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# Reach

By Rachel Immel

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: July 3, 2024



**Thesis Approval**

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Thesis Title

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Thesis Author

Submitted in partial fulfillment of the requirements for the  
degree of  
The School  
Rochester Institute of Technology | Rochester, New York

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# Abstract

*Reach* is a 2D digitally animated short film that is dedicated to exploring the sacrifices that are made to achieve our dreams. The story of my graduate thesis film follows Moe, a subterranean bat-like creature that dreams of being able to see the sky for the first time. Feeling suffocated by his dark and cramped surroundings, he rushes toward the surface as soon as a busted rusty pipe provides what appears to be an opening to the surface. What he does not know is that he is venturing into danger that will change him forever. This project is inspired by my own personal feelings and experiences, but designed to be broad enough in concept to connect with anyone who has wanted something so badly...that it hurts. It is common to want to chase our dreams, but in order to reach them, it is often at the cost of our physical and mental health. While this film explores the darker possibilities of our life's journey, it also offers a hopeful, bittersweet truth that while what we fight for sometimes may not be exactly what we wanted, it is still fulfilling all the same. This paper dives into both the creative processes and the overview of methodology that went into this film's production.

# Introduction

The filmmaking process for *Reach* unintentionally began even before the spring semester of 2023. While I was coming up with ideas for my workshop film in the fall of 2022, one of my ideas was simply described as a “tribute to wishes”. Little things like how people blow on dandelion fluff, candles on a birthday cake, or a stray eyelash to make a wish has always fascinated me. Where did those small actions originate from? It turns out, there’s a large combination of factors that formulated these traditions; From folklore, to superstitions, to religious practices, there are small ordinary things or actions all over the world that people use in an attempt to manifest their desires (O’Connell). For example, the tradition of birthday candles began in Ancient Greece. Candles were lit as an offering to the Greek goddess Artemis. Other Pagan cultures at the time believed that the flame would ward off evil spirits and the smoke “carried prayers to the gods” (Hagan).

I initially wanted to research more of these traditions and bring focus to them in the form of a short film. However, as the idea evolved, I became more interested in the question of *why is there an innate part of humanity that is always wishing for something greater?* This led to wanting to make a story that captured a sense of longing for a goal beyond reach. The fact that there are ways to make a wish all around the world made me realize how often humanity finds itself yearning for things beyond our grasp, myself included.

As I prepared for my last year at the Rochester Institute of Technology (RIT), I was up against feelings of hopelessness and fear regarding where I fit in the shifting animation industry pipeline due to the rapid canceling of productions and rise of generative AI. I love animation and cannot envision myself doing anything else besides residing in a creative community, but pursuing my dream of supporting myself solely through my art has tested my health, both physically and mentally. Even though I had grown exponentially as an artist during graduate school, I still did not feel like I was good enough, especially when industry professionals who have more than 20 years of experience were having trouble with layoffs and finding work.

When I chose a different idea for my workshop, I saved the small start to the wish idea as a potential thesis topic. Over time, the idea evolved more into a classic character's journey, which is something I was more familiar with writing and had a more personal connection to. The idea followed a small underground creature wishing to see the sky for the first time. This concept stuck with me because I enjoyed the idea of a story that was about following your dreams, but with the addition of my struggles in the moment, I wanted this piece to focus more on the personal sacrifices that are made to follow your dreams.

## Concept Development

For this film, I did not want to involve living humans but still focus on very human experiences and feelings. As someone who loves working with animals and nature in my projects, I wanted this film to star an anthropomorphized creature. I also

did not want any dialogue in the film. My favorite kind of storytelling is when performance and expressions take the spotlight. This way, in the theme of universality, the film can cross language barriers simply because it does not require words to be understood by the audience.

On the technical side of the process, I wanted to tackle stark contrasts in landscape and dynamic compositions. I wanted to utilize this opportunity to put the storyboarding skills I had practiced at RIT to the test. My other two films during my time in graduate school were contained within a single room with four walls that did not allow for much dynamic composition. The idea for this film was entirely the opposite. With two separate environments for the character to explore and a plot that was designed to utilize the unique features of these areas as a part of the storytelling, this film was going to be far bigger than anything else I had done in the past.

I also wanted a darker tone for this film compared to the others that I had made. The stories I enjoy telling are often what I personally refer to as “fluffy”. They contain minimal conflict and swift, undeniably positive outcomes. With *Reach*, since the film would cover the topic of sacrifices made to achieve a dream, I intended to convey irreversible physical and mental strain on the character while still keeping a bittersweet and ambiguous resolution. Death and failure are some of the quickest and easiest ways to get an emotional reaction from an audience, but sometimes death is not the most devastating thing that can happen in one’s journey. I wanted to make sure that the film was not dark without reason and that is why I use hope as a main motivator to carry the main character forward.



Hope is a powerful driving force for a story and I find that it is an incredibly unifying tool to help audience members connect with the main character. Hope and the desire to move forward is both wired into humanity on a biological and psychological level and is a “basic quality of experience” that is further encouraged by “social affirmation” (Eliott 14-15). I believe this to be one of the reasons why the phenomenon of “wishing for something greater” is such a universal experience. As described by philosopher Ernst Bloch, hope is a catalyst that inspires one “to dream ‘of a better life’ and then strive to obtain it” (Eliott 9). This made a more mature exploration of the topic all the more appealing.

Some of my experimental first sketches, made during the spring semester during the earliest part of the thesis concept, started to experiment with the idea of a physical handicap that would happen to the main character over the course of the journey that they would then have to overcome in pursuit of their goal, such as losing an appendage or one of their senses. I experimented with the idea of the character becoming hopelessly lost and therefore losing their youth to their journey, not reaching the surface until near the end of their life. There are many tragic things that can happen over the course of a lifetime that are a direct result of both the journey to fulfillment and even doing what you love. Doing what you love can hurt you, which is a theme I did not want to shy away from.



Figure 1. Early concept art for *Reach*'s main character

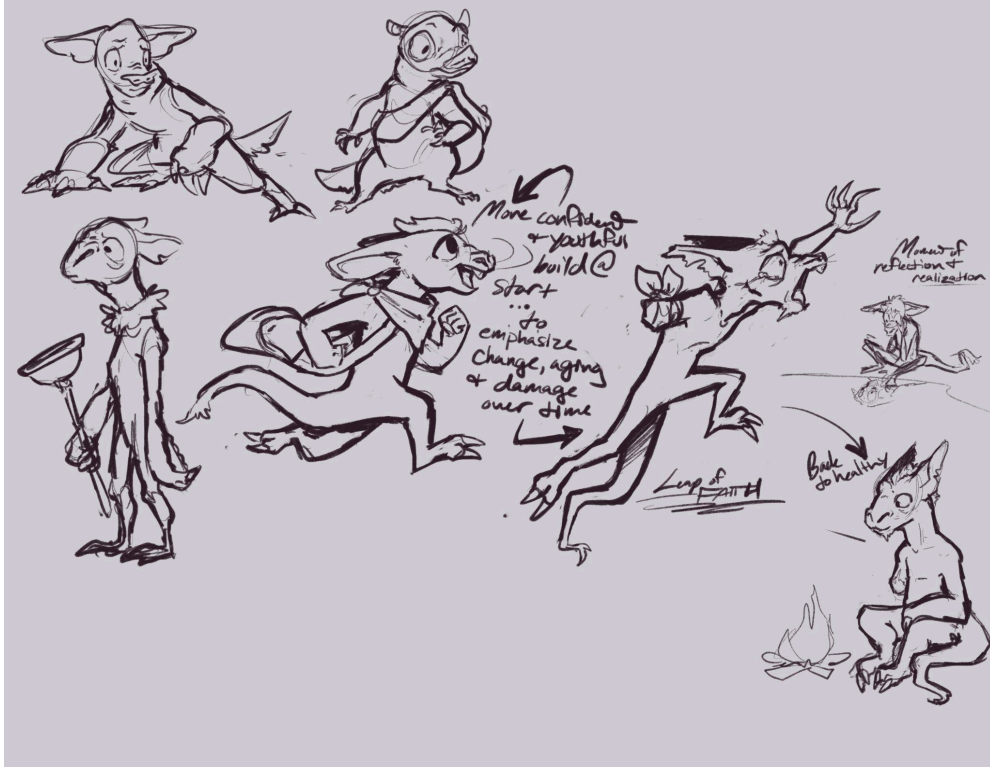


Figure 2. Early experimental designs for the lead character and story arc

Depending on the final design of the character, I wanted them to lose the most vital aspect of themselves that they would need to reach the surface, as shown in Figures 1 and 2. If it was a character that spent its whole life digging and needed to be able to in order to reach the surface, how could the creature make it without using its claws? If the creature had wings, what would happen if it injured its wing during the journey and could no longer fly once it reached the surface? The final question that I struggled with then became, *what would the main character want desperately enough to fight its way to the surface after such devastation?* To answer that question, the character's motivations had to be "they would rather die moving forward than continue living back where they started".

One idea that I started with early on was that the creature collected lost human objects. When they suddenly found a mirror, they confused it as a lost star so the journey was centered around them returning it to the sky. Figures 3 and 4 are some early concept sketches of this idea.

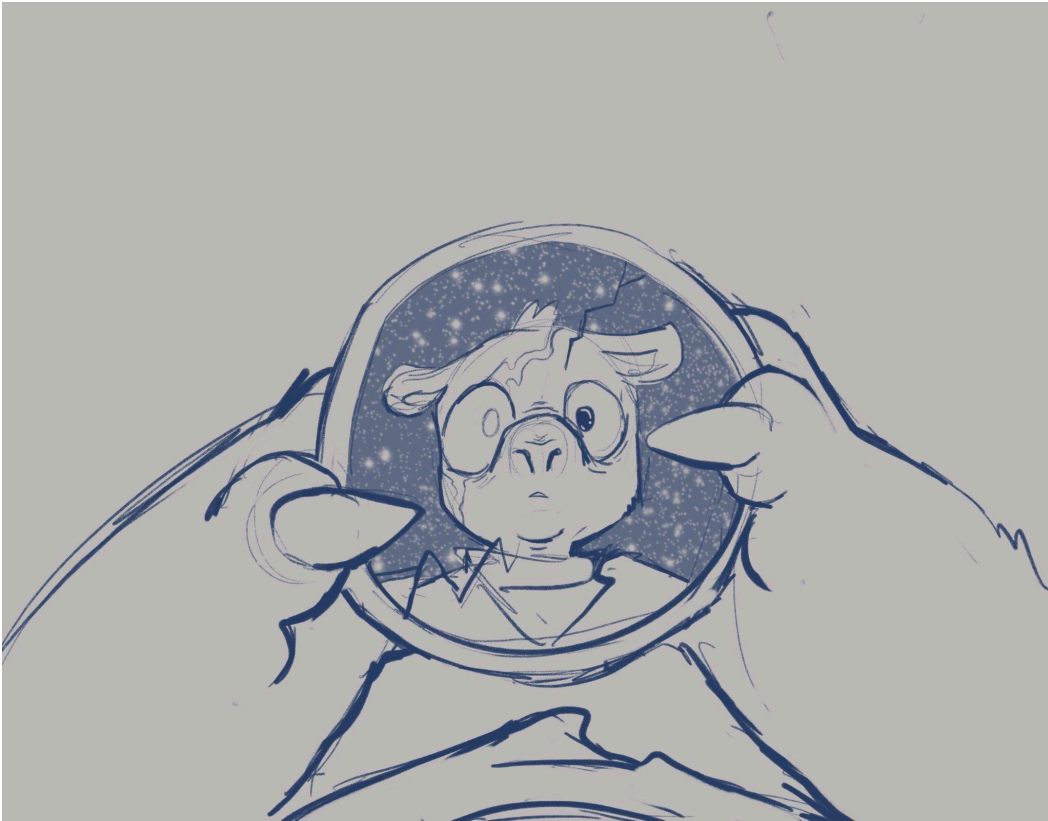


Figure 3. The main character staring into a mirror that he mistook for a lost star

