, and Atia Newman, who provided me with useful experiences and the knowledge that supported the completion of my thesis film. Without them, I would not have been able to finish my film. I am really grateful for all the support from my teachers and friends.

Proposal and Inspiration

Since I really like to explore topics about humanity, in the beginning of my project, I thought up three possibilities for my thesis film. The first topic was about relationships between brothers; the second topic was a story about sex. I got a chance to volunteer at the Siggraph conference in 2016, and at the conference I saw a lot of new VR technologies, which were really amazing and that I had never seen. Some VR games and VR experience projects really shocked me. I was so excited about the new VR technologies and I decided to make my own VR techniques. At that time, I got a phone call from my friend saying that his father suddenly died due to cerebral thrombosis, and he even couldn’t go back to China to see his father before he died due to the final exams. Also, he hadn’t seen his parents for two years due to his busy life. I was really sad when I heard this news from my friend, but it gave me some inspirations at the same time. I know more and more people are busy with their own lives and don’t have time to take care of their parents, especially

business people who think time is money and value as the most important things in life are money and their social life, but not their parents. Considering all the above, I decided to make a film to reflect relationships between parents and their children. I hope my film would arouse more and more people to pay more attention to their parents.

I also tried to combine traditional 3D animation with current VR technology to make my Thesis film unique and interesting. I did a lot of research on how to create VR animation, and I was inspired by a film called *Pearl*, which was the first virtual reality project to be nominated for an Academy Award.

Image from *the Pearl*

The Pearl tells the story of how a single father raises his young daughter. It makes the story quite engaging by putting the viewer inside a car and watch sitting in the car and

allows the audience to watch Sara’s growth from the first person perspective. Through sharing Sara’s exuberance and her angst from the view of a passenger sitting in the front of the car, the film becomes a wonderful journey. I hoped that I could also tell a story in a similar way, and I hoped people could sit within my film by using VR headset as the protagonist to view how plot unfolds. The viewer becomes engaged as the main character.

Story Description

While an old man is sitting in a rocking chair in a large entryway of a mansion, there is an odd screeching sound that seems to echo all around inside the mansion. Suddenly, with a crash, the front door is flung open and the old man’s son is standing there. The look on the son's face shows that he is worried and has rushed to his father’s mansion. The son moves quickly to the entryway of the house, breathing heavily, and then kneeling next to his father and watching him carefully. The old man is staring into the surrounding space and is very nervous. It is very quiet in the house and then a deafening screeching sound is suddenly heard. The son jumps up and looks around shocked by the horrible sound.

The son leaves his father's side and starts searching for where the sound might be coming from. He walks around the large entryway, examining the radiator, the windows, and other places. He then leaves the area and looks around the rest of the first floor of the house. With caution, he climbs the staircase up to the second floor. The son is

frightened because the sound seems to move around. He slowly opens each door on this floor.

The first room is an unoccupied bedroom, but a framed photo is laid on the floor. The glass in the frame is shattered with a wedding photo of his father and his mother lays against the shattered glass. The room is dusty, as if no one has lived there for a long time. There are items belonging to his mother on an old vanity table -- jewelry, perfume bottles, and a sewing basket. For a moment he is filled with grief, but then he hears the screeching sound outside the room and leaves.

He enters the second bedroom which is messy and chaotic. A dark red liquid is spilled on the floor; the furniture is upside down; and the curtains are torn. He looks around, but he does not find out where the sound comes from. He leaves the room and goes to the third room, but the door is locked. He pulls the door knob back and forth, and finally the door opens. It is his childhood bedroom. The room is clean and neat. There are many photos that were taken throughout his life hanging on the wall. The son picks up an old pencil box and seems to be lost in memory. But then the screeching sound suddenly grows very loud outside the room. The son leaves the room in search of the sound again.

He goes into the hallway and stands on the staircase landing looking all around the house below. The son is going mad because of the horrible screeching sound.

Suddenly, he notices that his father is still sitting in the chair at the entryway on the floor below, holding something in his hand. He stares at his father's hand and sees his father repeatedly squishing something hidden under his lap blanket. The son rushes down the stairs and stands next to his father’s rocking chair and then pulls out the thing underneath the blanket. It’s a large rubber chicken, a toy that when squished makes a terrible sound. He suddenly understands that the scary screeching sound he has been looking for was made by his father. The son is very angry that his father has wasted his time. His face turns red and he looks at his wrist watch and then throws the rubber chicken against wall. The son storms out of the house and slams the door. The wall shakes due to the door slamming, and a photo falls off the fireplace mantle.

The father just sits and stares at the door. His hand keeps squeezing even though it is empty. The old man’s eyes move to the photo on the floor. The photo displays the son laughing with his father. The boy has a rubber chicken in his hand, and he is showing it to his father. The old man’s face is reflected on the glass on the photo, he inhales deeply for the last time and closes his eyes slowly and dies.

The son slowly opens his eyes. Tears are falling down his cheeks. The son is sitting in his father's rocking chair and looking at the same photo that had fallen from the mantle He holds the photo on one hand and holds the rubber chicken in the other hand. He begins to squish the rubber chicken over and over again and the screeching sound

grows extremely loud. The sound flies around him and then unendingly throughout the house.

Pre-Production

Pre-prepare

During the pre-production process, in order to trigger audience's resonance with my film, I intentionally went to a nursing home and talked to three old 'empty nest' people to get the real feeling for their lives. I hoped I could get some inspirations from their stories. I found the thing these old people talked to me most was about their children.

I proceeded to do a lot of researches about animation character design and interior design. I collected enough references from books, films, and websites such as Pinterest and Artstation to support my creation. In the meantime, I went through more than 100 video tutorials on VR production technology, Unreal 4 game design, Maya, Zbrush, and material creation in Substance Painter to refine my skills and to create a film that would look professional and high quality.

Character Design

The main characters in my story are an old father and his son. The father is a successful entrepreneur, and he lives in a very large house with his happy family. He has a beautiful wife and a handsome son. However, as the son grows up and due to the early death because of his family breaks up. He feels lonely, especially when his son leaves him and goes to a big city for his own business. In my film the father's character should be an unsociable guy but also fears loneliness. And the son's character should be an indifferent man due to the loneliness and coldness in his environment as a youth. He has no time for his old father and he does not want to take care of him.

I found some references as my inspiration, and combined these references with real life pictures and began to design my own characters.

First, I went to the nursing home and took a lot of pictures of old people as they sat by windows and stared outside. I could really feel their moods. They really gave me a lot of inspiration for the character designs in my work.

Real life picture reference.

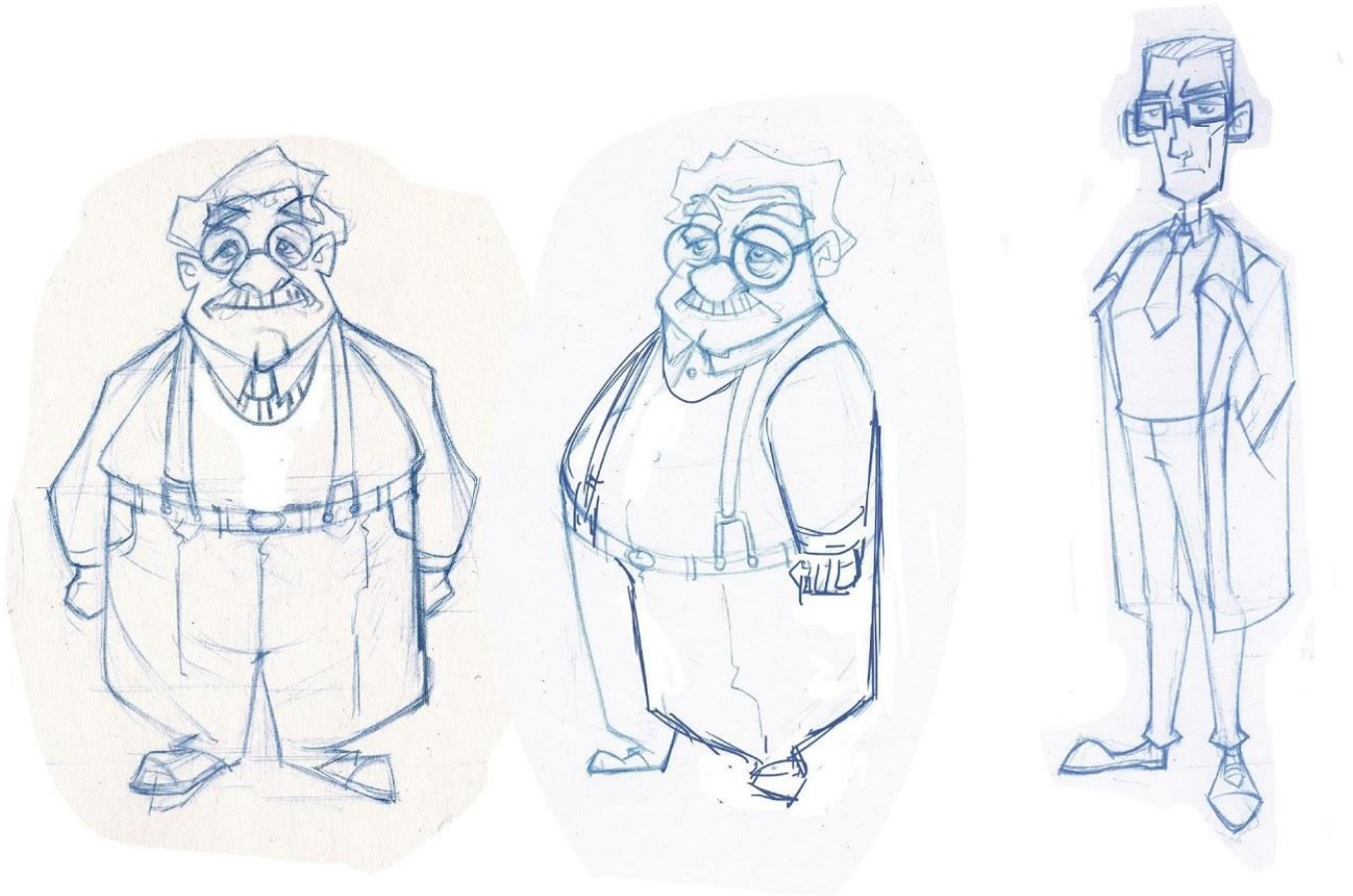
After that, I tried to find some cartoon character references to match my imagination. I love Disney animation, so I studied almost all the Disney characters. I didn’t want to copy them, so I combined some references that came from a brilliant artist Nataly Talis I found on Pinterest, and designed my own unique characters.

