



# Filming an Experimental 360° Art Film

Roni Sydänmäki

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## **ABSTRACT**

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360 degree video is an emerging media that offers a uniquely immersive viewing experience, and has seen great technological advances and increased public interest in the recent years.

The goal of this thesis was to explore 360 degree video as an art form by the means of filming an experimental 360 degree short film. To prepare for the project, research was done on the tools and work methods that are used in recording 360 degree video, along with the challenges and advantages of the medium. The first half of the thesis covers this research, as well as an explanation and discussion of what 360 degree video is and some of its history. Data was collected from digital guides, online articles, e-books, and instructional videos.

The second half of the thesis describes the pre-production, filming, post-production, and release of the film. The end product is a short experimental art film depicting humanoid frogs interacting with the viewer in a forest. The tone of the film is intended to convey elements of horror and absurd humor in equal measure. The short film is available to watch for free on YouTube.

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Key words: 360-degree video, art film, media

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## 1 INTRODUCTION

In the autumn of 2021, I got the opportunity to try out a 360 degree camera for the first time. As it is to be expected when trying something new, it was a challenging start, but the experience inspired me to do more and expand on what I started.

The goal of this thesis was to produce an experimental 360 degree art film that seeks to utilize the unique viewing experience provided by the medium to the fullest. To reach this goal, I needed answers to the following questions:

How is 360 degree video produced? How does one operate a 360 degree camera? What factors unique to this medium need to be considered in filming and in post-production?

With these questions in mind, I studied the relationship and history of virtual reality and 360 degree video, the tools and work methods that go into recording 360 degree video, as well as the challenges and advantages of the medium. I then applied what I learned from my research into filming and editing my own 360 degree short film, the process of which is covered at the end of this written report.

Data was collected using mainly web articles and e-books, as it was difficult to find printed material on a topic this fresh.

The term 360 degree will be written as 360° from now on to improve readability.

## 2 RESEARCH

### 2.1 What is 360° video?

360° videos are video recordings where a view in every direction is recorded at the same time. It is recorded using a rig of multiple cameras or a specialized omnidirectional camera with multiple lenses. For simplicity, from now on this will be referred to in this text as a 360° camera, as they are more commonly called. The separate footage from each lens is stitched together to make one spherical video that the viewer can turn around to view different angles of the video.

When watching 360° videos on a personal computer, the view can be adjusted by clicking and dragging. On a mobile device with a touch screen the user can similarly pan around the video by swiping with their finger, or if the device is equipped with a gyroscope, panning is based on the orientation of the device. For the most immersive experience, one may also watch 360° videos on a head-mounted display - also known as a virtual reality headset - and control their viewpoint with the movement of their head. Virtual reality is commonly abbreviated as VR, and this text will use the abbreviation as well.

The latter method of playing back 360° video may be what causes some confusion in the general public and brings us to the next aspect of the medium that this study will address: Is 360° video virtual reality? Experts are not completely unanimous to the answer. At this point it should be noted that the following analysis focuses more on technological features than the experience of the viewer.

Merriam-Webster's dictionary defines virtual reality as follows:

“An artificial environment which is experienced through sensory stimuli (such as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment.” (Merriam-Webster's dictionary n.d.)

By this definition a key element of VR would be allowing the user to interact with the environment.

Scottie Gardonio (2017) and Joshua Goldman & John Falcone (2016) agree in their respective articles for Medium and CNET, that 360° video is not to be confused with VR for this reason. Gardonio specifically brings up the concept of six degrees of freedom. It has already been established that in 360° video, you have the freedom to look up and down, left and right, backward and forward, and any direction in between. However, for an experience to be considered VR, it should also give the user the freedom to move or manipulate objects on these same axes.

While watching a 360° video, you can neither move within the environment or interact with it. The difference is like driving a car versus being the passenger. In VR, you are the driver and control where the vehicle goes, or maybe you can even park the car and get out to pick some flowers. With 360° video, you are the passenger, a spectator.

Skye Von (2016) of UploadVR also distinguishes 360° video from VR, citing the limited level of freedom given to the viewer.

On the other hand, Steven M. LaValle (2020) is much more flexible when defining VR in his book, simply titled, *Virtual Reality* - The main point is that it should induce targeted behavior in an organism by using artificial sensory stimulation, while the organism has little or no awareness of the interference.

LaValle breaks this definition into four key components: Targeted behavior, organism, artificial sensory stimulation, and awareness. In a typical 360° video viewing experience the targeted behavior would be the act of looking around, the organism is obviously the person viewing the video, the environment depicted in the video is the sensory stimulation, and with the use of a VR headset, the viewer can eliminate all outside interference, being only aware of the environment within the video.

It could even be argued that the act of looking around in a 360° video is also a form of interaction. In a chapter of his book concerning interactivity, LaValle categorizes a VR system to be either open-loop or closed loop. In closed-loop VR, the user has some control over the virtual environment they are experiencing. This aligns with the definition of VR presented by Gardonio (2017), Goldman and Falcone (2016). With open-loop VR, the opposite is true. Following this logic, 360° video could be perceived to be a form of open-loop virtual reality.