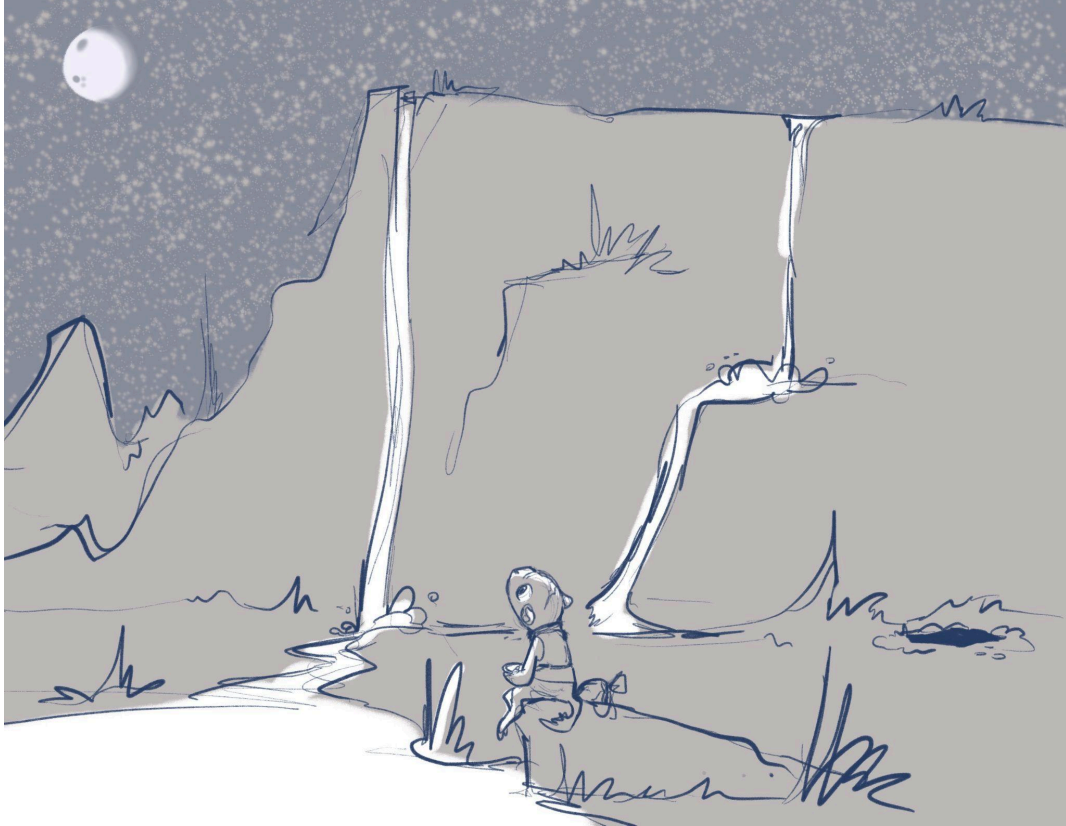


Figure 4. The main character staring at the sky after digging to the surface

However, it was hard to convey how they would know about the sky in the first place without dialogue, especially if they had never been to the surface themselves. In addition, this concept turned the story into more of a classic “hero’s journey”. I wanted the film to be more about the character fighting for their own hopes and desires as opposed to simply feeling obligated to do what was right.

The next iteration of the plot introduced more of an environmental focus. I thought about how the main character would be able to know of the sky’s existence without ever having experienced it themselves. This led to the idea of a dried up wishing well that tied in with my early workshop idea and also gave the creatures a

visual portal to the surface. In this revision, the creature had stumbled upon an abandoned well and had to journey to the surface after an earthquake closed off the opening. Introducing leftover remnants of human existence appealed to me greatly because there was so much you could do with environmental storytelling. It also implied a sort of apocalypse that would have forced the creature to stay underground. There was an intriguing aspect to showing how what humans found valuable, and would commonly wish for, would no longer be useful once they were gone from the Earth. Things like money and other material possessions would be useless to a creature like the main character of the story. Coins that littered the bottom of the well lie useless in the dirt, nothing more than a distant reminder of what people had dreamed of owning or achieving in the past.

Then, I added onto that idea that there was a plant seed at the bottom of the well he was trying to protect. After the earthquake and the light got cut off, he travels to the surface to open it up again. It gave him more of a goal since he was protecting the plant until the very end of the film when it panned down the length of the unblocked well and the plant had sprouted.

## Refocused Revisions

I knew the plot was not set in stone even when I pitched the final version of my proposal to my committee at the end of the semester. I was getting closer to the story I wanted to tell but was still unsatisfied with it. After coming back from summer break and looking at what I had pitched, I realized how off the mark it had strayed from

what I wanted my film to be about. The addition of the plant at the bottom of the well was essentially a tweaked version of the mirror from my first draft of the plot. It was still ultimately a hero's journey in the end, even if the reveal had been suspended until the final moments of the film. It felt too similar to the Pixar film *Wall-E*, which is a great inspiration especially when it came to apocalyptic visuals, but had a theme thoroughly dedicated to the impact humans have on the environment. I definitely wanted to keep the environmentally focused elements present, but not as a main plot point.

Using my rationale as a strict guide helped immensely in keeping my story on track as I made revisions. My rationale described the film I wanted to make as follows:

“People make hard decisions and put everything they have into their dreams on a daily basis, whether it is to achieve a personal goal or in the process of trying to change the world. This film is meant to be an exploration of the doubts, triumphs, and the emotions that one will grapple with in overcoming the adversities of life to feel fulfilled in the frighteningly short time we have on Earth.”

I knew what I wanted to convey since the story was something so personal to me. However, in a film without dialogue, every detail matters and can shift the meaning.

During my committee meeting, I also received useful feedback as a starting point to fix the weaker parts of the story. For example, it was mentioned that the story needed higher stakes to help sell the tension of the sacrifice being made. I initially had the main character lose an eye, but underground creatures often are blind or have

poor vision in the first place. All of the journey's obstacles "felt similar in intensity" as well. I initially included an earthquake, a rockslide, and slime pouring out of old pipes and more as obstacles for the main character to encounter, similar to what's shown in Figure 5.

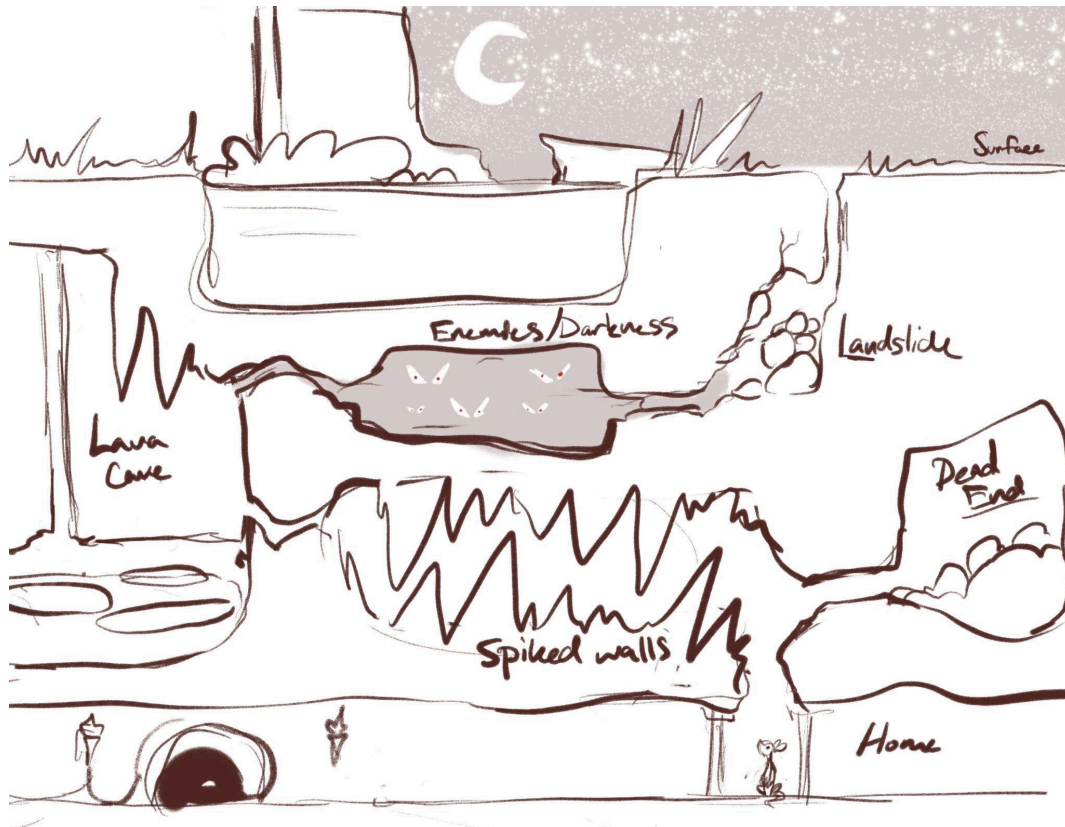


Figure 5. Early plot map of the underground

Not only would this add a huge amount of effects animation during production, but they did little to sell the tension needed to make the loss that the character goes through impactful. If these events were to occur and he was able to make it through with little repercussion, they were unnecessary. One condensed, high action moment is all that was needed.



There were also questions raised about how the world would look and be lit below the surface. If the character were to be attracted to the light because it is something they have never seen before, how can the world be lit from below so the audience can see it but it is still different enough from the surface to validate the fight to get there? Color scripts and lighting would become crucial to address this.