Reference from Pinterest.

Considering the father’s situation, I decided the father character would be super fat and have difficulty in moving. Accordingly, I got a new sketch from my friend Vicky Hou as a reference.

Reference from my friend.

In order to match the son’s personality, I thought the son should be a thin, tall and serious businessman. Therefore, my first edition of the characters came out.



Rough character designs.

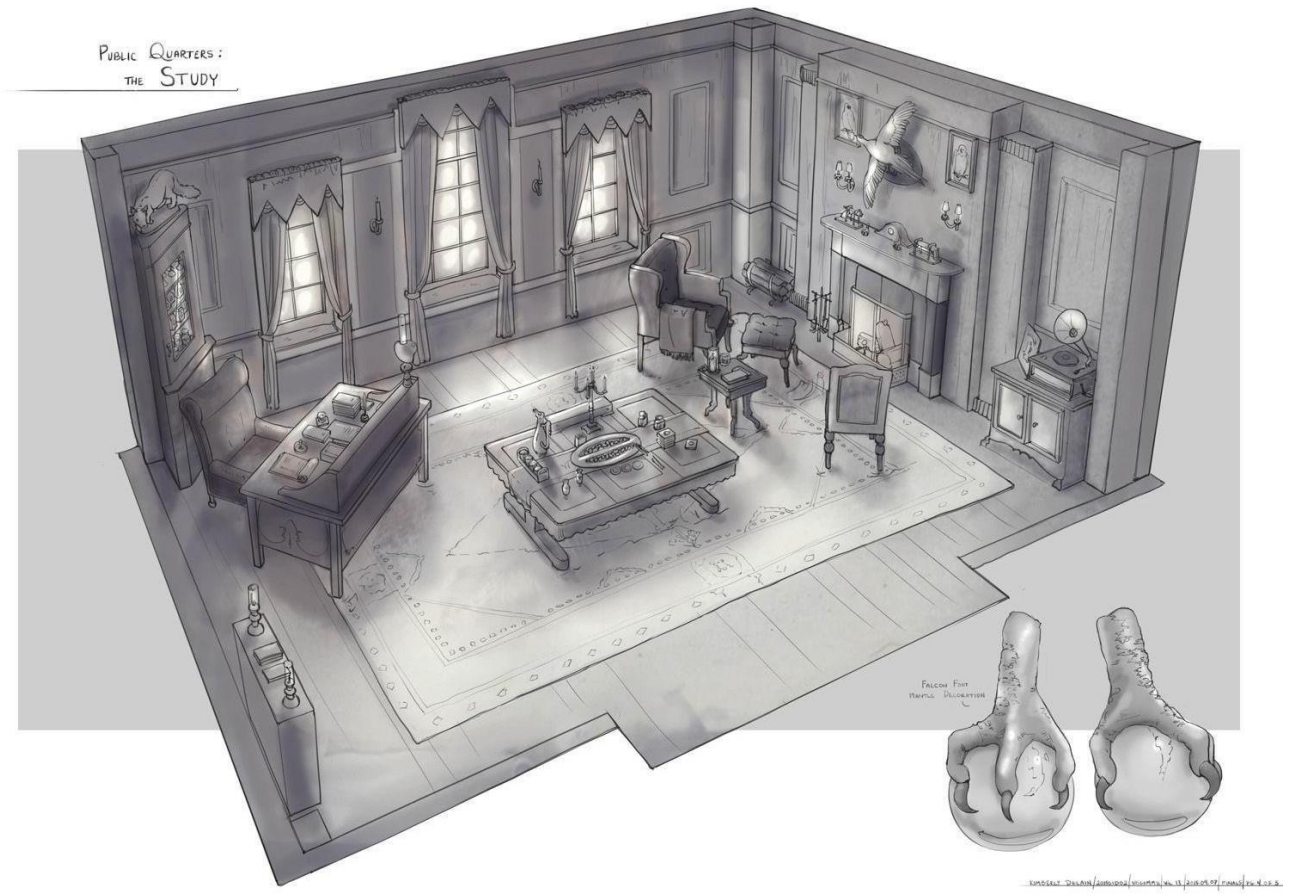
The father looks pudgy and genial, and the son looks lean and serious, so as to distinguish between their personalities.

The next step was to design the son’s and father’s details including color, clothes pattern and form. After I sketched and modified the designs many times, I came up with good designs for both father and son characters.

Detail design on character.

Environment Design

The environment is very important in my film. Since my story takes place in a wealthy family, and the son needs to explore the house and help his father find the strange sound, the son must walk around the house from first floor to second floor and room to room, which means I needed to design all of the details the interior space. I did a lot of research about old mansions, including what elements are typical in mansions. The living room appears first in the films and it also the most important part in my film. And I found some sketches that match my imagination.



Sketch reference from Pinterest.

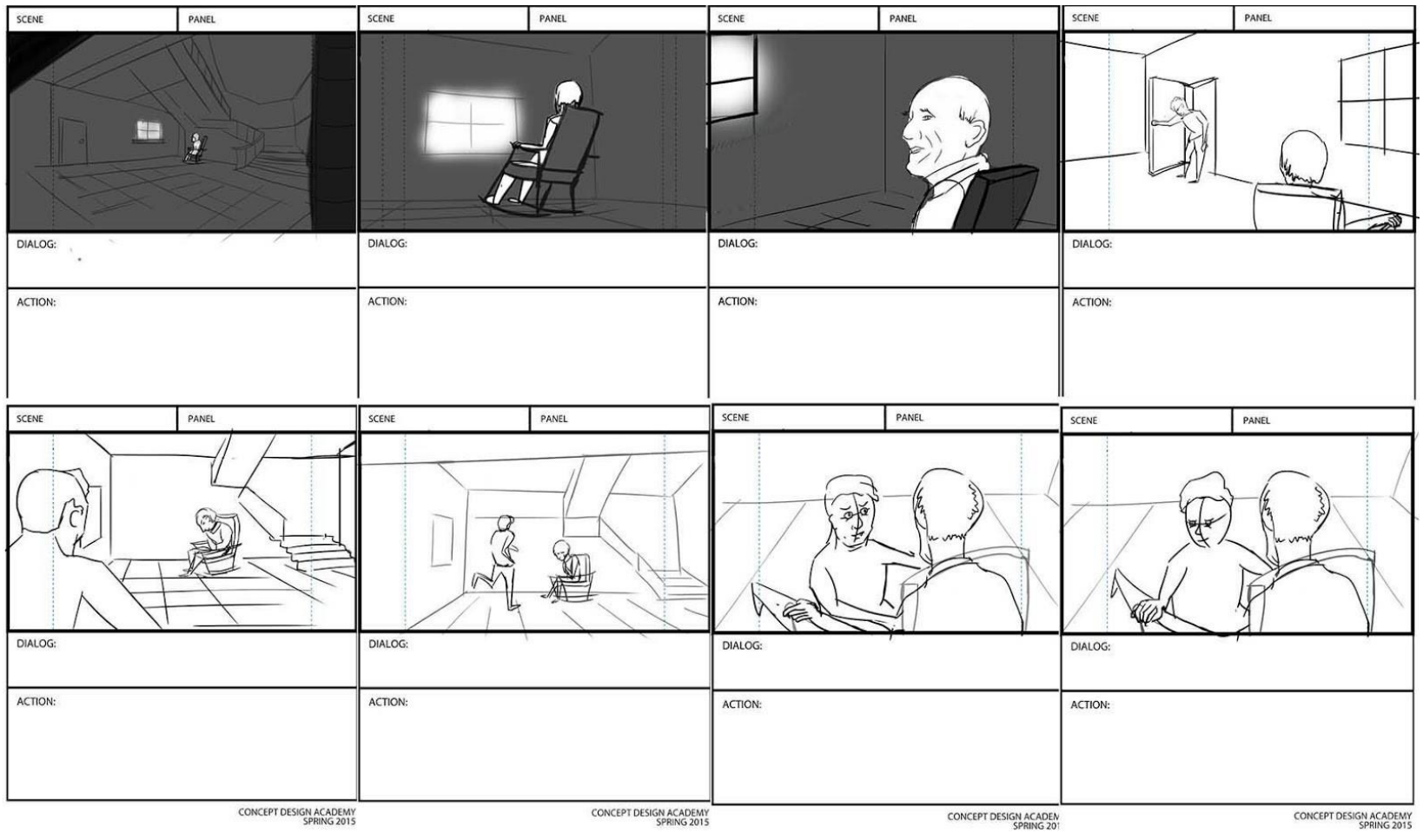
I also traveled to California and visited the Huntington Library and took lots of pictures of the large mansion on the property and created some good references before designing

my mansion. I took a lot of pictures of house details, including the shapes of clocks, chair materials, ceramics patterns, and the style of the European designs of the walls, etc. These references really inspired me when I designed my own interiors.

Mansion reference in Hunting Library.

Storyboard

The next step was to draw a storyboard for my film. I'm not a traditional art major student, so I specifically enrolled in a storyboard class at Concept Design Academy School in Los Angeles to refine my storyboard skills. I gained a lot of new knowledge from my Disney lecturer, who taught from the view of his professional experience in industry. He instructed me on how to use different kinds of shots at different times and in different spaces. Shots like basic shots, including wide shot, medium-wide shot, close-up shot, and some special shots such as over the shoulder, profile shot, up shot and down shot, tracking shot, etc. He also taught me what was the best shot to use when setting up different situations, and how to smoothly transition a shot from the first one to the next. With his instruction, I sketched up a rough storyboard to show the story development and the interior environments in my film.