Of course, all of this is not to say distinguishing 360° video from VR should make it inferior - Far from it. Just like traditional film is not inferior to its 360° counterpart, nor are books inferior to film. All of them are simply different mediums.

There is even something to say about accessibility for both the creator and the audience - In a 360° video, there is no spatial interaction or manipulation, so the creator does not need to know how to work a game engine that would allow this. Also, while a head-mounted display may be recommended for watching a 360° video for a more immersive experience, it is not a requirement.

Here is a personal experience as an example: While doing research for this thesis, I wanted to watch the VR short film, *Dear Angelica* (2017). However, it could only be watched with either an Oculus Rift or Oculus Quest VR headset. I own neither of these headsets, so I was unable to watch the film. Similarly, the VR short film *Henry* (2015), was inaccessible to me for the exact same reason. The reason to keep some content exclusive to a specific platform could be commercial, which is understandable but unfortunate.

Perhaps somewhere in the future, as the technology advances and becomes more affordable, VR headsets could become as much of a household staple as things like televisions are. For now, however, people like me can still enjoy 360° videos on their computer and mobile phone screens.

## **2.2 History of 360° video**

With the emergence of new technologies and rising interest in immersive virtual experiences in recent years, one could get the impression that this is a new concept. However, people have been attempting to capture immersive 360 degree scenes for centuries.

One of the earliest examples can be found in panoramic paintings, such as the murals found in the interiors of buildings in ancient Rome. Another notable example of panoramic paintings are those created by painter Robert Barker in the late 18th century. Barker is also known for coining the term “panorama” from Greek words for “all” (pan) and “view” (horama). (Cameron, Gould & Ma 2021)

As the following century saw the introduction of cameras, panoramic photography and video became the next natural step for 360 degree content.

By 2012, 360 camera rigs were nothing new, but 360Rig and its 2013 successor, Freedom360, were the first in the world to shoot fully spherical video without blind spots at the top and bottom. These rigs were designed to hold six individual GoPro cameras. (Freedom360 n.d.)





PICTURE 1. Product image of the Freedom360 camera rig with GoPro cameras mounted (Freedom360 LLC)

An important turning point for the medium was when YouTube began supporting 360° video in March 2015 (Bonnington 2015). Facebook followed suit in September of the same year (Saba 2015). Together these social media giants helped popularize 360° video by making the medium available to a wider audience.

Jaunt ONE was a 360 camera that featured 24 integrated cameras and cost nearly 100 000 dollars. The camera was previously only available to rental houses, but was released to the public in 2017 (Redohl 2017a). However, its time on the market was short-lived, as it was discontinued following the company's announcement in 2018 to abandon virtual reality to focus on augmented reality instead (Robertson 2018).



PICTURE 2. Product image of the Jaunt ONE camera (Jaunt Inc.)

In 2017 and 2018 respectively, GoPro and Insta360 released their first consumer 360° cameras; GoPro Fusion and Insta360 One X (Matney 2017; Rehm 2018). Since then, many successors and competitors have been introduced, and the development of improved cameras for consumers and professionals alike continues still.

### **2.3 Technological requirements**

The first thing one would need to capture footage in 360 degrees would of course be a specialized 360 degree camera. It is also possible to use a rig of multiple individual cameras, as was briefly touched on with Freedom360 in the previous chapter. However, this setup has several disadvantages. It costs a lot

to buy many individual cameras and their use is labor intensive and time-consuming as the cameras need to be synced and the footage stitched manually. Meanwhile, 360-specific cameras designed for consumer use often come with auto-stitching features or native software that minimize the need for manual stitching. (Cameron et al. 2021)

Within specialized standalone cameras there are ones targeted at professionals, that are large, expensive, and have several lenses. For example, the Insta360 Pro 2 has six fisheye lenses and can cost upwards of 5000 euros.



PICTURE 3. Product image of the Insta360 Pro 2 camera (Shenzhen Arashi Vision Co., Ltd)

There are also smaller cameras with only two fisheye lenses. Unlike the ones with more than two lenses that are capable of shooting stereoscopic footage, these can only shoot monoscopic footage, but are more consumer-friendly for their smaller size, affordability and ease of use. (Anderson 2016)

For the purpose of shooting my short film, I used a camera of the last-mentioned type, an Insta360 One X camera provided by the school. This particular camera was operated remotely through an application installed on a mobile device.



PICTURE 4. Product image of the Insta360 One X camera (Shenzhen Arashi Vision Co., Ltd)

One will also need an editing program to stitch together the footage recorded by each lens and possibly to edit out unwanted elements such as the camera crew and equipment. It is also to be noted that editing 360° video requires more processing power and space on a device than traditional media – 4K is considered the lowest acceptable resolution for 360° video, contributing to a large file size (Redohl 2017b).

Earlier in chapter 2.1, VR headsets were mentioned as a method of playing back 360° video. Also mentioned was the requirement for mobile devices to be equipped with internal sensors like a gyroscope to pan the view of a 360° video based on the device's orientation, instead of the more unwieldy method of swiping the screen with a finger. Neither are necessarily requirements to watch 360° videos, but are arguably needed for a properly intuitive and immersive experience, especially in the case of the VR headset.