One way to create this stark difference was to have Moe emerge onto the surface during the night. This was an idea I had early on when the main character was returning a “lost star” to the sky. Light is often explored thematically in the context of warm daylight and more traditional sources. The two locations would be united in darkness but the sheer amount of stars and the vastness of the moon would be a bright white that would be different than anything else in the underground.



Figure 6. Moodboard of underground spaces and lighting



Figure 7. Moodboard of the surface

I created these moodboards in Figures 6 and 7 to visualize that contrast. The underground was going to be shrouded in warm yellows, oranges, and reds while the surface would be cooler blues and purples. Once the plot was leaning away from the stars and no longer played much of a role in the version I pitched for approval, I still wanted to experiment with this contrast but needed a new method to explore it.

One avenue that came to mind was a thunderstorm. I have grown up sitting outside on my front porch with my family during mild ones, taking in the smell of the rain, the feeling of humidity and moisture, and the flashes of lightning. They are a force of nature that brings something to every sense we have. The earliest thumbnails I had for the story also had a thunderstorm in it, but the idea was scrapped for my pitch. I decided I wanted to bring it back to make it an integral part of the story.

Storms bring everything the sky has to offer: wind, rain, and light all wrapped up in one phenomenon. With the addition of a thunderstorm rolling in, I could embrace both the light and the darkness while also exposing the character to everything the sky has to offer in a short amount of time.

The use of a thunderstorm would also act as a branch away from the classic “chasing the light” trope that is common in media. As inspiration, my advisor showed me two other beautiful student films from RIT, “LUMENS” by Manuel Moreno-Lee and “The Distance of a Lightyear” by Ting Chu. Both of these films utilized guiding light to convey longing or a specific goal. “LUMENS” was a film about a woman who laid a trail of flames to light her way in the darkness of her world and acted as a means of showing how far she had come in her journey to slay a beast that stole the sun. She passes away before she’s able to catch the beast, but in the process, the light she laid down lit up her village (Moreno-Lee). In “The Distance of a Lightyear”, a lonely young girl folds paper stars in hopes of using them to build a bridge to meet someone who is living on a distant planet, only to reach halfway by the time she grows too old to continue (Chu). Since lighting was something I already wanted to work with and improve on since I had never fully utilized it my other two graduate films, these shorts were a great inspiration that both showed me how light could be used as a narrative tool and also that I would need to create a subversion of the trope to help my film stand out. The light would act as a catalyst for change and an “arrow” towards the surface, but the thunderstorm would act as a more unconventional landmark that Moe had completed his journey.

Some of the other feedback I received was vital to keep in mind once I got further into production. Before removing a lot of the unnecessary events in the middle of the film, the feedback I got at pitching was to also make sure to have moments to breathe in between story beats. I tend to lean into packing my short films tight with character acting and action. Despite the longer length my films have been in the past, it is easy to forget to add moments of pause especially during the early drafts. It was also recommended to insert moments of humor. Lighter moments help amplify the intensity of darker ones, creating stronger connection between the audience and the main character. With all of these revisions in mind, I entered the fall semester with a renewed sense of vision for the film.

## Pre-Production

Since this film was going to focus on the journey of a single main character (who was named Moe later in the production pipeline), designing a creature that possessed all of the necessary physical attributes to fit the desired story beats while still being interesting and easy to animate was a fun yet challenging process. Finding the right character design actually helped shape the details of the plot in response. I was searching for a design that wasn't too fantastical and stayed within a certain realism, but also more interesting than something that was immediately recognizable. This led me to draw inspiration from a multitude of real-life creatures.



Figure 8. A variety of creature sketches made while studying animal references

I used creatures like meerkats, groundhogs, armadillos, aardvarks, rabbits, lizards, and many more burrowing animals as a reference to create some initial character designs. I also took inspiration from bats since I was considering the option of the story taking place in large underground caverns and caves, which still had a subterranean feel to it. My style tends to lean on softer and more rounded shapes so in the beginning, I made an effort to push myself beyond what I usually lean into to find something unique. In the end, the main character still had to be optimized for animation, especially if they were to have wings and fly for the majority of the film.

Originally, I was leaning towards Moe being more subterrestrial in design, giving him long forearms and large claws for digging much like moles and badgers. However, the addition of wings made it easier to create a link between what he desires on the surface and what he would not be able to as easily achieve underground. The story then became more about flight and how it was limited after the creatures were forced underground. This made the addition of an implied colony of creatures more relevant to show how the main character had a desire unique to himself.

Having a general background colony would also help imply that there was something greater going on beyond just Moe's journey without having to fully develop another character. I had a few drafts of the plot where Moe was chasing a prophecy that was spoken of or carved in the stone where they lived. I even initially included a plot point where he relied on a parent, elder, or mentor to provide him with a map to the surface after he came of age, fighting against strict rules that kept them all "safe" underground. All of these extra plot points in the end felt like they took away too much time from Moe's story and so the direct interactions with any other characters were removed after the first few versions of the animatic.

Finding the right balance of anthropomorphism in the creatures to fit the story's tone was also a challenge. I wanted Moe to emote and cultivate possessions in a more human way, but still retain animal-like behaviors and lack of verbal communication. This would help maintain a sense of naive innocence in him as he makes his dangerous journey to the surface, while providing an easier to read form of communication to the audience through human expressions and recognizable objects. If there was to be an implied society of these creatures living alongside him, the

anthropomorphism would help determine how much Moe stood out amongst the crowd as well. He had to be brave, curious and determined in his own goals and the crowd would exist simply to help give context to why they all were trapped underground and highlight that the rest of the population was content to stay where they were. An early version of the animatic put a lot more emphasis on this divide. The crowd of bat-like creatures displayed recognizable emotions, but in the face of something different like a human-made artifact or a leaky pipe, they were terrified and fled in the opposite direction. Moe in contrast would actively seek out anything that might bring him closer to the surface he was so curious of.



Figure 9. Still from an early *Reach* animatic

## Plotting the Journey

It was inspiration from my roommate, Leah Humenuck, that helped me figure out what plot device to use to get Moe to the surface. I was completely stuck on what

changed within Moe's world that suddenly inspires his trip to the surface when revising the story in the fall. If I was not going to use an earthquake, what prompts the journey? She mentioned during a casual discussion something about an old bunker that humans could have used in the wake of an apocalypse and that led to the idea of pipes leading upwards to a generator. Years of neglect and lack of maintenance after the disappearance of humans was a perfect way to tie together the two worlds. I immediately took to the idea because it tied into how I feel about generative AI and the industry while also representing a "calling" in general, even for people outside the world of animation. The idea of the machine evolved, becoming a sort of false hope for Moe after a rusted old pipe opened up underground where he and his colony lived.

The goal then was to design the inside of the machine to replicate the sky, misleading Moe to think that the pipe was leading up to the surface directly. It would be shrouded in a mechanical blue light and full of a cloud-like smog, calling to him from up the pipe and mimicking the surface. The key was to use different blue tones to show man-made versus the real sky at the end of the film: a bright saturated cyan in comparison to a paler, more natural blue. With the coolant spilled, the generator would start to overheat and eventually explode. The color would shift to a sort of infrared and create a feeling of immediate danger and complete the deceptive reveal.



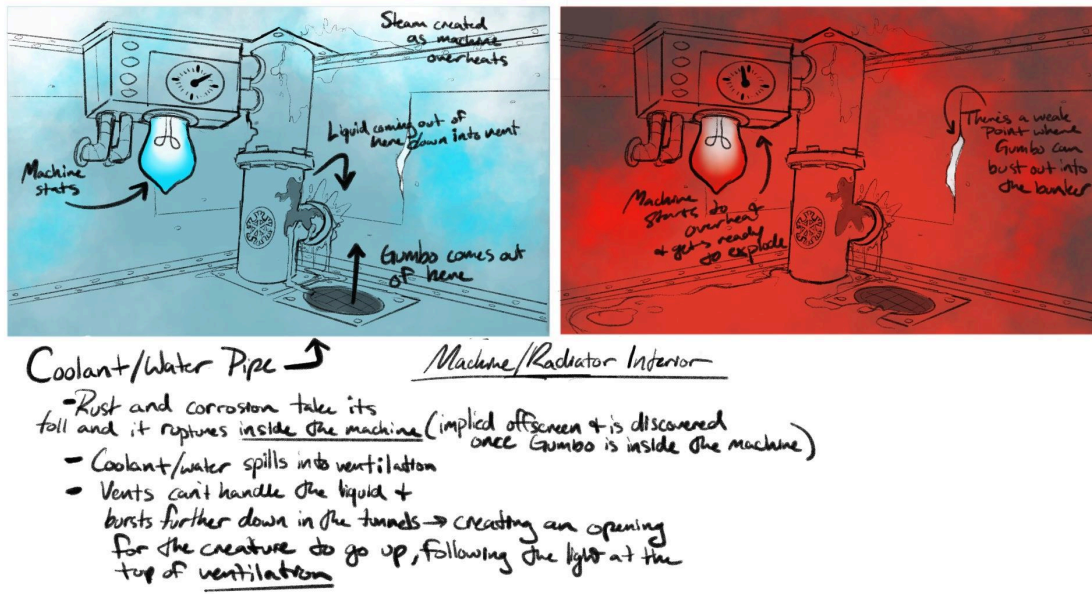


Figure 10. Plot map and color script for the inside of the generator

Figure 10 shows sketches that were made to help map out his journey before more layouts were to be tied down further. It became a challenge to figure out how Moe, who was then named Gumbo and later changed during production, would get up into the machine and arrive inside. I needed an opening into the machine that was big enough for Moe to climb through, but also had a reason to burst open suddenly. I could not have them be the same pipe because a coolant system would be a closed loop that did not lead back into the larger compartment of the machine. I designed it so that the coolant spilled into a separate ventilation pipe instead, leading to a more believable sudden burst since a vent would not be designed to handle a sudden gush of liquid. This leaking of coolant would lead to an explosion that would cause Moe's devastating injury.

After I felt better about the flow of the plot tying back into my rationale, I went through and created my first set of more official thumbnails. In the very first pass, I created some starting compositions and tested out my revisions visually.