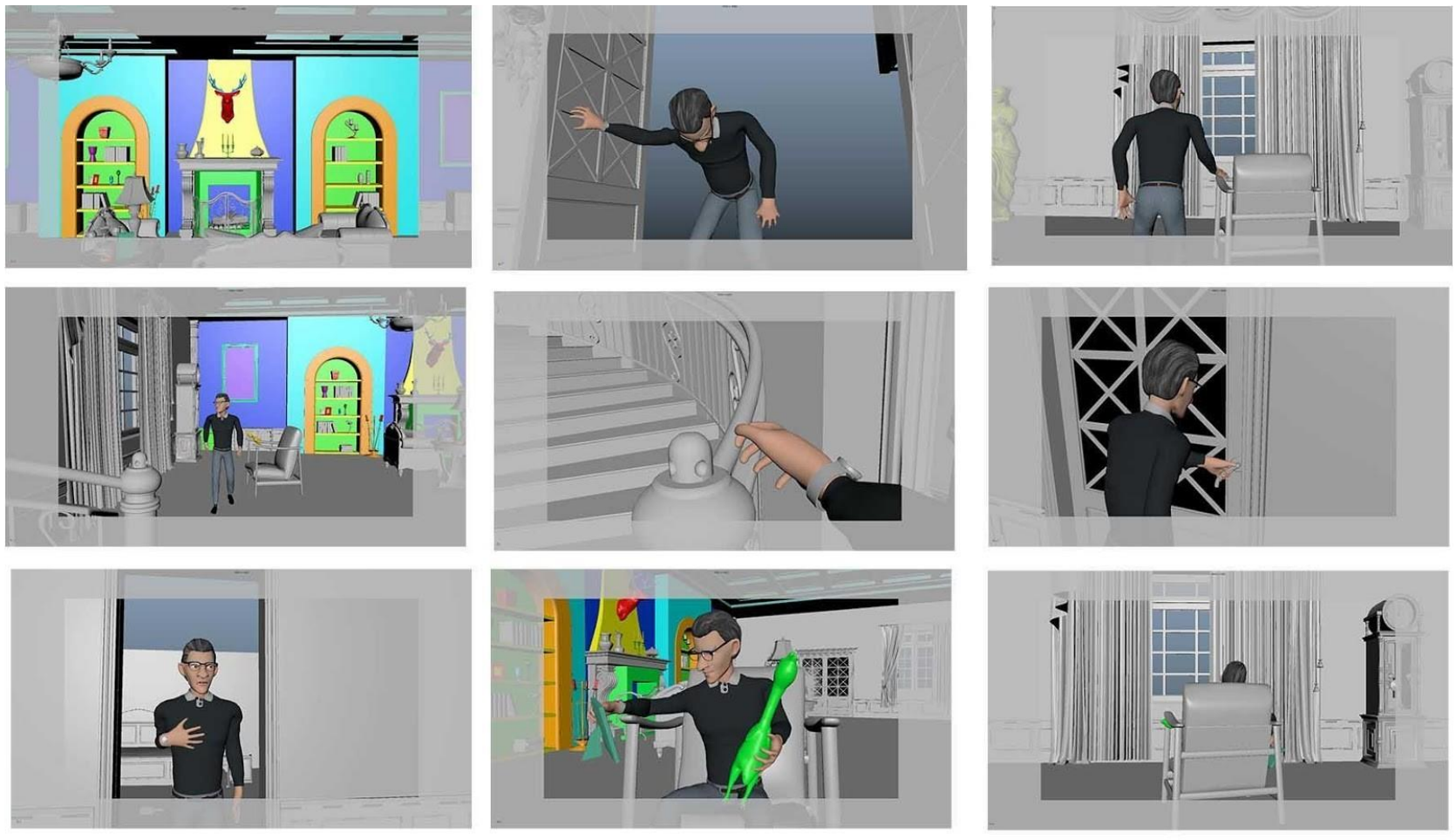


Rough storyboard design.

When I finished the storyboard design, I put all of the storyboard sketches together using Adobe Premiere so I could check for any connection or screen direction problems. After solving all the problems, I had a complete storyboard.

Animatic

The animatic would be the most important step during my animation production, so I spent lots of time on it. I decided to make a 3D animatic instead of 2D animatic, because I thought I could achieve more control on the timing, character position, interaction between characters and environments. I chose to use lots of different shots, since it would be easy to change and adjust my camera, and I could fix the camera angle as soon as possible if there was any problem. I did the 3D animatic after I modeled my characters and rough interior environments, and the animatic would be very different from a 2D animatic. I hoped to have an accurate animatic as a reference, so that I could move to the production process.



3D rough animatic.

Sound Effects

I recorded most of the sound effects in my film using 702 Toolkit. I took David Sluberski’s sound class and gained a professional knowledge about how to record sound effects using 702 kit. David also taught me what is the key difference between mono and stereo, and how to adjust the sound levels to distinguish the background sound from dialogue. Those techniques I learned were really helpful when I recorded my own sound effects. I eventually got super high quality sound effects, such as a door creaking, footsteps, wind, breath, and other sound effects to support my animation.

Then, I integrated them into my animatic and it became much better.

Production

Introduction

After everything was prepared in pre-production, my animation moved to the production stage. In this stage, I needed to finish the 3D character modeling, material, rigging, and particle effects such as hair and clothes design. The next step was to finish the environment modeling including all of the objects that would appear in a scene, such as the old chair, the big floor clock, fireplace, mural and so on. The most difficult part in my film was rendering and making animation go back and forth between Unreal Engine and Maya. Because I intended to make a VR animation film, the hardest part in my production was to create a ‘real life’ animation film that allows the viewer to watch and interact with the film via a VR headset. The traditional 3D animation workflow could not meet my requirements. Therefore, I learned a new workflow where I made rough animation and modeling in Maya and then I put it into Unreal Engine for rendering and got the final animation. I always encountered different problems during production, and I only received a little help from my professors since the technology was very new. I learned a lot from Youtube and Google and found a lot of important information. I finally had answers and I was challenged in the process.

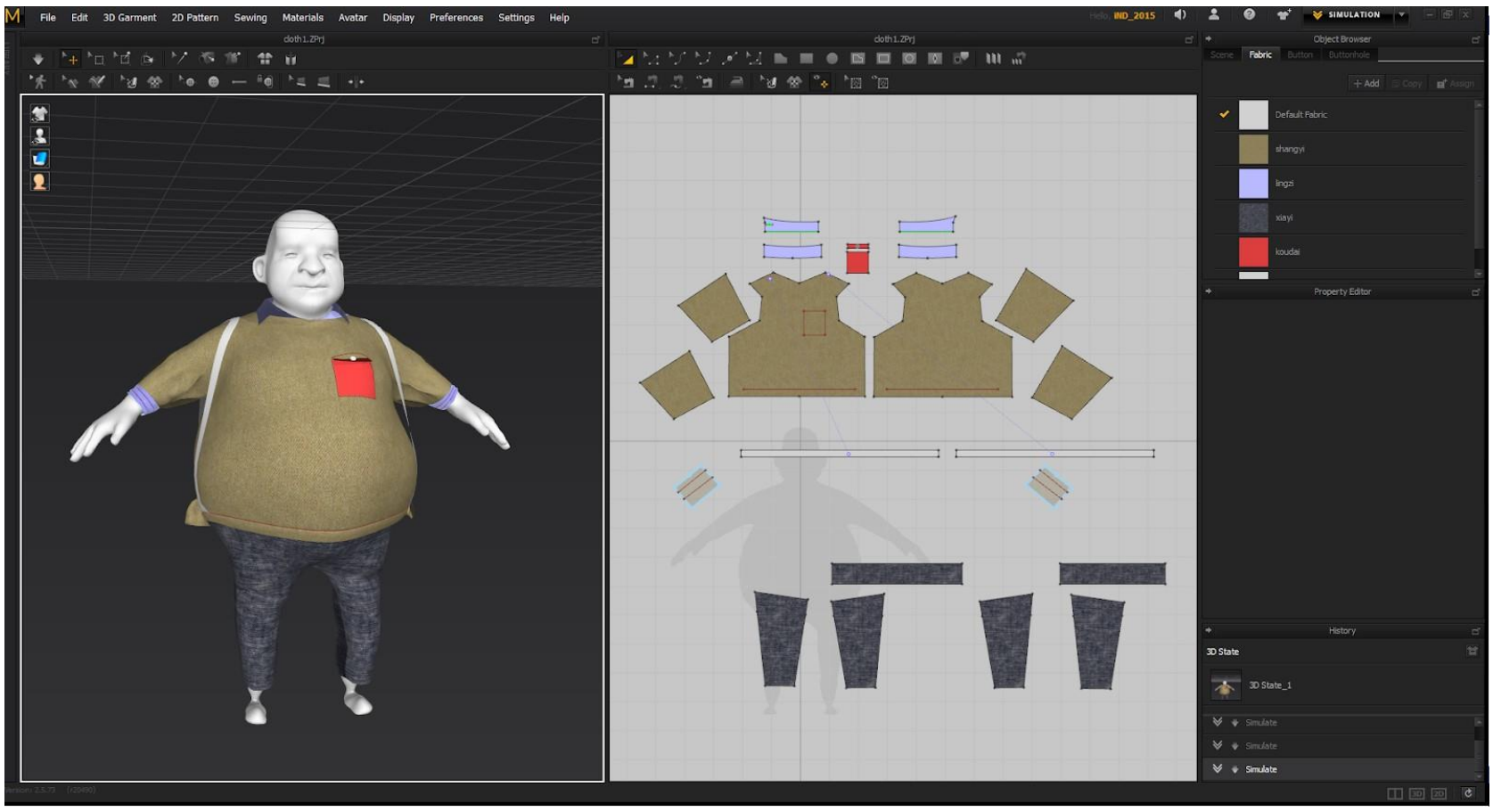
Character Modeling

I made a little bit of changes based on my concept design. I simplified my 3D modeling to make sure this could be used in Unreal 4. The first step in my modeling workflow was to create base shape in Zbrush, which was faster than modeling in Maya. I could get the accurate shape based on my 2D design. I first finished the father's head, and then I tried to use different brushes to sculpt details like brows, wrinkles, and nasolabial folds, etc. Zbrush Brush is super powerful and I was able to sculpt any shapes and details I needed.

After I finished the head sculpture, I chose to use a tool in Zbrush called “Zsphere”. This function gave me a high degree of freedom that enabled me create a human body in the fastest way, because the function doesn’t have any restrictions on any objects you sculpt such as the body, leg, arm or small details like toes and fingers. Then I could easily transfer the Zsphere shape to the real human body.