## **2.4 Challenges**

As a 360° video records all angles around the camera, the crew can not simply hide themselves and their equipment behind the camera when filming. Therefore, to not have these unsightly elements apparent in the video, one needs to either find a way to hide the camera crew and equipment in the environment or allocate some extra time and effort to edit them out in post-production.

The way it captures the whole surrounding environment affects how directing a 360° video should be approached; Traditional video only shows exactly what the director wants the viewer to see at any given time. By contrast, with 360° video the viewer is the one controlling where they focus in the surrounding scene. This can be an advantage or a challenge, as the viewer can easily miss important content if their attention is drawn to the wrong place at the wrong time. For this reason, there should be cues to direct the viewer's attention to follow the story.

Another factor to be mindful of when shooting 360° video, is where the seams will be when the edges of the footage captured by each lens is stitched together. Objects on or near these seams can come out looking distorted in the video, so positioning important elements there should be avoided. (Cameron et al. 2021)

Finally, while the cheapest 360° cameras can cost a couple of hundred euros, some professional quality products have a price tag of several thousand euros.



The same logic also applies to regular cameras, however. The cost of equipment continues to be an inescapable factor for creators of all fields even as technologies become more affordable.

## 2.5 Benchmarking

Benchmarking is a process where a creator compares what they are developing to similar products that are already out there. It is a good practice to apply with all kinds of projects, to assess what has already been done in regards to the type of product, and what their strengths and weaknesses are. (Erlhoff & Marshall 2007, 44-45)

When starting the process of benchmarking for my short film, the first example of a 360° video I looked into was the Saturnz Barz music video by the popular virtual band, Gorillaz. I chose it because it happened to be the first 360° video I ever saw in 2017, the same year it was released on YouTube.



PICTURE 5. A Screen capture of the Saturnz Barz music video. (Gorillaz, YouTube 2017)

Since at the time I did not have a headset to view any of the videos with, it was sometimes difficult to follow the action in this music video, in particular the segments of the band bassist Murdoc flying through space. As a result, the video being in 360 degrees did not add much to the experience in my case.

Next, one 360° music video led me to another: Show it 2 Me by Night Club. This one was a bit more abstract and required less tossing and turning to follow, but like all 360° videos, would no doubt be best enjoyed with a headset.

Out of the videos I watched, my two personal favorites were The Party: a visual experience of autism, and Dinner Party – a short film based on Betty and Barney Hill's claimed UFO encounter.

In the case of The Party, it was relatable to me personally as an autistic person myself, and I felt it did a good job representing to a neurotypical person, the alienation and sensory overload an autist might experience in a situation like a party, where you're surrounded by distressing stimuli, expectations to conform, and people who don't quite know how to treat you like a living, feeling human being. It was also easy to follow even when limited to dragging the viewpoint on a computer or phone screen.



PICTURE 6. A screen capture of the 360 short film, *The Party*. (The Guardian, YouTube 2017)

In *Dinner Party*, being a “fly on the wall” is a most apt idiom to describe the experience of the viewer. The film begins by descending the viewer into a dining room where they are allowed to observe and listen in on the socializing guests, until the peace is broken by a falling plate. The viewer is left just as puzzled as the guests, as Betty Hill begins playing a recording of the hypnosis sessions she and her husband went through. The viewer is soon transported to a beautiful, fantastical representation of Betty’s experience of the couple’s UFO encounter. However, a completely different picture is painted when we get a glimpse of the frightening, even painful experience Barney had. At the end, you can really feel the uncomfortable air in the dining room as the guests slowly take their leave after having witnessed Barney relive his trauma.

At this point, I already had a rather particular vision in mind for my own film. The only video I found that had a similar experimental quality was “CONGREGATION Design Collection2”.



PICTURE 7. A screen capture of the CONGREGATION Design Collection showcase video. (CONGREGATIONdesign, YouTube 2018)



### **3 ECCE RANA - 360° SHORT FILM**

#### **3.1 Concept**

What set the idea for my short film in motion was a class exercise gone wrong and one word uttered in class - Frog perspective.

Two classmates and I were grouped together to film a short video with a 360° camera, and to afterwards stitch the footage. One of my classmates was inspired by our teacher earlier mentioning the frog perspective, and suggested we film ourselves pretending to be frogs. In turn, I was inspired by this whimsical idea and worked with the other two to come up with scenes of frogs hopping towards the camera and around it in a ring.

Unfortunately, our camera was broken and part of our scenes corrupted.

However, I did not want a good idea to go to waste. I began developing it into the thesis project we see today.

The basis for the film was to create an art piece that could only really be accomplished in 360 degrees, to experiment with the medium. The film places the viewer right at the center of the events. The humanoid frog creatures hop around the viewer. They surround them, invade their personal space, and make them feel small and not in control. I wanted the film to feel a bit unsettling and at the same time humorous in its absurdity. Honoring its origins, the entire film is shot from frog perspective.

I intended the film's target audience to be young people, from teens to young adults, possibly college students. The ideal viewer would have some interest in visual arts, film, and current technology. I would like people to be able to view my film either as a serious work of art and exploration of emerging media, or something weird and funny to have a laugh with, but in the best case scenario, the viewer would see and enjoy both sides of the work; They would be able to appreciate the artistry of an absurd art film while at the same time having the sense of humor to not take it too seriously.