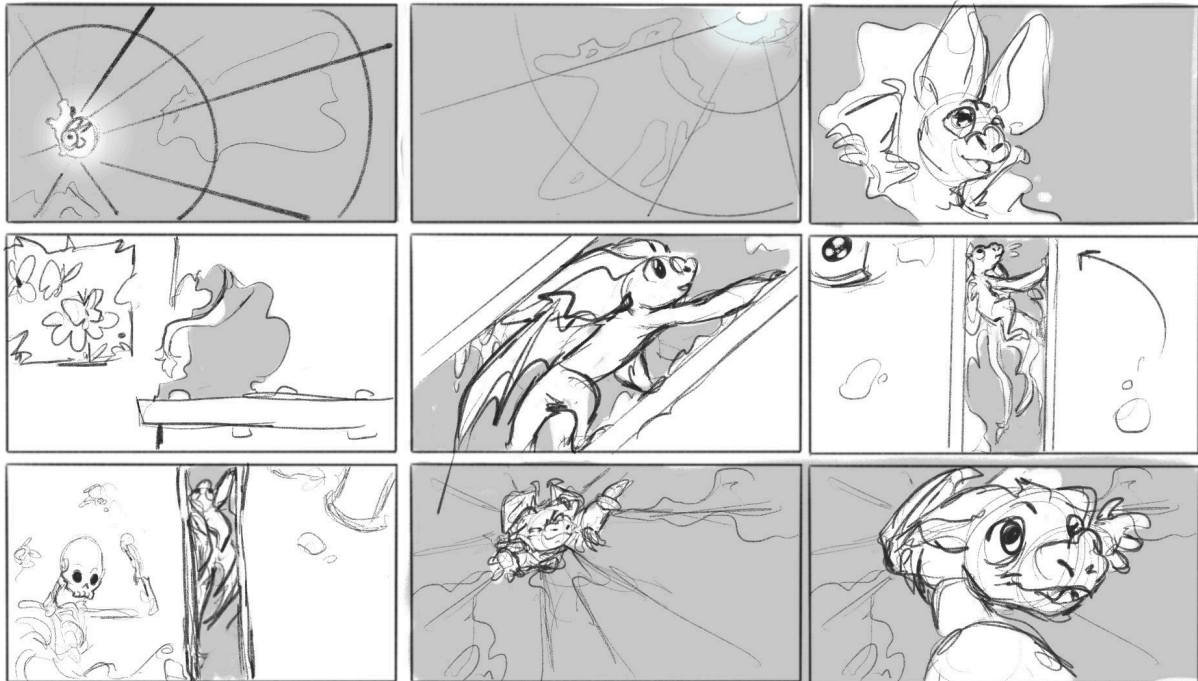


Figure 11. Snippet from *Reach* thumbnails

I was really excited to play around with angles within the pipes. Finding ways to explore the constricted underground areas was new and fun for me. Having been to many different zoos and natural history museums in the past, I pulled inspiration from some of the leaf cutter ant and naked mole rat exhibits I have seen. This gives the viewer a grander layout of the underground network of pipes by essentially taking a slice out of the dirt. A blend of organic and geometric shapes was revealed as natural dirt caverns and tunnels clashed with man-made machinery. I intentionally composed the shots to emphasize claustrophobic feelings. The tighter the spaces were, the more

it made sense for Moe to feel constricted within his living space and want to move forward to freedom. He could fly in certain open caverns, to reveal that he at least knew how to fly, but it was nothing like the openness he craved from the surface.

## Leap of Faith: The Setup

After eliminating the idea of multiple different catastrophic events, there needed to be a defining climax of the film that acted as a “no turning back” landmark. This became known as the “leap of faith”.

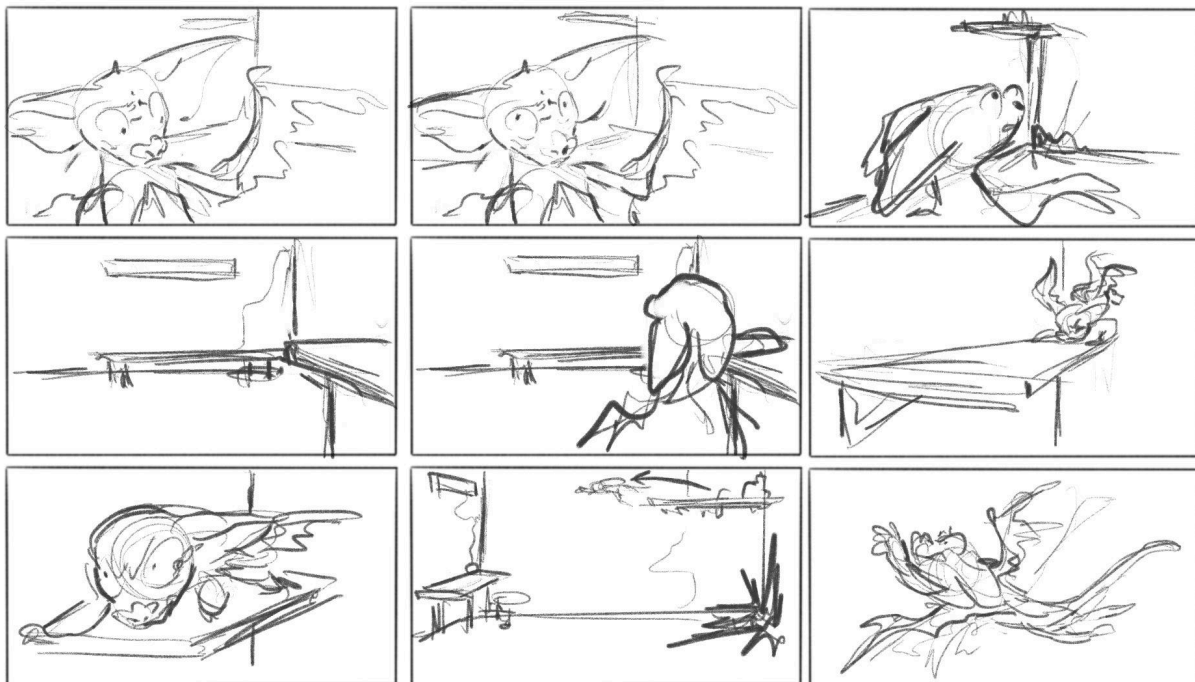


Figure 12. *Reach* thumbnails showing first draft of the “leap of faith”

This “leap of faith” was always meant to take place after physical injury, making it more of a test to Moe’s resilience and determination to move forward. However, with this official thumbnail draft in Figure 12, I wasn’t thinking big enough.

Moe's small size makes most human made spaces seem huge, but after some feedback I realized that it still felt too safe when leaping from one side of the room to the other. The next step was to push it further and, quite literally, split the room. Since I was working within an apocalyptic setting, the ability to utilize decay and destruction in the environment was a perfect solution.

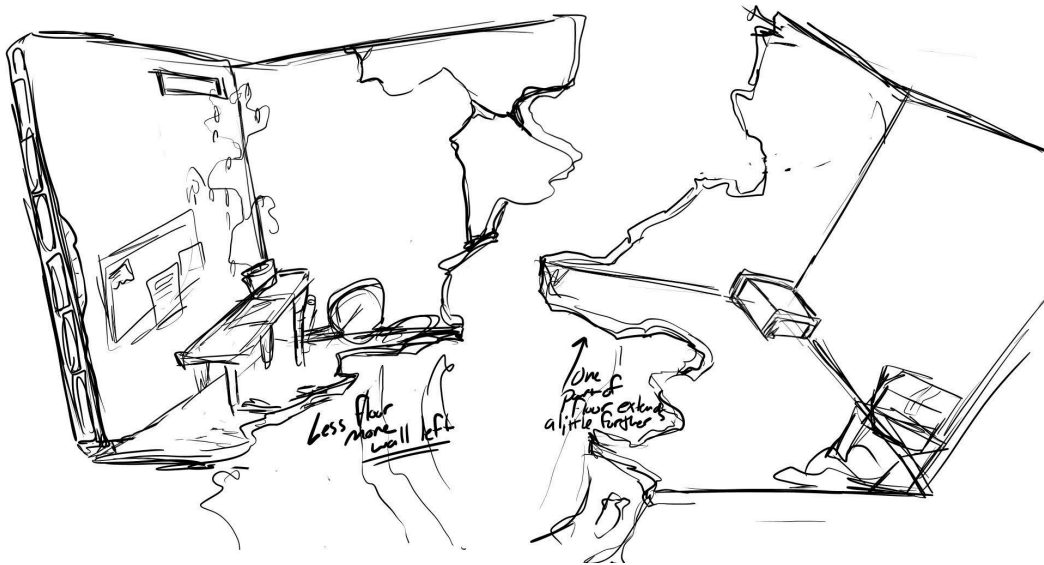


Figure 13. Sketch of split apocalypse bunker

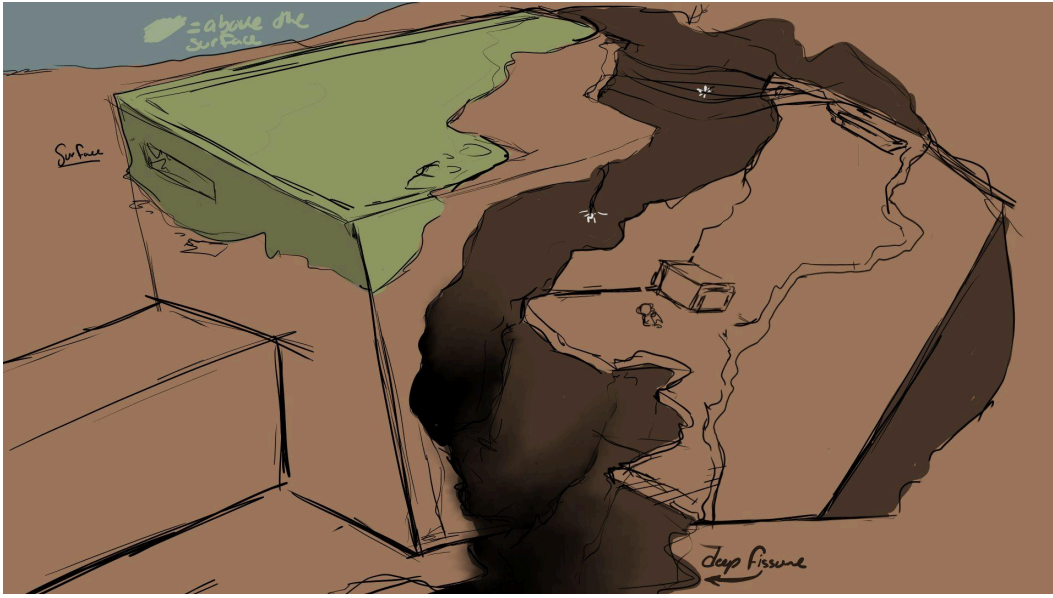


Figure 14. Colored draft of split bunker at a different angle

Above in Figures 13 and 14 are some of my first attempts at creating a much larger fissure for the leap. Finding ways to create enough compositions to establish this awkwardly large and organically broken up space was a leap of faith in itself. It was well worth any struggle. It added much higher stakes to the most defining moment of the film, giving me a lot of practice in trying new camera angles and perspectives. This would also highlight just how immensely small Moe is in comparison to both the abandoned human world and the world he was trying to reach.

The beats of the story surrounding the leap of faith would go through numerous iterations throughout the entire filmmaking process. In fact, it was not until after getting feedback from my spring mid-semester committee meeting that the final version would be solidified. The process of finalizing the plot will be explained later on, since it was far later in the project's timeline, but this new layout was a pivotal starting point for this scene.