When I created the whole body and head, my character was basically finished. The next step was to design clothes and decorative details. Most people choose to use Maya for modeling the clothes and then sculpt the details in Zbrush. However, I chose to use another efficient way to complete this task. Marvelous Designer was the perfect solution, Marvelous Designer is a 3D design tool for clothes and fabrics used in animated films and video game development for 3D animation. In this software I customized and designed my own clothes patterns by using shape brush, and the

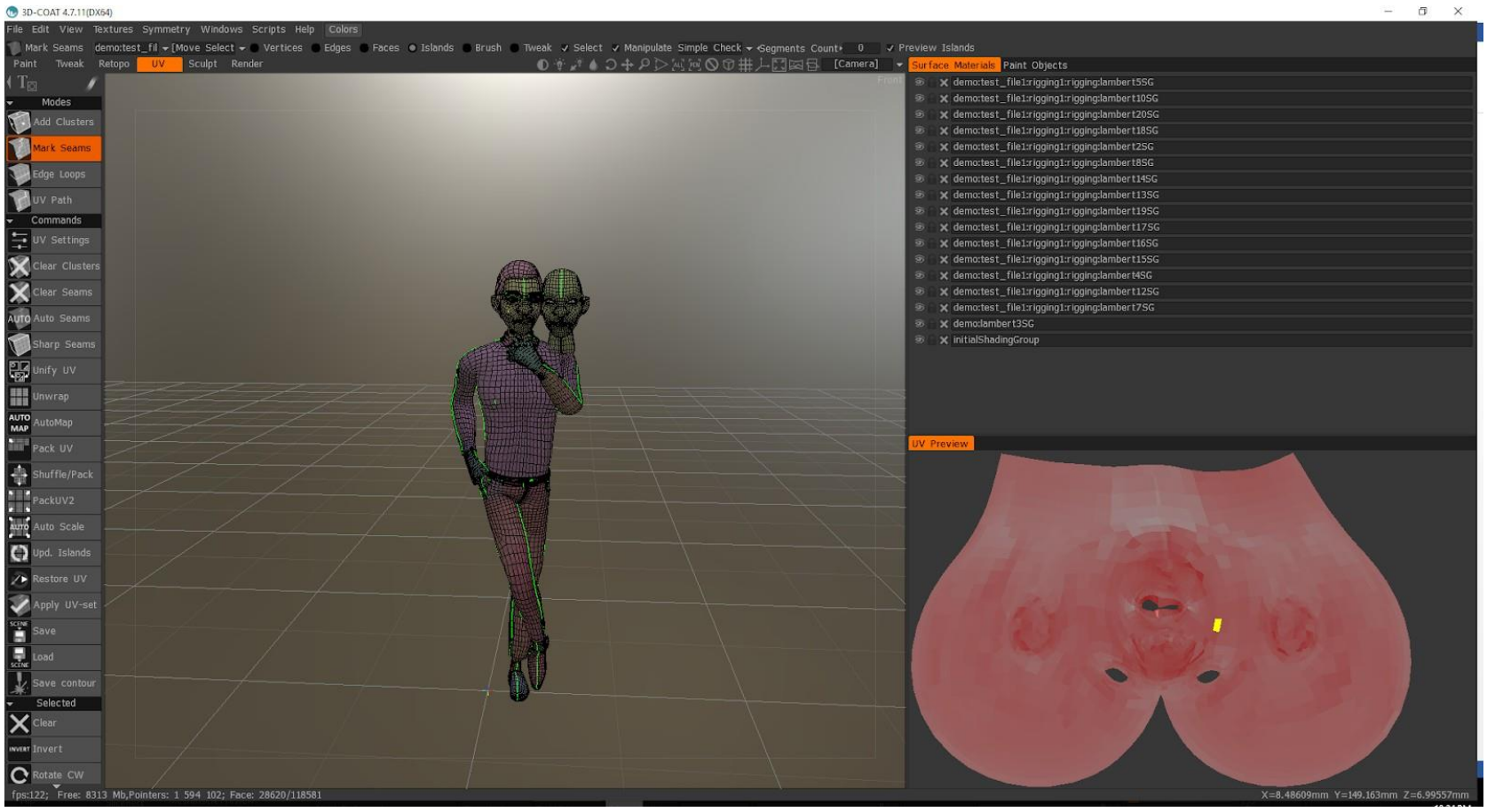
shape brush allowed me to draw shapes and then used the seam tool to put these shapes together to become a complete clothes. The last step was to import the basic shape model I designed from Zbrush and make a simulation in Marvelous Designer and putting the clothes on my character's body.



Marvelous Designer also allowed me to download demo materials and textures from the Internet, which was very helpful. I added the textures on the clothes to see the final result.

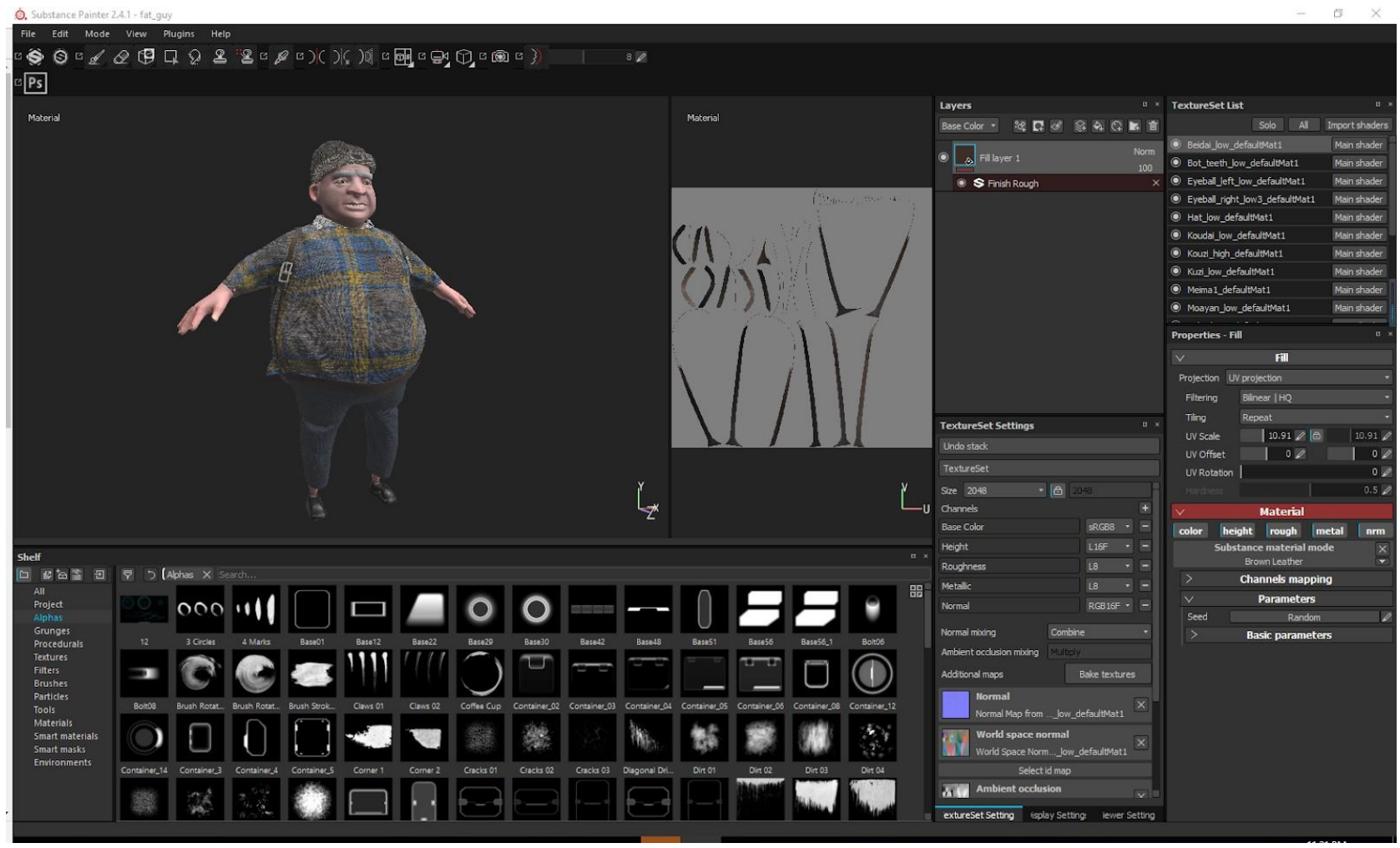
The final part in character modeling was to create UV maps. The UV map was the key for creating the material and texture for characters. The character cannot get have the materials and texture without a proper UV map, so I spent a few days creating the right UV map for my character. At this time I decided to use the 3D coat to deal with the UV map. The advantage of 3D coat UV tool is that it should provide me with more than 10

subtools such as Automap, Pack UV, Auto Scale, and so on. These tools helped me finish my UV map in the best and fastest way.