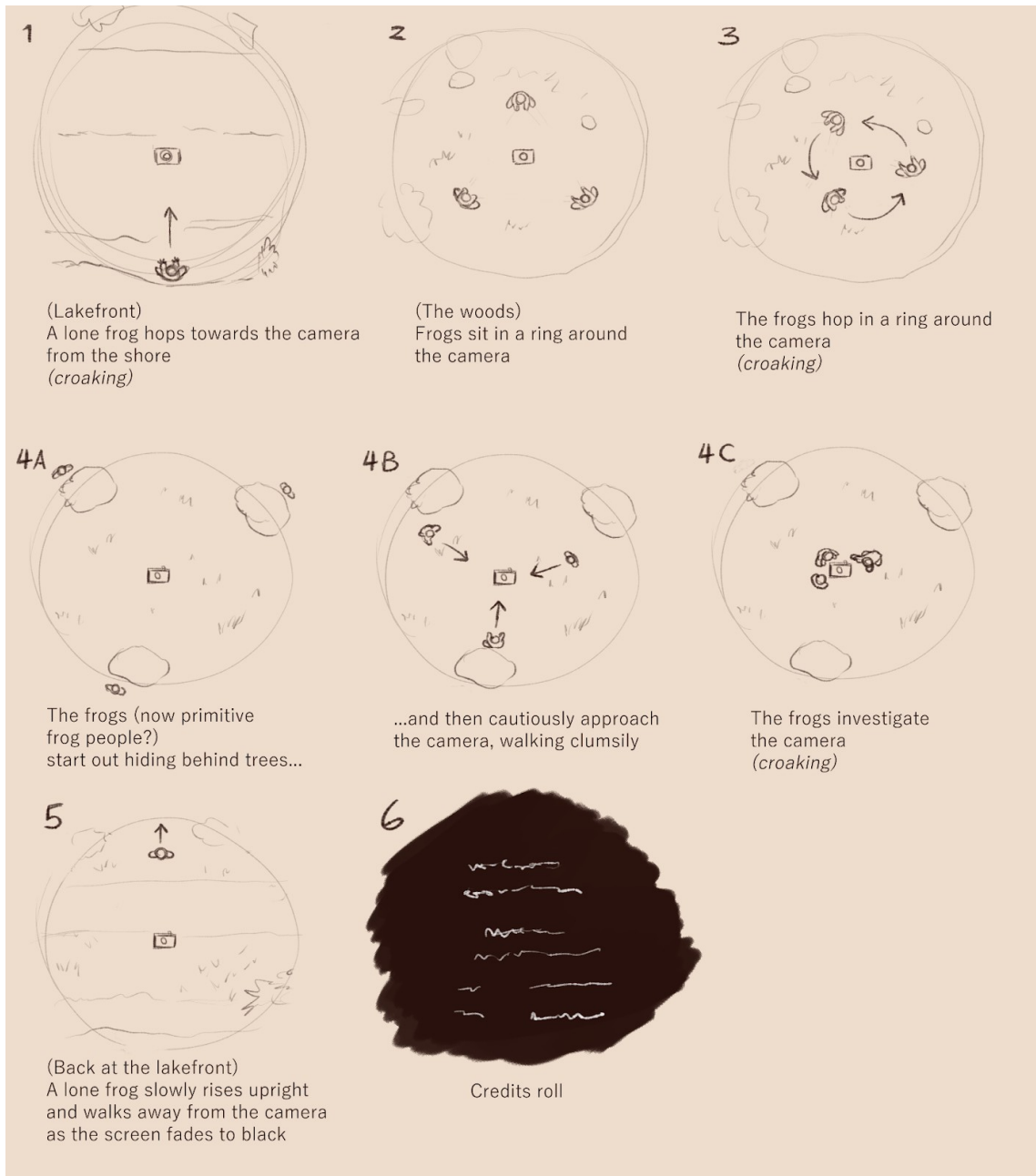
#### **3.2 Pre-production**

At first, I had planned to shoot the entire film with myself as the only actor, using special effects to duplicate myself in the footage. This would have eliminated the need for more than one costume and recruiting actors, but there would have been more workload in post-production.