# Production

Character driven animation, dynamic camera moves, and color were my priorities when moving into production. The animation itself fell into place pretty easily since a lot of my rough keys already existed within my animatic. I did a lot of clean-up work on the posing and made sure to start on the most complex and emotional shots first. I reached out to Christine Banna and Brian Larson for both animation and character design feedback. Leaning into Moe's injury more and accenting his thought process was crucial in the moments leading up to the "leap of faith". While that was one place the animation was revisited multiple times, the animation process overall was one of the smoother parts of the production pipeline.

## Tackling Layouts and Camera Moves

One of the biggest and most time-consuming parts of the filmmaking process were the numerous complex camera moves. Between a scene that involved a fast-paced series of falling rocks while moving backwards into Z-space and a sweeping 180 degree camera rotation while being focused on Moe, there was a lot of planning involved.

For the rockfall scene, I initially had believed that setting up the shot in 3D would make it easier considering Moe would have to run back and forth and eventually pass numerous falling rocks on the way back to the edge of the cliff. I worked with Meghdad Asadi on testing out solutions for this set up, looking into both importing

.obj formatted models into After Effects and even potentially painting it in Procreate since it had 3D texturing capabilities. However, After Effects needed an installation of a third-party plugin to import .obj models, which I could not do since I was working on university computers. Instead, I turned to Cinema 4D in After Effects to create an extruded shape layer that acted as a 3D object for Moe to run along. I animated other shape layers to act as a placeholder for Moe as he ran to avoid the rocks, shown below in Figure 15.

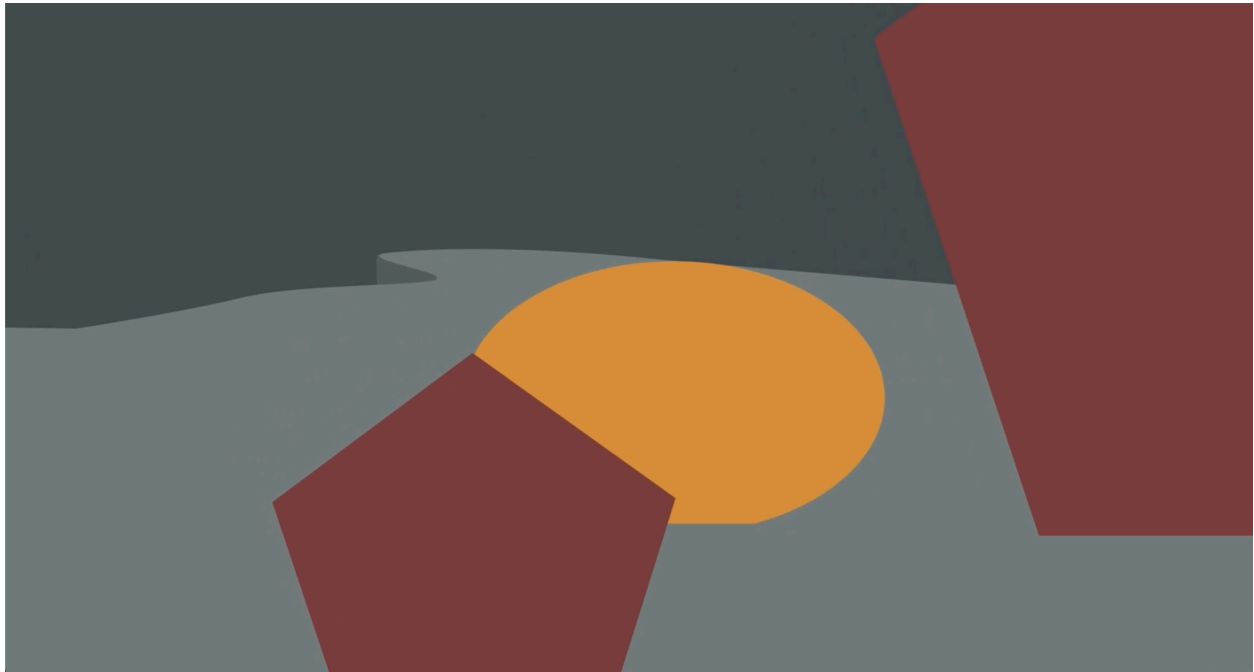


Figure 15. A screenshot of the Cinema 4D setup to block out the rockfall scene

While it helped a bit with tracking the falling rocks, it was ultimately more trouble trying to animate Moe running in place in frame since he started sliding in front of the tweened camera movement. I had to pivot fast in order to finish animating this complex scene. With the help of my advisor, I created a larger flat background, animated Moe's scale receding back into Z-space instead of physically moving the

camera forward to follow him, and then parented the animation export to the background in After Effects. This technique worked better and was far easier to manage. However, I am very grateful to now have a basic knowledge of Cinema 4D and can use it in future projects.

The other shot that took a lot of reworking was the above ground shot of the surface. I wanted to have the camera rotating around Moe, but I needed to first zoom in to get a close shot of Moe's expression and then zoom back out again to get to the establishing shot of the surface, all without cutting. Getting Moe to shrink to the right size within the landscape and trying to calculate his position on the ground with the camera move took weeks. I created the camera move in After Effects and imported a video of it as reference for me to animate on top of in TV Paint. This meant that any tweaks I wanted to make would require a re-export of the reference video or else Moe's position would be off. Even after the rotation was working, finding a way to cover up Moe sliding across the surface while zooming out was only fixed after I used the foreground elements to cover it up for as long as I could until the camera eased into place.

I had many other moving cameras but none that caused me as much trouble as these two. While challenging, it also only encouraged me to continue finding new ways to move the camera because the results were worth it.



## Color

I knew from the feedback I received on my workshop film that color was going to be a focal point. My work subconsciously tends to lean towards desaturated colors and a lack of contrast. In order to provide some inspiration and guidance, my advisor lent me *Noble Approach: Maurice Noble and the Zen of Animation Design* by Tod Polson, with notes by Maurice Noble and Chuck Jones. This book was an incredible reference to help me push my colors and textures further. Below are a few illustrations from the book that stuck out to me, including background art from *A Phantom Tollbooth* on the left and a background painted by Jill Petrilak in the final film Maurice Noble worked on in 1994 on the right (Polson et al. 46; Polson et al. 55). *The Noble Approach* showed me how to really push my use of color to create striking landscapes. I used a lot of that inspiration, especially in my panning surface background, and in the caves before Moe goes up the pipe.



Figure 16-17. Illustrations from *Noble Approach: Maurice Noble and the Zen of Animation Design* by Maurice Noble and Jill Petrilak respectively



Figure 18. Final rendered surface background from *Reach*

For my other two films that I had made in TV Paint, I had always assumed that the best way to fill in color for the clean up animation was to create a separate clean line and color layer. In the past, I used two basic animation specific layers which were not optimized for coloring.

There is a drop-down option on the paint bucket tool in TV Paint that I used to set the “clean line” layer as the reference layer. The “clean line” layer and the “color” layer had to be organized and placed next to each other in the software workspace so that the color was underneath, otherwise this method would not work. The other issue was that it would not fill if there was even the smallest gap in the lines, which was frequent considering how loose my sketches tend to be. I would be able to adjust it to compensate for smaller gaps, but it still took extremely long to color my films as a result. During a meeting with my advisor a month into the spring semester, while talking about how to prepare for the coloring process, I finally learned about CTG layers for the first time.

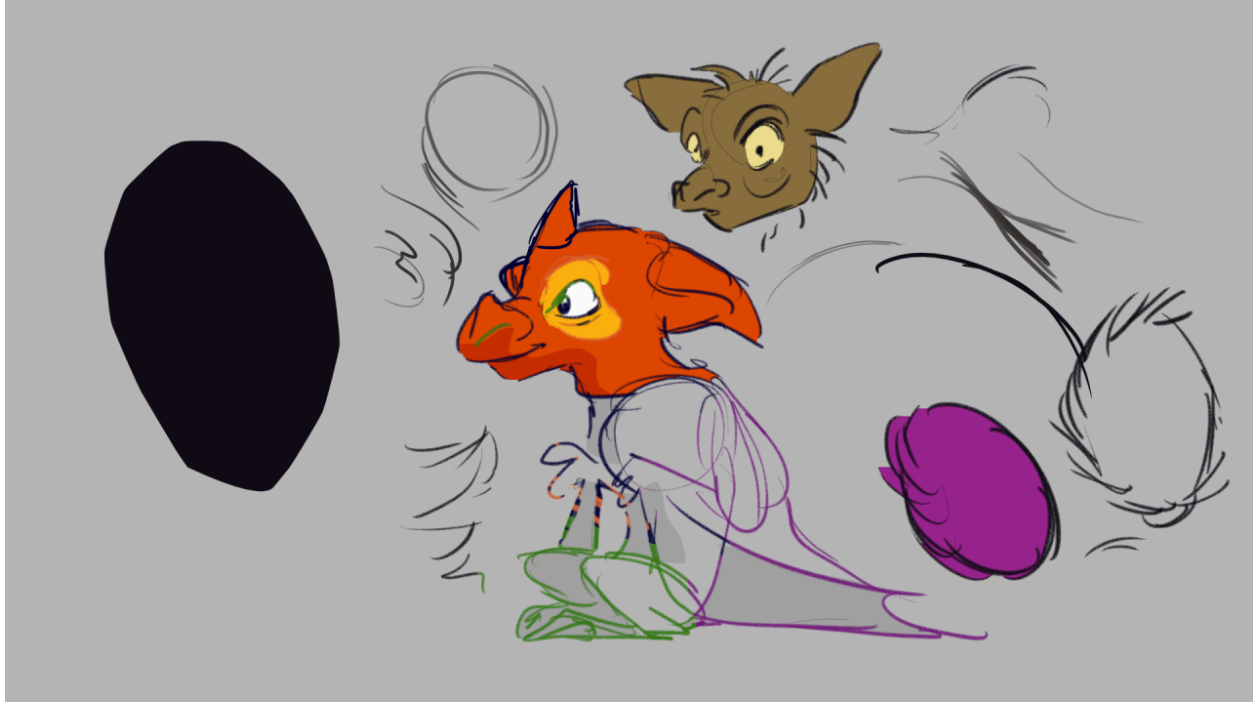


Figure 19. Test page for CTG layers in TV Paint

When created, CTG layers are automatically set to use the “clean line” layer of choice as a reference. It autogenerates real-time updates to the color as you work and only requires a small dot or line to the canvas to determine what color goes in what area. CTG layers will also give an assisted estimate to close off an area with open gaps, so if there were to be a small hole in the pixels, then it can still fill in spaces without having to completely close the lines. Figure 19 is the test page used to test just how reliable CTG layers would be in capturing color with my style, even at its “sketchiest”. In the largest middle drawing, around the end of the snout, the CTG can be seen closing the gap with color even without linework being there. Using alpha channels on the lines would also allow for the painting over of line color, like in the middle drawing. I wanted to avoid the cartoony, “polished” look of thick black lines so this

would potentially become a useful tool. Needless to say, my life was changed, and I was actually excited to color my film for the first time.