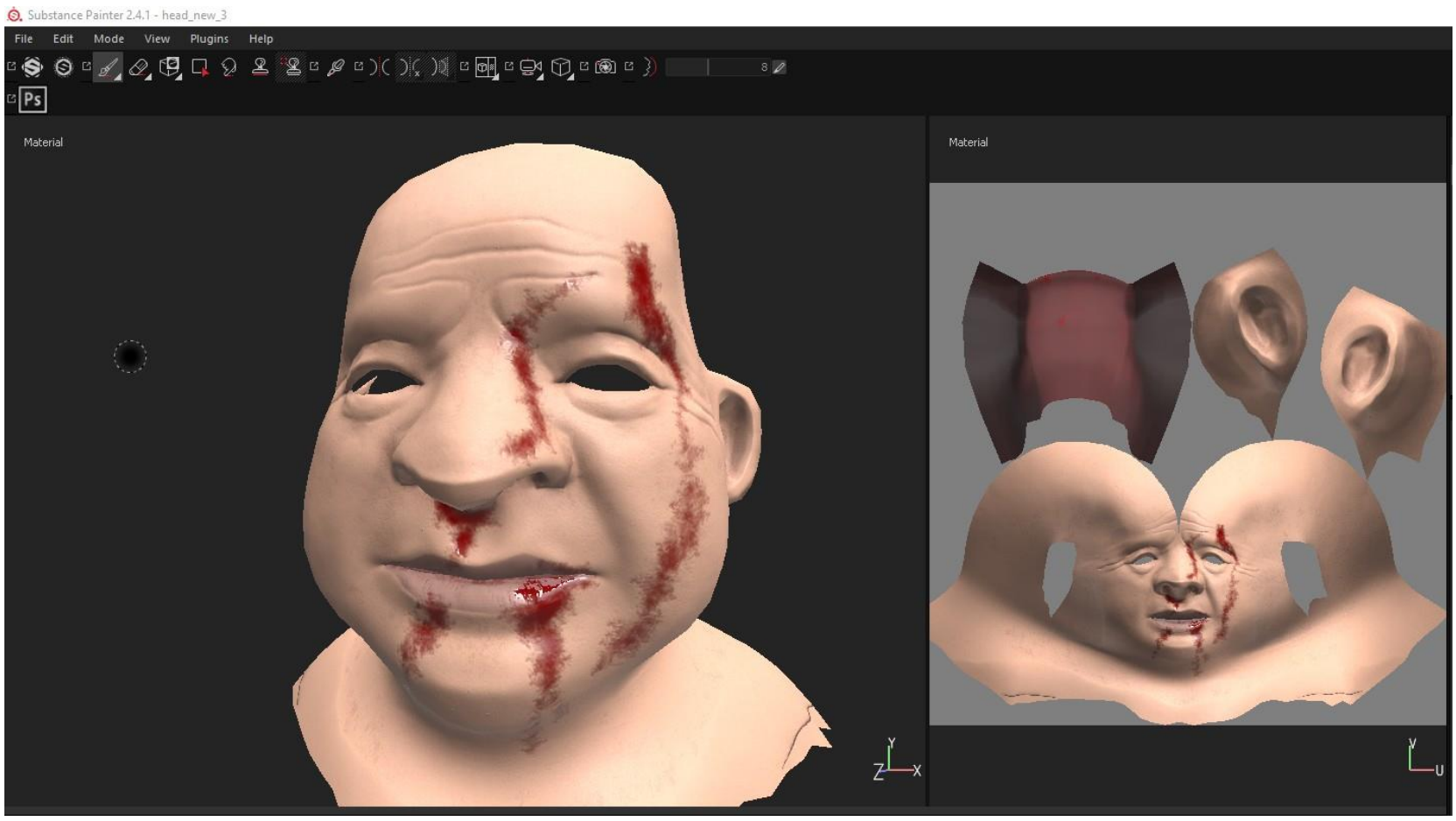
Character Materials and Look-Dev

In this part of the production, I found a new way to improve my work efficiency. I learned a new professional Look-Dev software called Substance Painter and Substance Designer. The Substance suite is really powerful and focuses on the texturing, painting and material design. Substance Painter is 3D painter tool that allowed me to directly paint on the character’s body. It also provided more than 200 customized textures so I could easily change the texture pattern to find the best one that matched my design.



An amazing feature of Substance Painter is the dirty effect brush. This brush can produce hundreds of old effects such as dirt, rust, dust, waterlogging, and even bump effects. The brush made my character look more vivid.

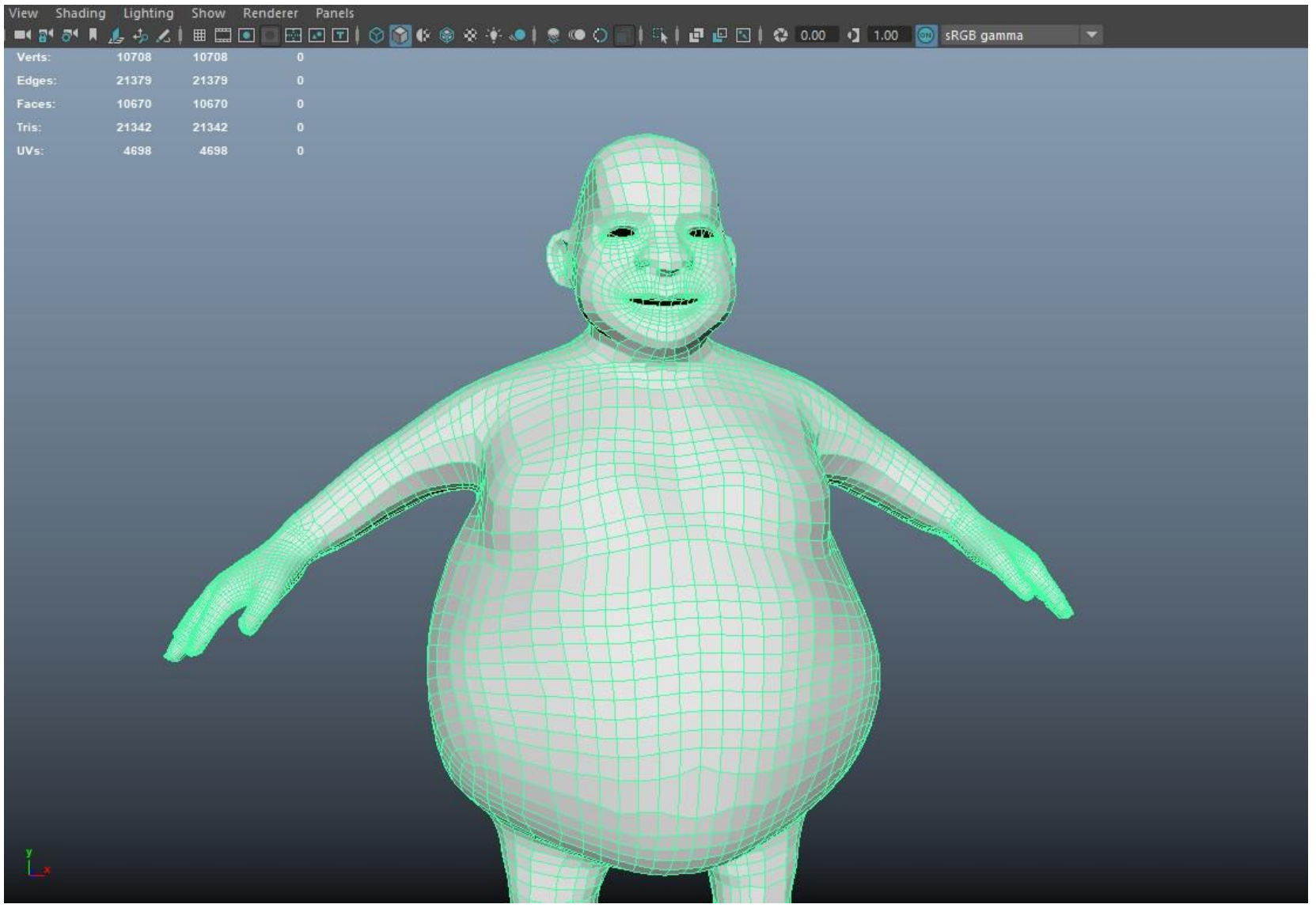
In my story, the father should have some bloodstains on his face in order to deceive his son, and I was able to achieve this effect by using dirty brush and blood texture.



I used the same workflow to create the son. I pre-rendered the character by using Keyshot, and I was so excited to create my perfect character model.

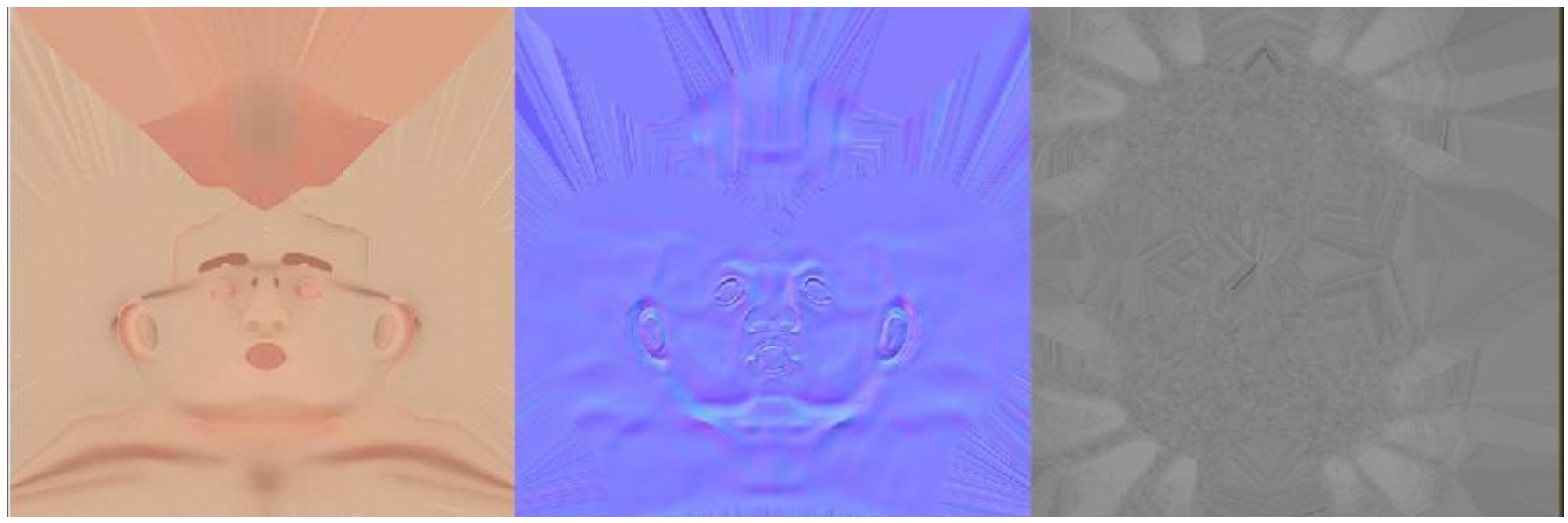
Character Re-topology

Re-topology is the most important step in my animation process. Even if I made the animation in Maya or another software, I needed to rig my character before creating the animation. Therefore, I needed to transfer my high poly modeling to low poly modeling in an efficient way. Maya has a professional tool called Modeling-Toolkit, and in this part I used the Quad Draw tool to re-topology my character again. After that my character polygon count went down from 320000 to 7000, and then I could move to the next phase to rigging my character.



Texture maps

Every model should have the right texture to project the details. In order to project high poly modeling detail to low poly modeling, I chose to use Substance Painter to create different texture maps. The reason that I chose Substance Painter is because I intended to render my final animation in Unreal 4, and Unreal 4 only supports the metallic/roughness PBR workflow. The PBR metallic/roughness is the default shader in, Substance Painter using the unreal engine export preset, so I could quickly export maps with packed channels for optimized use in Unreal 4. I could bake all the high poly information by using bake textures function in Substance Painter. And after baking, I had five main textures, including Normal map, Diffuse map, Metallic and Roughness map, and Reflection map.



Combining these five maps together, I could project details very well from high poly to low poly.

Rigging Characters

Character rigging was the hardest part in my animation process. I was not good at rigging in Maya, especially for character rigging. There were a lot things in needed to learn by myself. For character rigging, there are three different systems in order to bring the character to life. Body rigging system, facial rigging system, and muscular system. The character must have all of the systems to make sure the animation looks great.