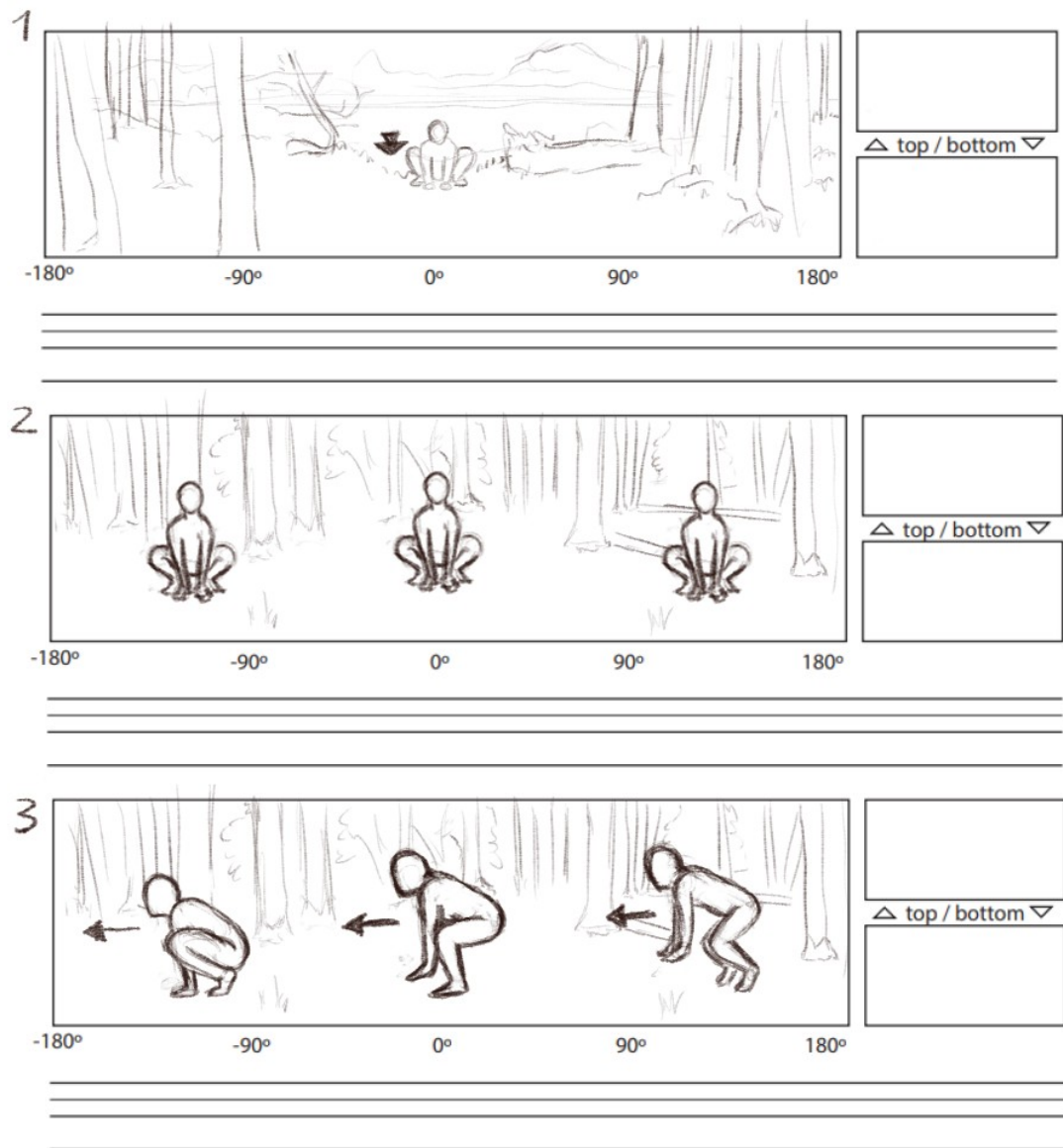
Thankfully the school agreed to compensate for an additional costume, and I could borrow one more from my sister. Collaborating with a small team of actors and assistants was absolutely the better work method.

Working with me were three fellow students; Mikko Tanskanen, who was an actor, Vi Viro, also an actor, voice actor and costume designer, and Sumu Lehtovirta as a general assistant on set. I also enlisted the help of my musically talented sister, Miranda Sydänmäki, for producing the music for the film.

An important step in the pre-production of a film is making a storyboard. I had drawn storyboards before, but for a 360° film, it would have to be different. My teacher suggested the storyboard portray the film from a top down view to show the whole area around the camera and get a feel of the actors' movements. Later, another teacher introduced me to a template for making storyboards for 360° films. In this format, the spherical scene is unwrapped into a flat panorama. At their suggestion, I drew the storyboard again using this template.



PICTURE 8. The first storyboard



PICTURE 9. A section of the second storyboard

One of the first things I decided when designing the visuals of the film was the use of morphsuits as the primary component of the costumes. Not only could they convey this kind of vague, abstract idea of frogs, they are simple and versatile, and so could easily become useful in future projects as well. These types of suits also have their place in meme culture, adding to the humorous aspect of the film.