This process also made it easy for me to pass along certain shots to my coloring help later in the semester. I put out a call in mid-April for help on coloring because I was coming up on my due date, but needed to be able to continue animating the few shots I had left. I was fortunate enough to be able to recruit some of the second and first year graduate students, an undergrad that volunteered, a friend of a friend, and my roommate Leah to help with color. Out of that mix of volunteers, only two were animation students and all but one had never used TV Paint. I offered TV paint lessons to each person and within ten to fifteen minutes, thanks to my newfound knowledge of CTG layers, each person was able to learn how to color quickly and efficiently.

## Leap of Faith: The Payoff

As previously mentioned, there was a large adjustment to the flow of the “leap of faith” after my mid-semester committee meeting in the spring. As the film was starting to take shape, my committee and I realized that the “leap of faith” sequence was still not effective enough. The scene needed more of a moment of pause and an element of suspension.

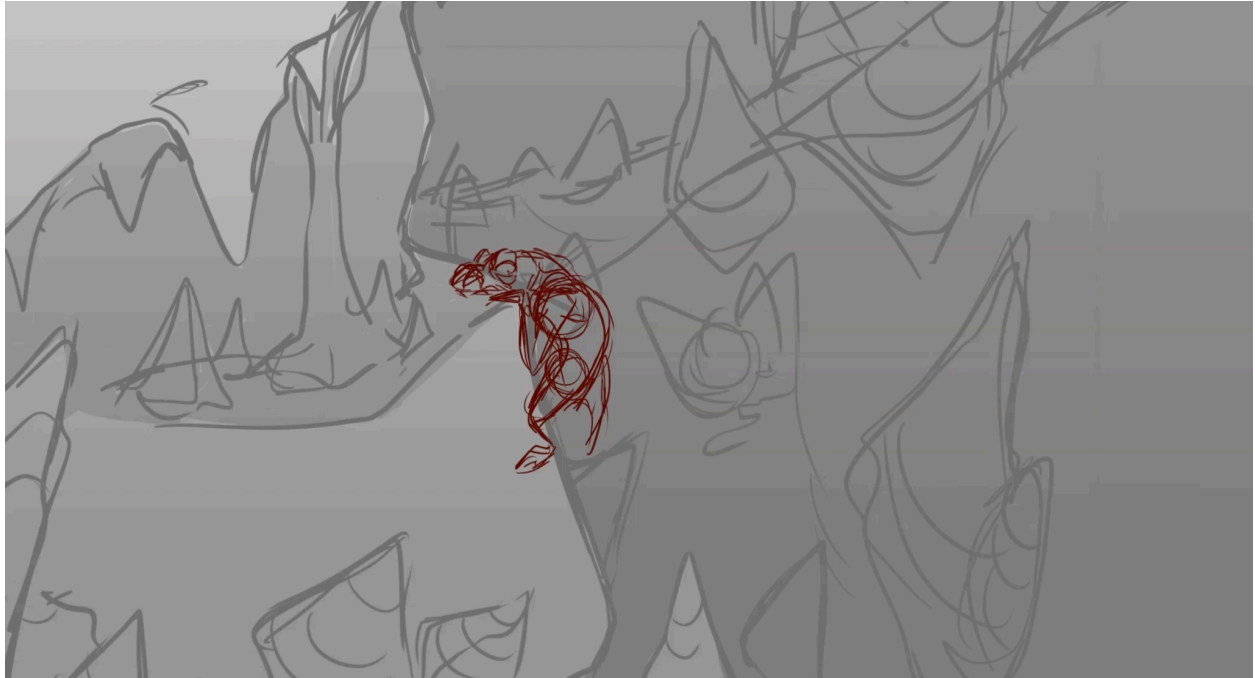


Figure 20. Deleted scene from the shot after the “leap of faith”

Up until this point, I included a scene with Moe reaching the other side and clinging on with his damaged wing before starting to scale back up the other side of the cliff, as shown in Figure 20. This seemed to be the biggest point of critique as it hindered the flow of the film. Right before this moment, Moe scrambles to survive amidst a rockslide and is shown to make an active decision to jump towards the light, despite knowing he can no longer fly. Showing that he made it to the other side too soon eliminated the impact of the risk he took.

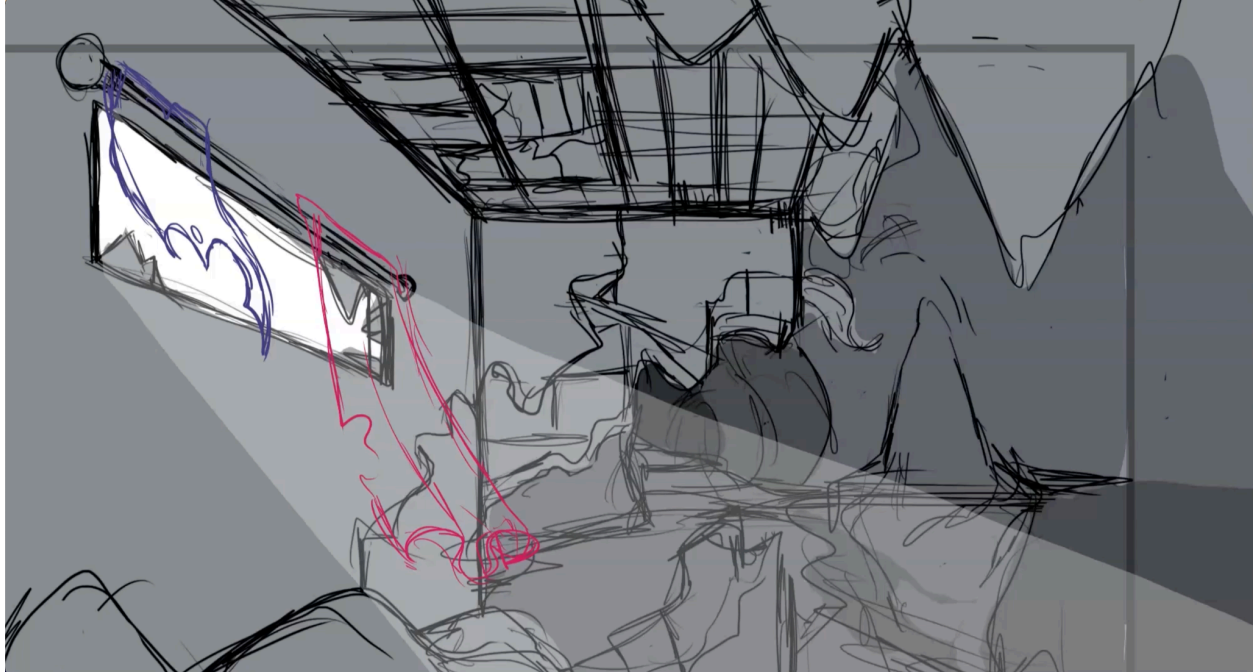


Figure 21. Animatic screenshot of the updated “leap of faith” sequence

The shot was removed all together, leaving the audience waiting longer to see what happened next. Instead, I composed a shot that lingered on the whistling of the wind into the cavern and the flapping of the damaged curtains before they stilled, emphasizing the parallel to Moe’s own wings, shown in Figure 21. This also saved a lot of time as it eliminated the need for a complex set of character animation.



Figure 22-25. Screenshots from the finished film of the “leap of faith”

I also added a close-up of his struggle to stay airborne before dropping into the darkness below. By showing the audience just how much of a physical and mental toll it was on him through his shifting expressions, combined with both the score and the sound effects reverberating into silence, this was immediately a more effective shot. It was finally carrying the weight and sense of tension I had been working towards throughout the entirety of production.

# Sounds of the Underground

## Sound Design

I was extremely fortunate to have found a sound designer to collaborate with for this film because as pre-production continued, I realized just how important sound design would be in selling the underground environment and the emotional beats of the story. Noah Haverlick was a senior undergraduate student specializing in sound at RIT whom I had worked with during a group project in Dave Sluberski's Advanced Sound Design class. I reached out to him in October and not only was he willing to collaborate, he offered to mix the film in 7.1 surround sound, which was something I had no experience with.

Submitting my film as Tier 2 to Wegmans Theater was already in motion since I was working with a 2K Flat resolution at 1998 x 1080 pixels. Tier 2 screening submissions include any film that has an export larger than a 1920 x 1080 standard high definition for visuals, and sound mixes beyond basic stereo. I was more than ecstatic to have the film mixed in surround sound as a result. This allowed both of us to have full control over which sounds would be coming out of specific speakers in the theater and create a rich atmosphere through sound design. Using the distant creaking of rusty pipes, shifting rocks, water drips, and more, *Reach* would become a fully cinematic experience. The ending thunderstorm was also something else I was particularly excited to hear come to life in a high quality theater like Wegmans.



I created a small library of sound effects and some empty folders that held groups of sounds that I could not find and then Noah filled in the rest. We met regularly after the start of the spring semester since that is when picture lock was scheduled, but were in contact in the fall to continue planning and mix the initial ambience sounds.

Once picture lock was established, Noah scheduled a foley session in RIT's sound rooms. Foley sessions include using found objects to create unique sounds into a microphone, while timing it to the visuals of the film for all of the environmental sounds and specific character movements. We recorded multiple takes of each sound needed using Pro Tools, the industry standard audio mixing software. With the help of Deegan Melchiondo, a friend of Noah's and student at RIT, we recorded foley for *Reach*. This included footsteps by crunching gravel, rattling pipes, scratching against metal, water splashing, and flapping of clothes. Water splashing was used for the coolant spill. Flapping coats and shirts were used for Moe's wings and the curtains hanging across the fissure. All of the metal sounds were put towards Moe's interactions with the pipes and the generator. These raw sounds were layered with some of the library sounds we found to create a fuller mix.

Around mid-April, once the sound design was fully underway and nearly complete, Noah found a voice actor for Moe. It had been too difficult to find raw animal sounds for all of the specific emotions and timing we needed, so Marty Martin, a fellow RIT student, came in to record ADR to fit Moe's performance. I had no idea what the end result would be like, since I was adamant from the beginning about not letting Moe sound human, but I was open to human voice actors as a last resort. I sat

in on the recording session to help direct and was pleasantly stunned. Marty was incredible. He was able to take direction and immediately adapt to critique. We went through the whole film and captured multiple takes of each squeal, grunt, snort, and screech we needed. Noah then used the approved takes in the final mix. The results worked far better than anything we could have found online or in a library alone.