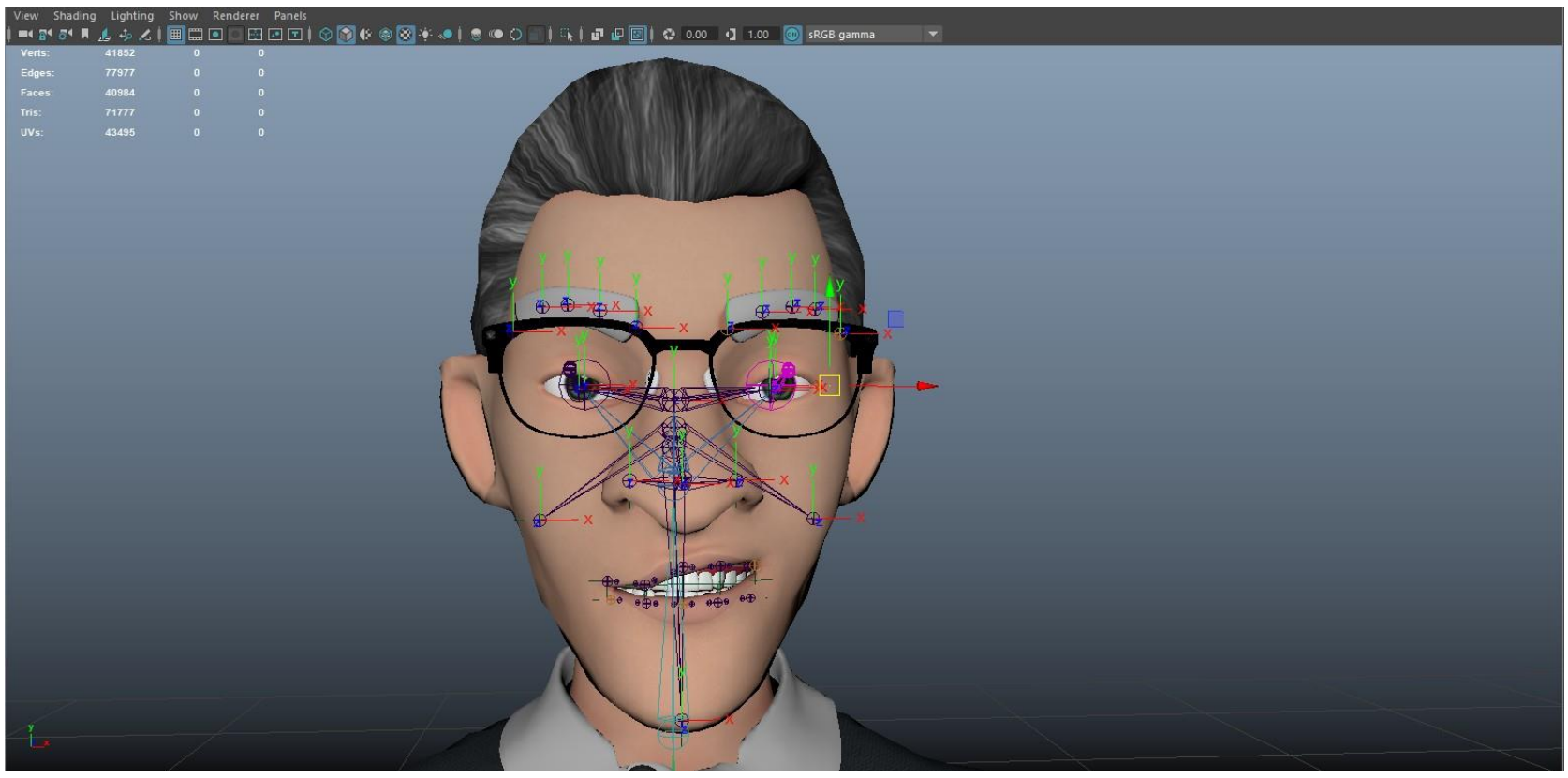
Furthermore, because my final animation was in Unreal 4 and included the VR version, I had to make sure the rigging system also worked in Unreal 4 engine. Therefore, how to transfer the Maya animation to Unreal 4 also was the biggest problem in my production.

For rigging, I chose the Human IK Rigging system in Maya, which helped me build the base body rig in a quick way.

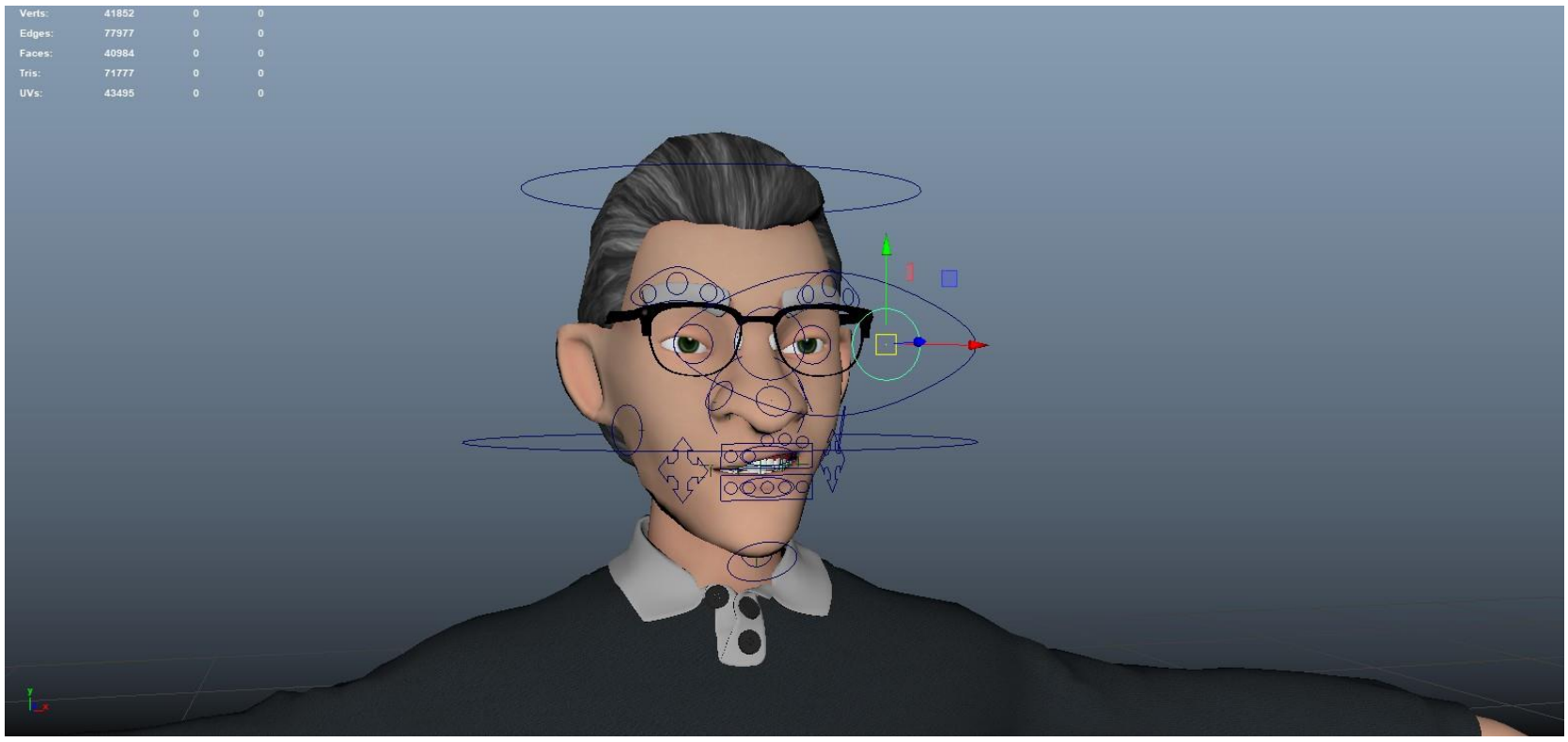
In the Human IK system, there were some really useful functions to build body rig. I just needed to adjust the character scale, and spine count, finger bones and toe bones count to match with my character. After that I achieved the basic body rigging, and the next step I added more detail rigs to control secondary parts such as shoes, watches, and so on.

After that, I jumped to facial rigging and I spent two months figuring out the facial rigging. I faced lots of problems in this part. Facial rigging is more complicated and harder to control than body rigging. Different from body rigging, facial expression needs rigging to support each part’s expression, and I needed to consider how rigging could enrich facial expression. Therefore I divided the rigging into three parts: First,

fundamental facial rigging, which control eyes, mouth, ears and nose movements. Second, detailed rigging, which controls facial muscles. Third, tinier rigging, which to control eyelash movement and some special effects such as anger and mouth movement.



To make it convenient to control these riggings after finishing it, I made a whole controller to link the riggings. Because adjusting animation directly on rigging creates a negative effect, the controller is a crucial tool to make animation. With the controller, I just needed to create key animation to get an amazing result.



Blend Shape

To make a character’s expression more vivid, I combined rigging and blendshape system. The advantage of blendshape is to make your character express smaller, detailed emotion, and I can control this well through controller. Here I used a brand new plugin called “shapes”, through which I could make hundreds of exaggerations and tiny emotions that was really helpful to me.