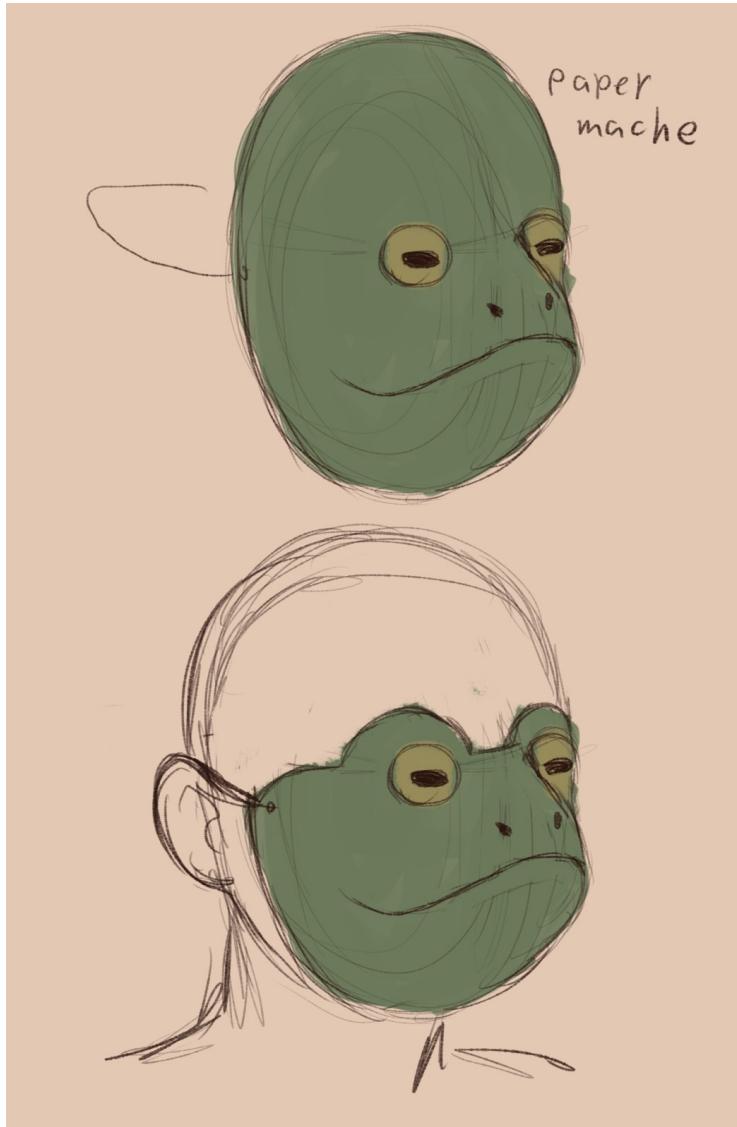
PICTURE 10. Costume design concept art

The suits also lend the wearer a great deal of anonymity. As professor David Alais of the University of Sydney put it in an article for the Guardian, human brains are evolutionarily hardwired to recognize faces.

“We are such a sophisticated social species and face recognition is very important. You need to recognise who it is, is it family, is it a friend or foe, what are their intentions and emotions?” (Alais 2021)

To put this simply, humans like faces. With this in mind, it is rather easy to make a potentially unsettling costume, just by making it hide the wearer’s face. Morphsuits already conceal the wearer’s face by default, so they could have easily worked on their own to make up the costumes for the film. However, the suit I borrowed from my sister had a hole cut to the face part of it. Partly out of necessity, to keep to my vision of uncanny frog beings with unreadable faces – or lack thereof – masks were added to the costume design.

Viro designed and crafted two of the masks out of cardboard, while I made the third one out of papier mache. In contrast to the flat cardboard masks, I wanted to try my hand at making a three-dimensional mask with less stylized features of a frog.



PICTURE 11. Mask design concept art

I started by making a plaster cast of my face. The cast didn't need to capture high detail, so in an attempt to save money by not purchasing special materials, I made the negative mold out of papier mache.

I then sculpted the mask on top of the plaster cast, so that it molded to the shape of my face. The mask was finished with acrylic paint and a layer of sealant for a bit of protection against the elements.





PICTURE 12. Steps of making the papier mache mask

Of course, it was also necessary to find a place to shoot the film. Back when filming what was essentially a prototype of this short film, my classmates and I took to the forest and lakefront just outside the campus. I decided that this would be the setting for the final product as well. The gloomy atmosphere of a Finnish forest in autumn would fit the film perfectly.

There is a lakefront and some forest near where I live as well, so it was a viable option along with the aforementioned areas by the campus. However, the rest

of my team live much closer to the campus, so we agreed it was the better site to pick. The shores and forests of Tohloppi also had many more good spots to pick from, as I found out when scouting for filming locations.

Finally, before diving in head first into shooting the short film, I filmed test footage. I replicated the conditions we would have on set as closely as possible, acting out all the scenes by myself in full costume in my yard. This turned out to be very beneficial, as it helped me better prepare for how much distance to have between the actors and the camera, and what kinds of challenges we would be facing on set, considering the limitations of our costumes and the weather.

### **3.3 Filming**

Filming took place on the 14th of November. In addition to having to fit every crew member's schedule, the time of year meant there were only so many days that were suitable for filming. Rainy and cold days were many, and I lived in constant fear of the first snow. Daylight was also very limited, meaning a strict time limit for filming.

We used Tanskanen and Lehtovirta's apartment as our headquarters to meet up and get ready for filming. From there, we drove the short distance over to the campus and walked the rest of the way to the first filming location in the neighboring woods.





PICTURE 13. The cast posing for pictures on set (Lehtovirta 2021)

This location was ideal in that it had a strategically placed rock that Lehtovirta could hide behind with our equipment, so they would not need to be edited out in post-production.