## Music

I had a harder time nailing down a soundtrack for *Reach* than any other film I have worked on. For the longest time during the animatic stage, I only had scratch sounds, since any kind of placeholder soundtrack was too extreme and would distract from the flow of the film. *Reach*'s tonal flow is an odd mix of hopeful, devastating, and bittersweet. I puzzle-pieced a basic soundtrack from different copyright free sources and soundtracks from media that I had watched before. One later version utilized a snippet of the finale song from *Avatar: The Last Airbender* for the grand reveal of the surface. It was far too overpowering for the film and the cuts of each song in the early mixes achieved more in telling me what to avoid than what was working for the film.

However, I solidified my composer before entering the fall semester of thesis production by reaching out to Emma Most, an alum of the Eastman School of Music. She and I had already collaborated previously on my other two films created at RIT, *Bandit* and *Inspideration*. We met during the artist call that would occur each semester at RIT to match up animators with sound designers and composers. Her ability to create diverse emotions through her compositions to fit any genre of film made her

my immediate first pick. I knew Emma’s process well and trusted her to help me in creating a fitting soundtrack.

Emma’s first music draft was a bit too intense, much like the scratch music I had put together. She specializes in rich, layered compositions with a full orchestra feel. After leaving music out of the animatics for so long, the absence of music highlighted how much the beginning of the film needed to let the sound design shine through. During one of my weekly meetings, it was suggested that I design a sort of flowchart to break down what the energy levels at each moment of the film needed to be and it ended up being vital in communicating the needed feedback to my composer.

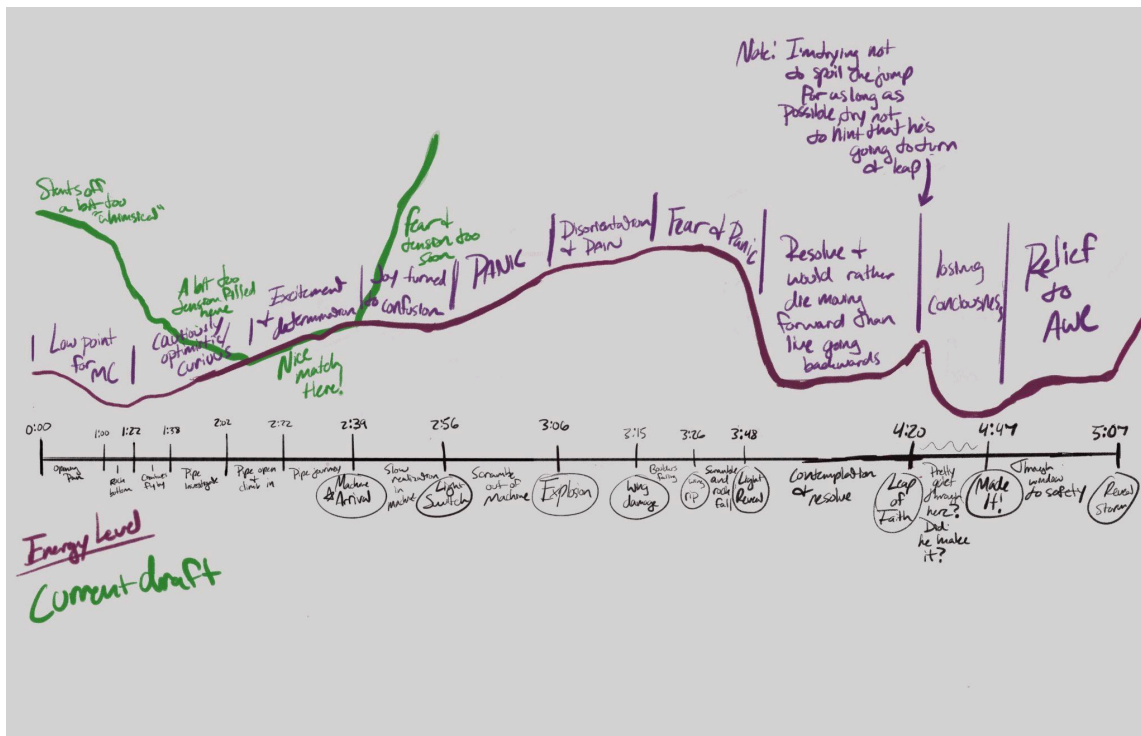


Figure 26. Reach “energy” chart that was sent to my composer for the score

In Figure 26, I broke down each major moment by timecode and drew a line to visualize the desired energy and tone as the film progressed. There was already a motif during the journey up the pipe that I liked from the first draft and had an overlap with what I was looking for as indicated on the graph. Being able to address these concerns early on before she finished the second half of the score was vital. The energy of the beginning was brought down to meet Moe at rock bottom and it helped make the next revision almost perfect.

There were only a few minor adjustments needed to the score once Emma finished her first full draft. I asked for the removal of a few cymbal clashes around the time Moe hit the cavern ceiling after the explosion. It was another case of letting the sound design come through for a more visceral impact. After any small revisions were done, my composer was able to export each instrument used in the score separately so that my sound designer had more control in placing them throughout different channels for surround sound.

## Screening, Feedback, and the Future

I finished exporting *Reach* in time for a quality check with FVASA. The visuals were working well and did not need any tweaking in a technical sense. I was still glad I was able to test it in Wegmans since Noah and I both discovered that the score was far too quiet in comparison to the sound effects. The film also lacked use of the bass and subwoofer overall. We had one more quick session in the sound mixing room to bump up some of the lower rumbles in the cavern scene to get the film ready for screenings.

*Reach* was screened in Wegmans Theater on May 5th, 2024 at 4pm. I had some valuable feedback from students and professors alike that would polish up the film before submitting to festivals. It was recommended that I tweak Moe's pose in the opening pan. He was originally foreshortened straight towards the camera and several professors noted that the silhouette was hard to read until the following camera cut provided more context. Since that moment was not animated, it would be an easy fix.

Jonathan Seligson commented on the success of the character animation for Moe as well as suggestions to play with color and saturation more in certain spots. As one of the committee members I pitched to the previous spring, he also noted how much the story changed since my initial concept. This was great confirmation that my original rationale was able to shine through with all of the edits I made to the original plot. Christine Banna commented positively on the linework of the final animation which was an aspect of clean up I definitely wanted to find a balance in. My sketches thrive by staying "messy" and I am overjoyed that some of the residual roughness in the mark making was not too distracting. She also offered advice for a small tweak in the depth of field in the surface sweeping shot to help sell the vastness more effectively. Several other members of the audience mentioned points they enjoyed and the tension they felt when watching.

Overall, the reception of the film was everything I hoped for. The suggested critiques were quick and simple for the most part. I opened up my files and made the suggested adjustments a few days after screenings, such as redrawing the opening pose as shown below and adding more blur to the different background layers in the ending shot.



Figure 27. End of the opening pan during screening

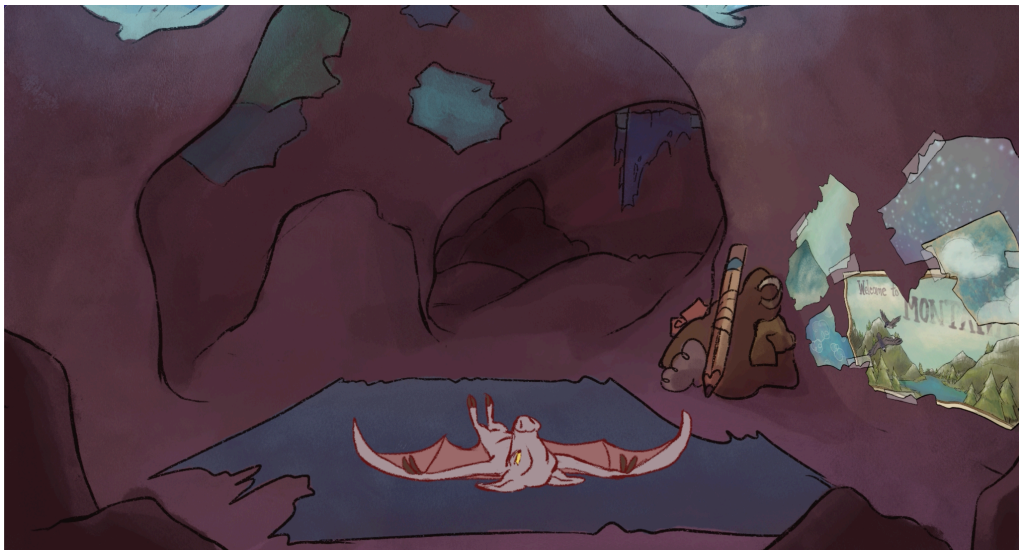


Figure 28. Fixed posing after screening based on feedback

I also spent more time tweaking the credits, changing the font and adjusting the text size since I was unsatisfied with what I had settled on before screenings. Over the course of the next year, I plan to submit Reach to as many film festivals as I can. With the film's DCP, I will be able to screen any official selections in 2K with surround

sound. With the film's environmentally focused undertone, a main character that is a creature, and a bittersweet ending, my hope is that *Reach* will be accepted into a variety of festivals that have these themes as their focus.

## Conclusion

I learned more about animation and filmmaking through the process of creating *Reach* than I have while making any other film. To have such a personally experimental film be met with a successful reception by both my thesis committee and the screening audience is a triumph I do not take lightly.

The film was also immensely cathartic for me. I was going through a hard time during the fall semester as it was starting to be produced. I struggled with my self confidence, balancing two part time jobs, and personal loss. Working on the film was frustrating at times, especially in moments where software was not cooperating or when I had to spend hours trying to make a difficult camera move work out. Despite that, I got far more enjoyment learning as much as I possibly could in the process and the collaboration that came from being surrounded by talented individuals who were willing to lend their valuable time to my film. After every weekly thesis meeting with my advisor, my committee members or other peers I had reached out to for feedback, I was trying something new: new drawing techniques, new ways to approach lighting and perspective, new ways to use the available software, and more.

To directly quote my artist's statement from screenings:

“To anyone...who may be feeling trapped or broken, there’s an odd comfort in embracing the unexpected, despite how scary and painful it can be. Take the leap and fight against whatever hardships come afterwards. More likely than not, there’s something beautiful on the other side.”

I stand by that statement and walk forward with this film as a stronger artist, storyteller, and person. This statement also reflects what I have learned over the course of this project about sacrificing everything for a dream. In the end of the film, Moe still makes it to the surface and accomplishes his goal. While he may never get to fully enjoy the sky that is now open to him as a result of the journey, he can feel content in knowing he made it and he can experience a piece of what he was yearning for his whole life. The cure to regret that may come with sacrifice is searching for beauty where you settle. The circumstances may not be exactly what you thought they would be, but you can still recover and thrive with time.



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# *Reach*

Rachel Immel  
2D Animation Proposal

Thesis Proposal  
For MFA Film and Animation  
School of Film and Animation  
Rochester Institute of Technology, Rochester, New York  
April, 2023

## **Logline**

A creature that has been living deep underground its whole life makes a treacherous journey to the surface to see the stars for the first time.