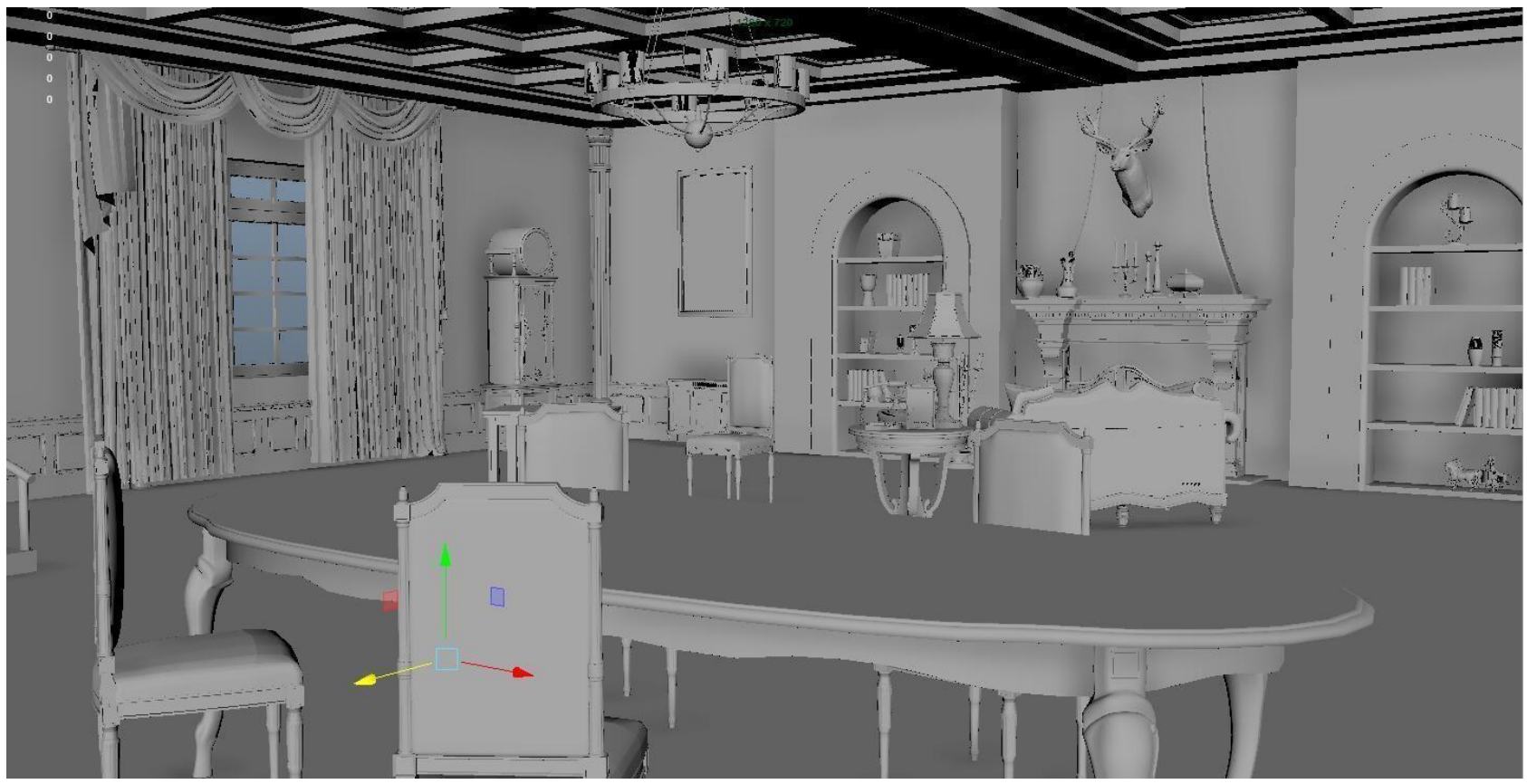
After finishing all steps of rigging, I made a test of exaggerate movement from my character to test whether it was correct rigging. After testing, the character can make any movement and emotion that I want. The result was fantastic.

Environment Modeling

After character rigging, I started to create the environment. Environment was also an important step in my animation, because all chapters and stories happened on environment.

I spent around two months on environment modeling, where I designed three different rooms with different styles. Father’s room looks shabby because he lived alone all the time. Son’s room looks clean and just like it was when he was a small child. Mother’s room looks simple but contains all the things that she used when she was alive. There

are many scenes in the living room so I designed it carefully on layout.



I hoped that every item in my room looked detailed because VR animation allow audiences to see every angle clearly. Therefore I could not only focus on the shot and ignored outside of the shot like I did in traditional animation. As a result, I put a lot of

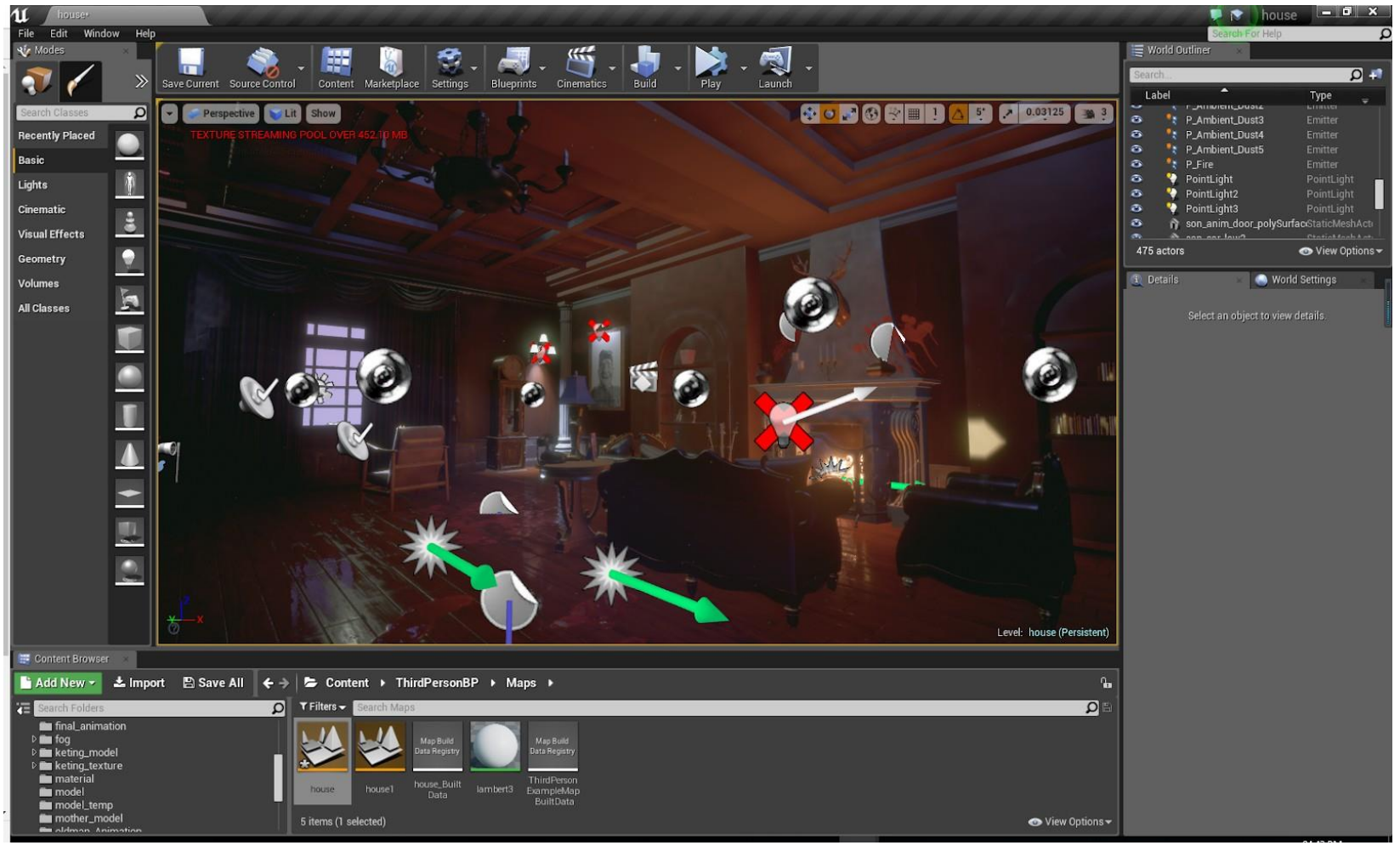
efforts in researching and designing every piece of furniture from modeling to UV map to material design and baked texture, making them look detailed enough.


JASICKI

I created material and texture for every furniture. Because it’s an old house, I used Substance Painter to make them looks older, which matched to the year. After then I made some special designs according to my references, such as the grandfather clock.

Rendering

After designing the furniture and room, I used new technology to test the rendering, where I didn’t use traditional Maya software to render my scene. Instead, I used Unreal 4 to do it. Unreal 4 has strong light system to support any effect that you want. I imported accomplished environment modeling and texture imported into Unreal 4, then I added different types of lighting in my scene, and got what I wanted. The biggest advantage for Unreal 4 is that it doesn’t take a long time to render and can get the rendering done immediately. We called it real-time rendering. Other than Maya rendering, real-time rendering allows you to adjust your lighting and effects at any time without rendering again and again.



I used different light combinations when I designed the rooms so that the scenes would look well-arranged and more impactful.

When designing the hallway, I used 10 groups of point lighting to make the light scattered and make the whole environment darker to improve the atmosphere.

When designing the son’s room, I chose to use a spotlight to make the room seem clean because the audience will pay attention to details when the room is simple.

For mother’s room, I used Unreal 4 sunshine system more because her room was a symbol of memory. After rendering the room, I felt more confident about my animation because it fulfilled my requirement in design and rendering.

Bringing Characters to Life

Animation is the most important process in production. To get better effects quickly and to save time, I decided to key the character animation in Maya and put it into Unreal 4 to render and composite it. This workflow had an advantage that everytime I finished a modeling and animation, I could import the accomplished one into Unreal 4 to combine it with the environment to test the effect, which is a strong function. It was a great help to control the whole process of animation because I could check the effect anytime, even before I finished rendering.

I had already finished the animatic so then I could finish my animation. Here I divided my animation into two parts. The first part included body movements such as run, jump and detailed movement like feeling frightened. Body movement was important because it's a way of expressing emotion. To make an animation more reasonable, I spent some time on researching the classical "12 principles of animation", for things such as how to use anticipation and staging to make animation more vivid, which was helpful. Then slow in, slow out and arch principles would make my animation more professional. What the most important thing was timing, which was helpful to control the tempo.

After finishing body animation, I started the most important part of animation -- facial expression. This is the most difficult part because all emotion is expressed by facial expression. Therefore I established 20 blend shapes combined with facial rigging to make satisfactory expressions.

Finally, I imported completed father and son models into Unreal 4 and matched them with the environment. Some animation and environment didn't match well and I revised some parts again and again till there were no problems anymore, I put it into an end of my animation.

Post-Production

In traditional 3D animation mode, post production needs to be completed in "After Effects". I needed to separately import the environment rendering, character rendering,

and visual effects into After Effects, and also I needed to render a lot of renderpass in order for compositing the best result. However, at this time, I chose to use a cleverer and stronger way to do that. I only needed to import all of my original 3D modeling, character, environment, and animation together in Unreal 4, and I could finish the rendering, post-production and final output together. It was really excited technology and saved me at least one month in dealing with the rendering and post-production process.