By the time we were almost done shooting the second to last scene at this location, we noticed that the battery in the camera was running out very quickly. We had to speed up shooting the last scene so we could return to the campus building to recharge the camera. This was a welcome opportunity to take a break and have a look at how the scenes had turned out so far. We were glad to see they looked great. Once the camera had enough charge again, we headed out to the second location to shoot the last two scenes.





PICTURE 14. Directing the actors before filming a scene (Lehtovirta 2021)

Come to think of it, this was my first time actually directing a film with a whole crew. Looking back on the experience, it would have been much easier to only be a director and not also part of the cast at the same time. I would have been able to see the whole scene, watching the preview on the tablet as well.

Maybe a better director would have also insisted on more takes of each scene but I put the comfort of my team first, not wanting to force them to work in these harsh conditions longer than was necessary.

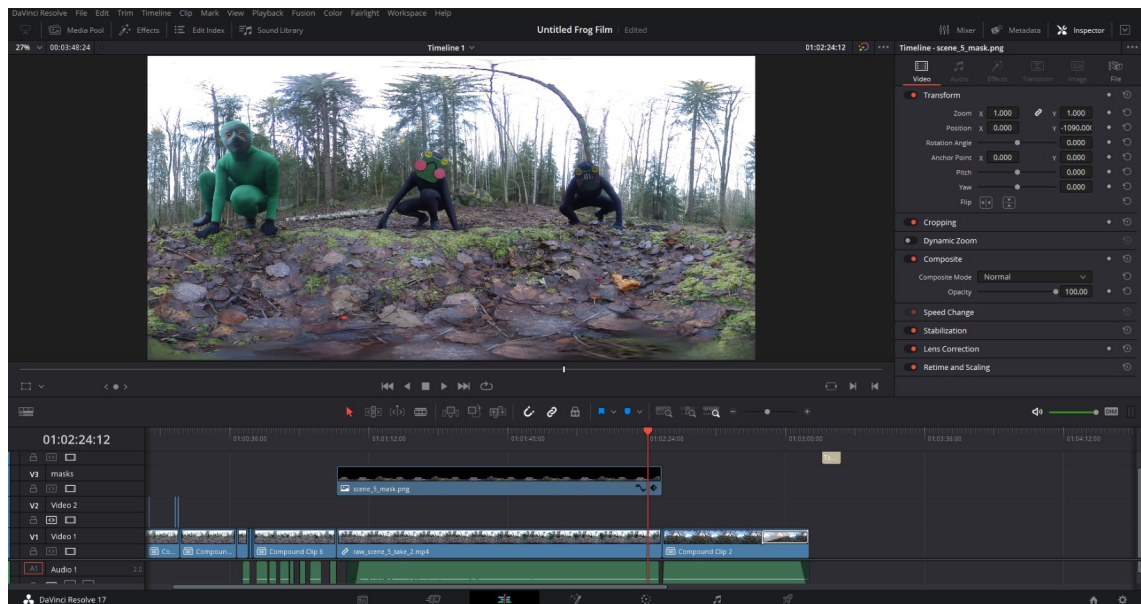
### **3.4 Post-production**

When beginning to edit the footage, the first order of business was to stitch it. To do this, I used Insta360 Studio, a program provided by the same company as the camera we used for filming, and made specifically for editing footage shot on this camera. With the scenes ready to go, I moved on to do the rest of the editing in DaVinci Resolve.

It had been a while since the last time I had edited videos and DaVinci Resolve was an entirely new program for me, so at the beginning of post-production, I watched a few tutorial videos on YouTube to prepare. I specifically needed help with masking and on how to change the starting point in a 360° video. Here the term masking refers to an editing method where a selected piece of a video is overlaid with a still image to hide undesirable elements.

Due to the COVID-19 pandemic happening at this time, I avoided public places when possible. Furthermore, at the time of post-production for the film, I did not have any contact lessons to attend, so I had no real reason to go to the campus. For these reasons, I opted to work from home and make do with the software I had access to, instead of using time and gasoline in traveling to the campus to use the software installed on classroom computers. The only place where this caused a real issue was not having access to Photoshop, which I would have used to mask out the camera tripod from the footage. However, I was able to do a good enough job with Clip Studio Paint, although it is designed for digital drawing and painting, not for photo editing.

Between the second, third and fourth shot, there are intentional jump cuts. Also in the second shot, there are brief moments where the video flickers into the third shot, accompanied by a glitching effect. The glitching effect is used again briefly in the fourth shot. The last shot fades out to the closing credits and finally the closing credits fade to black as the film ends. The rest of the transitions in the film are straight cuts.



PICTURE 15. The film project being edited in DaVinci Resolve

Up until it was time for me to write the closing credits, the film had been known simply as “Untitled Frog Film”. I almost considered keeping this title as a homage to Untitled Goose Game, a lighthearted 2019 puzzle stealth game I enjoyed playing, but based on some feedback from peers and teachers, I chose to attempt a more original approach. When consulting my team, Lehtovirta suggested the title be something in Latin. Thus, the film was named *Ecce Rana* – Behold, the Frog.