## **Rationale**

In my own personal journey to become an animator, I have had to make sacrifices along the way in order to make that dream come true. This includes everything from potentially saying no to a few gatherings because I have work to finish to putting my own health at risk for deadlines, a significant financial investment in my education, and being the first person in my family to move out of state to pursue my career. Being surrounded by fellow artists and so many other people who are all doing the same thing in order to pursue their goals inspired me to make a film that highlights the struggles of getting where you want to go in life and is a tribute to those fighting to make things happen no matter how scared they might feel. However, I want this piece to relate to a much broader demographic than just artists.

People make hard decisions and put everything they have into their dreams on a daily basis, whether it is to achieve a personal goal or in the process of trying to change the world. This film is meant to be an exploration of the doubts, triumphs, and the emotions that one will grapple with in overcoming the adversities of life to feel fulfilled in the frighteningly short time we have on Earth.

## **Treatment**

Numerous shattered attempts at reclaiming the earth before apocalypse struck lay buried and busted among layers of dirt: shattered solar panels, bits of wind turbine, old roots of dead vegetation and buried trash by the foot. The stone lining of an old abandoned well continues downwards for a while before giving way to pure dirt, only the shape of the well remaining intact at the end of it.

At the very bottom, lives a small underground dwelling creature. Gumbo, the main character, has wandered into this empty space from a hole to the right after shifting aside a large rock that was acting as a door. He's a small brown creature that looks like a cross between a meerkat, a rabbit, and a badger. He has a little bandana around his neck and a small satchel across his shoulder. There is a thin stream of light falling in from the top of the open well, casting a faint spotlight on a small rock in the center. He squeaks, perks up happily and moves to rest on the small rock at the center, placing one of his arms into the glow first before pulling himself in afterwards, content to bask in the tiny sliver of light that makes its way this far down into the

earth. Old coins litter the dirt floor around him and shimmer in the thin stream of evening light.

The light shifts as the time ticks by and soon enough once Gumbo has had his fill, he leaves again, rolling the door back into place. A time lapse begins and day by day it's shown that Gumbo goes to sit on a small rock next to this patch of soft dirt, occasionally kneading at the surrounding soil, meticulously sprucing up any stray dust away from the area and ending his day looking up at the stars.

Suddenly, during one of his regular visits, the ground starts to shudder with the beginnings of an earthquake. Gumbo squeals in fear and leaps to cover his spot with his own body while ducking from falling rocks. The quakes are violent and the ground can be heard cracking with the force of it. It's a long beat before everything settles. Once the dust clears, he shakes off some of the shock and looks back up the well at the damage. The tiny stream of light is gone after the hole is plugged up by a rockslide. Gumbo is devastated, his expression filled with worry and disbelief. He slowly gets up and clears up the small space around his spot, sweeping away rocks and any fallen debris. It doesn't take long before his eyes wander to a large fissure that's now opened a new pathway upwards that wasn't there before but is slanted enough for him to fit through. He takes one solemn but determined look back at his spot at the bottom of the well before leaping into action, running straight up to the fissure and squeezing through the cracked stone and dirt.

The earth is still unsteady and shifting beneath his feet as he presses on. He makes stride after stride upwards among the shifting dirt and unearthed debris. The ground starts to squeeze him into smaller and smaller spaces and he uses his massive claws to quickly dig a new path when it gets tight. He finally makes it to a large cavernous clearing but simultaneously as the ground still shifts, a rusty old pipe filled with sticky black sludge is ripped open. Gumbo perks up his ears and flees in the opposite direction of the creaking pipe, but gets caught in it and slammed against an opposing cliff face. He has to shake off the impact before he tries to pry himself off the rock. Suddenly, he looks all the way up the large, spiky wall before looking back to his fur that's coated with the sticky residue. He manages to pry one paw away from the wall and utilizes the sludge in spider crawling up the rocky cliff face, aiming for a narrow opening at the top of the cavern.

The spikes get bigger and more intimidating the farther he climbs upwards. Many are suspended from the cave's ceiling. As he finally climbs up and reaches a more stable footing, another quake starts to rattle the sharp stalactites above him. The earthquake tears a new pathway through the cavern open, but it's a huge leap of faith to get there. The sharp stones start to fall and Gumbo has to make a quick decision. He ramps up speed and prepares to jump while dodging the falling stones, but as he's moving through one of the sharp stalactites grazes him in the eye. There's a squeak of pain and a splash of blood but he doesn't slow down because he'll fall straight back

down if he does. He puts his head down and plows through it. He reaches the end of the path and makes the leap. After a long dramatic beat, he latches on to the cliff and pulls himself up the rest of the way quickly before the quakes can shake him loose.

He's bent over on his knees, panting as blood slowly drips from the wound in his eye. The quakes stop and he's slow to get up, before continuing up the new path. This time after leaving the cave, there's a stretch of soft dirt, littered with trash and junk that's long been buried. Gumbo is slowly making his way through until he slumps against the dirt wall. He tears an old strip of fabric that is protruding from the trash in the dirt walls and wraps it around his head over his eye. There's a beat of contemplation and a reflection on what his next move should be, but as he curls into himself he notices something shiny further up the path that reflects back at him. He approaches it, only to find that it's a big silver coin, like the one's back in the well, that's caught a sliver of light peeking through from the surface. Gumbo is reinvigorated and follows this new beam of light after pocketing the coin in his satchel. At the end of the path, there's now only a thin wall of dirt between him and the surface, which he uses his claws to bust through.

He finally breaks through to the surface, exhausted, injured and worse for the wear. As he hauls himself out of the hole, the land is revealed to still be devastated by the apocalyptic event implied in the beginning while traveling through the dirt in the opening scene. The surrounding area is full of scattered decaying trees, old abandoned buildings and cracked soil, as if the area were a dried up lake bed. Some of the fissures created from the earthquakes also split up the ground and reveal some of the layers as seen in the opening. Gumbo is tired but takes a moment to lift his head towards the sky, smelling the air, taking in the wind, and feeling the night time light on his face with a faint smile. He opens his uninjured eye and the vast sky of stars is reflected in it.

However, after taking in the surface for the first time, he continues to stumble through the dry surrounding area, wandering a bit farther still seemingly searching for something.

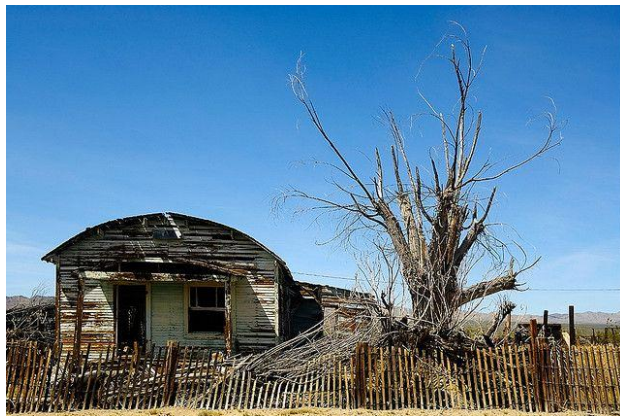
He continues until he runs into a circular wall made of the same stone as the well's walls. He runs his claws over it. There's a flash of hope across his face as he recognizes it. He heaves himself up onto the crumbled walls and begins sifting through the rocks with the last bit of his strength. It only takes a little while before he's cleared the opening again. He makes a squeal of triumph. He peers down the hole and it's too far to see the bottom but he can see the light streaming in from the new opening. He reaches into his satchel and pulls out the large silver coin he had just found on his journey. He drops it precisely down the hole, hovers his head over it with his ears perked up, and then he waits. He can hear the coin clatter against the walls and a final plop as it reaches all the way to the bottom. Assured that the well is officially unplugged, he sighs and then tumbles backwards onto his back in a patch of dead grass, sprawled out in exhaustion but not without a smile of satisfaction

creeping onto his face before he closes his eye and basks in the light of the moon and stars.

A slow descent back down below the surface through the well, to where Gumbo used to sit day after day and right next to the coin he just dropped, reveals that there is a tiny bright green sprout that has started blooming in the small patch of moonlight he's reopened.

## Vision

*Reach* is going to be a narrative driven, 2D animated film that has no onscreen human characters but takes place in a post apocalyptic setting that has remains of humanities influence left behind. There are wells, buildings and other structures that are long abandoned and scattered on the surface. Layers of trash are mixed in with the soil.



In this film, I want to create a color palette that is both vibrant and symbolic to the two major areas in the setting: the underground and the surface. The series of underground caverns where the main character lives is going to be darker browns with a myriad of warm red and orange tones that convey darkness, familiarity, and eventually danger. However, as soon as the main character reaches the surface, it's going to shift to cooler tones with the addition of the night's sky and the stars. The

budding plant life that Gumbo is trying to protect will also be sharply contrasted to the warmth of the underground by being a shade of cooler green.

The design for the creature that will star in the film is heavily based on real life animals that live underground, like badgers, insects, bats, moles and more. However, they will not be anything that actually exists in real life and have more anthropomorphic qualities. I think this unique design will help to make the main character more memorable and make the message more universal by not tying it completely to the context of a creature that is actually real. I have provided a small sample of sketches I made to better display this concept. None of these sketches are completely final, but they are the start of my experimentation with the design.



I want to focus on nonverbal performance and character expression to tell the story as much as possible. The main character, Gumbo, will not have any spoken dialogue as a result, but still make a variety of animal-like vocalizations to aid in expressing emotion.

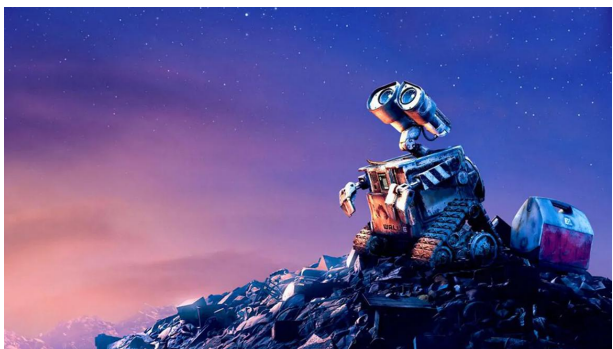
In terms of stylistic design, I want both the character and environment design to feel seamlessly integrated together in shape language and color. This is also why I



wanted to come up with a completely unique character design that can fit within this unique post apocalyptic setting. The environment and final character animation will have thin black linework and minimal shading. It will all be digitally animated in TVPaint and composited in Adobe After Effects. Lighting will also be a huge focus within the story.

### Inspiration

My inspiration for some of the aesthetics of the film come from StudioCanal's *Ernest and Celestine*, Disney's *Wall-E*, and Studio Ghibli's *Castle in the Sky*.



### Budget

Items	Cost	Details
TV Paint Software	IK	



# Appendix

## Rendered Screenshots from *Reach*