In Unreal 4, I could get all post-production effects by creating a tool called Post Process Volume. This tool was super powerful and included effects such as color grading, bloom, auto exposure, and it could add real motion blur in my character and create lighting fog and dust to make the scene more realistic.

Sound and Music

Finally, my composer Ching-Shan Chang spent a month making the soundtrack for my film. We modified the sound many times in order to make the music more touching. She also gave me lots of suggestions and we are all satisfied with our last version.

Moreover, as the voice actor of my father and son characters, Marc Laroussni really did the job excellently and brought the film to a new level. With both Ching-Shang's and Marc's creative assistance, my film presented well. Finally, when I combined the sound effects, background music, and dubbing, the film became quite complete.


Movies & TV
Hao_Shen_I need you_05122017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Release Data

After the final composition, my VR animation length was 5:02. The ratio is HD720P and Format is H264.

Technical Issues

I encountered lots of technical difficulties during the process of creation. I spent much time figuring out the workflow problems from Maya to Unreal 4 and I always encountered different strange problems when I transferred between Maya and Unreal 4, sometimes I have created a good texture but it displayed the wrong information in Unreal 4. The biggest technical issue I met was in the rigging part. When I finished my rigging in Maya, I found the rigging didn’t work after I imported into Unreal 4. Whenever I moved my character in Unreal 4, the rigging was totally broken and the skin didn’t follow the rigging. It was really annoying, and I tried to find another way to rig my character in Maya, but some new problems popped up. I found the Unreal 4 didn’t support Skin cluster function, so I had to come back to Maya again and redo the brow’s rigging.

After that, when I finished the character animation, I found the position was incorrect from Maya to Unreal 4 because they had different coordinate systems, so I had to rotate all of the objects to match my character position. Also the camera had a lot of problems from Maya to Unreal 4, because I already settled my camera in Maya and I

wanted to directly import the camera information to Unreal 4, but Unreal 4 didn’t support camera imported from other software. I spent 10 days learning from technical tutorials and finally solved this problem by rigging the camera to an object and sharing the object’s position information, and then importing this object to Unreal 4 so it was finally successful.

Conclusion

I learned so much during the past year of creation and I am very appreciative of my professors and friends who helped me so much. I have not only learned technical skills, but also ways to think about making animation. I have learned how to save time and improve efficiency by using various softwares. These experiences have opened the door for me to make animation in the future. With the courage to never be afraid of failure, I will try my best to overcome any difficulties to make the perfect effect.

Appendix Pages

Working Title: *I Need You*

Director: Hao Shen Advisor:

Stephanie Maxwell

Technique: 3D animation

Start Date: August 2016

End Date: May 2017

Running Time: 5 minutes 02 sec Release

Format: DVD, Mov file.

Artist Statement

I chose this topic because empty nest syndrome is a hot topic from long time ago until now, empty nest syndrome is a feeling of loneliness or sadness that occur among parents after children grow up and leave home. Often, when children leave the home, mother are going through other significant life events as well, such as menopause and

so on, men can also experience similar feeling of loss regarding the departure of their children.

I want to tell this story because so many people ignore their parents due to their own live are busy. In my situation, I'm an international student and I haven't seen my parents for two years. I miss them so much, but I can't go back to home after graduate, there have a lot of working opportunities. I have to try hard to get more experiences to improve my skills in here, which means I have to be separated with my parents at least five years. I think there are too many students that have the same situation. We are young, but our parents become older and older, the message of my film is pay attention to your parents before it is too late. No matter how brilliant your work is, you must care more about your parents because they need you.

This film is really a big challenge for me, because this is a horror story and I want to build tension for audience. But the end of story should warm feeling and I hope it can arouse people's deep thinking. So the first challenge is how to set up a main tone to build tension and mystery. I need to do a lot of visual effects to render the scary atmosphere. Making a good visual effects is very difficult, I should have a systematic learning in effect software. On the other hand, I want to make a VR animation that allows audience immersed in my story, they will become the third character in my film and see what is going on by their own. So the second challenge is that I need to spend huge time to learn the new software such as unreal game engine and the whole workflow from Maya to unreal 4. And I met a lot of problems during this year, these problems totally destroy my confidence and I really want to give up. For example, when

I finished the character rigging and I imported a short test animation to unreal 4, I found my character was torn by some mystical power, it was broken for no reason, so I have to redo my rigging for three times to test which part made this mistake, I also spent more than 10 days to solve the texture bugs.

Although my film wasn’t look perfect, but I thought it was successful, the final result was closed to my imagination, also I did the whole workflow by myself from character design, storyboarding, to 3D character creation, rigging, animation and the final compositing. I learned a lot of things included how to control the timeline, and how to pick up the different software then combine them together to improve the working efficiency.

In brief, this film has significant mean for me, because it may be the last animation I did everything by myself, the story has been in my mind for a long time, finally I made it.

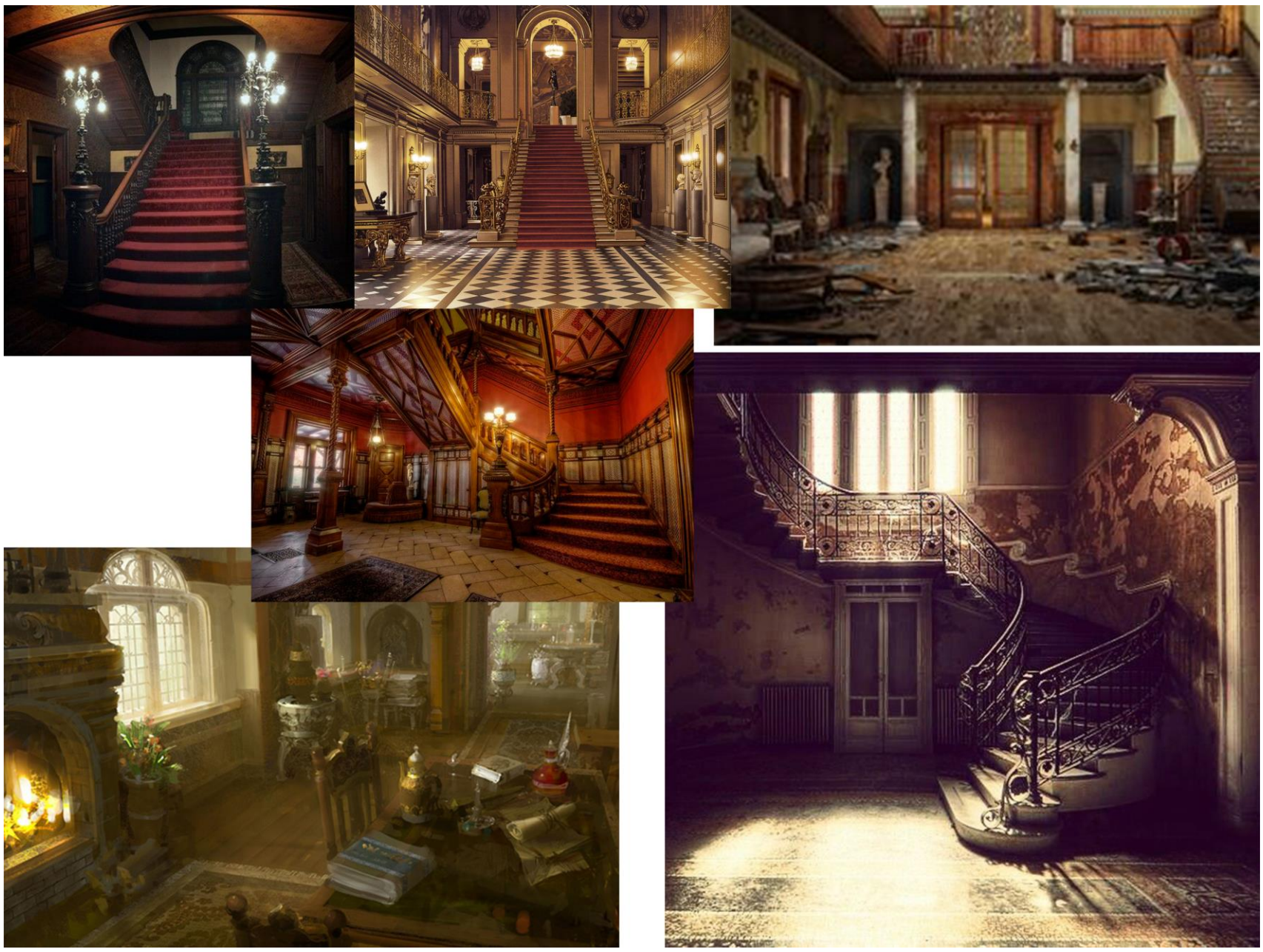
Vision

This story will be told in 3-D animation, both characters and the environment will be created in Maya.

I will face a lots of challenges in this film, because this is a horror story and I want to build tension. But the end of story is very warm and I hope it can arouse people's deep thinking. So the first challenge is how to set up a main tone to build tension and mystery. I also want my film to look mysterious, and the audience to think there is a

ghost to be discovered. I need to do a lot of visual effects to render the scary atmosphere. Making a good visual effects is very difficult, I should have a systematic learning in effect software, I know some aspects of the film will be challenging, but I am prepared to conquer them and get a good experience.

Inspiration Images



Timeline and Schedule

SCHEDULE

SCHEDULE	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
STORYBOARDS										
SHOT LIST										
CHARACTER DESIGN										
CHARACTER MODELING										
ENVIRONMENT MODELING										
RIGGING										
3D ANIMATIC										
BLOCKING										
SPLINING										
TEXTURING										
LIGHTING										
VISUAL EFFECTS										
RENDERING										
SOUND										
COMPOSITING										

BUDGET

#	DESCRIPTION	QTY	UNITS	FEE	SUBTOTAL	TOTAL
100	STORY					$0.00
200	TALENT					
	VOICE ACTOR	1		IN KIND		
300	PRODUCTION PERSONNEL					
	ANIMATOR	1		IN KIND		
	MODELERS	2		IN KIND		
	COMPOSER	1		$200	$200	$200
400	EQUIPMENT					
	PROTABLE HARD DRIVE	1	DRIVE	$50	$50	$250
	FLASH DRIVE	1	DRIVE	$25	$25	$275
	DVDS FOR RECORDING	30	DISKS	$0.30	$10	$285
500	FESTIVAL FUNDS	5	ENTRY FEE	$50	$250	$535
					SUBTOTAL	$535
600	CONTINGENCY				15%	$80.25
					TOTAL	$615.25