Like the working title of the film, this title too contains some cultural references; *Ecce homo* – Behold, the man – is a widely used motif in Christian art. It is named after the Latin words used by Pontius Pilate when presenting Jesus Christ to a hostile crowd before his crucifixion. (Encyclopedia Britannica 1998)

On the other hand, the phrase “Behold, a man” holds a memetic status on the internet, for its use by Diogenes; (Know Your Meme 2019) Supposedly, the philosopher used these words as he brought a plucked chicken into Plato’s Academy to mock Plato’s definition of man as “featherless bipeds”. (Laërtius 1925).

Lastly, when coming up with the title *Ecce Rana*, I was thinking of the theme song for the television series *Mr. Bean*, *Ecce Homo Qui est faba* (Behold the man who is a bean).

As mentioned in chapter 3.2, the score for the film was composed by my older sister, Miranda Sydänmäki, who is a bassist and vocalist in the melodic death metal band, Warfarer. When trying to explain to her what I wanted the film to sound like, I directed her to another highly experimental and crude short film I made in 2014. The video is titled “Inaudible scream of terror as the meaning of life fades into nothingness” on YouTube, and I made it in the timespan of a single video editing class in vocational school. If my memory serves me right, it uses a royalty free haunted house ambience slowed down, then reversed and sped up at the end. I wanted *Ecce Rana* to have a similarly subtle, eerie ambience. I needed to ask Miranda for revisions multiple times. The only way I know how to describe what was wrong with the first tracks she presented to me, is that they sounded too much like proper music. The final remix that ended up in the film is a third of the speed of the original. However, I also liked the original version and felt it would have been a shame to let it go to waste, so I used it in the closing credits.

For sound effects, I simply used the sounds of leaves rustling under the actors’ feet from the original audio. Viro and I also voice acted some frog croaking sounds to complement the soundscape.

### **3.5 Release**

The completed short film premiered on YouTube on December 10th, 2021 (Appendix 1).

The premiere was chaotic. I was in a rush, it was past midnight and YouTube took forever to process the beefy video file. Everyone watching at the time of the premiere had to watch it in very low quality because the HD version was still not processed by the time of the premiere the next day. The video actually got “stuck” processing and I had to make an invisible edit on YouTube’s editor to avoid having to upload the whole video again.

While it never became the viral hit every small YouTuber dreams of, the video is still the second most viewed on my channel with 170 views, as of April 18th, 2022.

The general reaction to the film was nervous chuckling. Good – That is exactly what I wanted. At least one viewer said they were jumpscared by one of the frogs. A fellow indie film producer even appeared to express interest in a possible collaboration in the future.

A version optimized specifically for viewing on a VR headset was also planned, but not realized yet. Most notably, this version would put slightly more distance between the frogs and the viewer in the second to last scene. This is because in VR the subjects appear closer to the viewer, and the uncomfortable effect of having your personal space invaded is amplified. It would be interesting to study the difference in the psychological effect on the audience between the two versions.

I plan to still promote the film a bit more by posting a trailer for it on my TikTok account, but technical difficulties and plain forgetfulness have delayed the release.

## 4 CONCLUSION

In all honesty, I did not have a particular interest in 360° videos before I tried filming one myself. In regards to public interest, the biggest boom in 360° content seemed to be somewhere between 2015 and 2018 and the hype has calmed down since then. On YouTube, it was difficult to find recent 360° videos that were not low-budget, low-effort clickbait content. It does not seem like the market is saturated with this kind of experimental art. However, long before my first time trying a 360° camera and deciding to make an art film of my own, I saw a couple of my classmate Yu-Hsuan Yao's 360° art films. Her work definitely played a part in inspiring the creative direction of my own film.

For me it took that one chance idea for a film to really raise my interest. I considered briefly if there could be an easier medium to use to realize *Ecce Rana*, but in the end, 360° video was the only way for it to work and achieve what I wanted it to.

Overall, production ran into some problems here and there, but in the end the film came out almost exactly how I wanted it to, save for a few minor details. From a technical standpoint, filming and post-production was actually easier than I expected, but it caught me by surprise how quickly the battery in the camera depleted.

I think 360° video technology has far more potential for creativity than I have seen being explored so far, and I would love to see more artists experiment with the medium.

Viro, Lehtovirta, Tanskanen and I made a great team. Despite filming having been physically exhausting, it was fun and uplifting to work with friends to make something we were passionate about during a time of isolation and uncertainty for everyone.

It is not often that I collaborate with other people to make my art. Even with this project, I at first considered doing it alone, despite it clearly being a group effort. The reason may be social anxiety or a compulsion to retain full control over

every step of the process. It could be a combination of both. Still, despite my anxieties, having other people to work on this project with me was a successful and positive experience that may have taught me to fear making collaborative art a bit less in the future.

Concerning the future of *Ecce Rana*, besides the TikTok trailer and VR optimized version that were mentioned in chapter 3.5, there is a possibility of a re-master with improved audio. For this I would recruit my sister's help again, as it is her field of expertise much more than mine.

It is entirely in the realm of possibility that I would make another 360° short film some day. I may not be prepared to invest in a 360° camera of my own at this time, but when there is a will, there is always a way to access equipment.



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## APPENDICES

Appendix 1. Link to the Ecce Rana short film on YouTube

<https://www.youtube.com/watch?v=1qZGrXNmzYM>