

SFAS Games VFX 2024

Chosen Theme: Weatherbender

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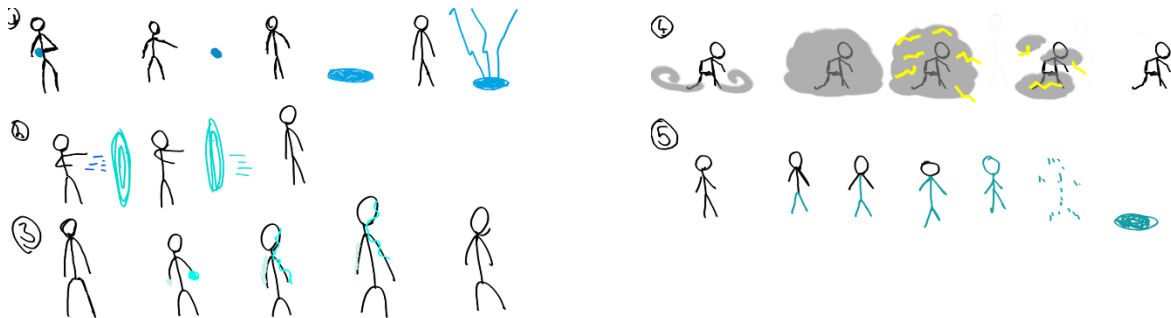
Pre-Production

Introduction

Before taking on this project I had no idea how games VFX worked or any Industry standard workflows however I knew that I wanted to try something new hence applying for this competition, I've got a background in film VFX and understood the very basics of UE5 and looked at this competition as more of a challenge to learn something new. Looking at the themes I had some initial ideas for most, for metamorphosis I was going to make the player character sprout wings and be able to fly, for Weatherbender (the one I chose) I had many that ill go into later for It's full of stars I was going to create a jar that when thrown would shatter and explode into stars and space dust, I struggled to come up with ideas for Now you see me as I wanted to stray away from just going invisible. Ultimately, I chose Weatherbender because it seemed to give me the most creative freedom at the time, though you could argue that my final result could fall under the Metamorphosis category too.

Chosen theme: Weatherbender

Initial Ideas



1. Character throws a ball of lightning at the ground that pools and summons lightning bolts to hit it.
2. Character summons a circle of frost and shoots rain though it is turning it into deadly icicle.
3. Character powers up with frost on their right side and lighting on their left
4. Character created a fog cloud and electrified it with lightning.
5. Character turns into water and disappears into a puddle.

Overall I decided to work on Idea 5 because I really liked the idea of transforming the character into something rather than creating a spell effect I then started to gather inspiration and influences to aid my design

Influences

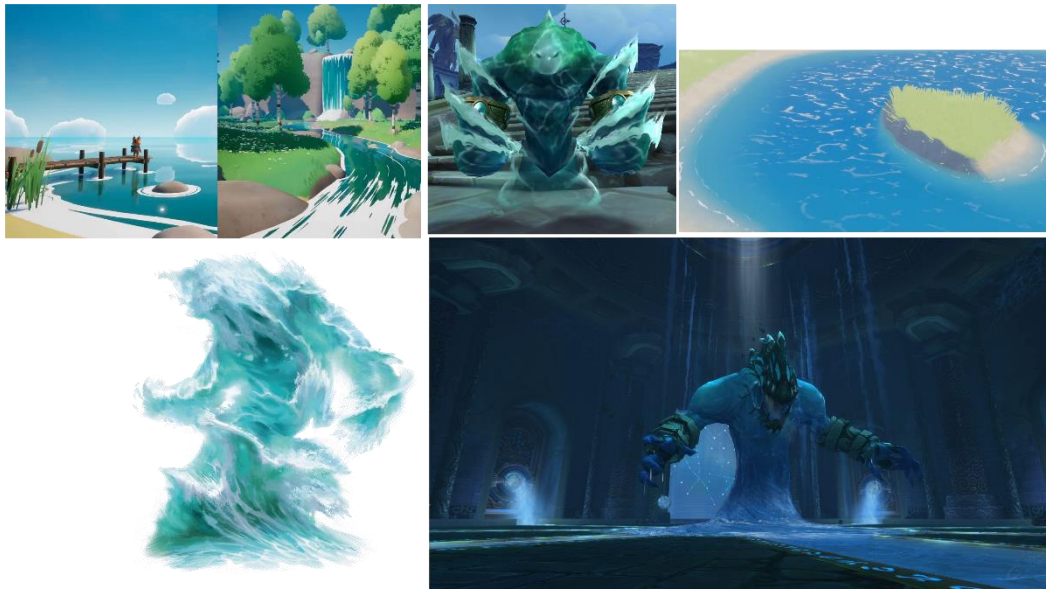


Figure 1: Moodboard for water style

I wanted to create something stylised as I know from Film VFX experience that water is hard to create, so I first looked at games with art styles that matched, firstly looking at Pokémon (top left) I really like the caustics and ripple effects in those games and would love to try and add them into my effect somehow, looking at the water landscapes I 100% intend on having a vibrant blue water colour. I also had a look at how water creatures are drawn and portrayed in games like World of Warcraft and Dungeons and Dragons, I really like the idea of having rushing water cover the player at some point and also like the puddle effect on the bottom right image.

Project Plan

Due to the lack of knowledge in this area I had to be mindful that it would take me time to create the effects so I decided to try and create each effect I would need individually first then see about putting them together last.

I would first Create the materials I needed, then animate them.

I would then work on the particles.

Then the puddle.

Creating the Water Effect

So I first created a water texture with depth control and caustics, to learn how to do this I first followed two tutorials to get an idea then took a free normal map from the first video, however I didn't have a caustic map so I had to use photoshop and edit the normal map to black and white, and use levels to just make the highest points of the normal map white and everything else black

Overall, I am happy with this texture and ill be using it in other projects going forward.

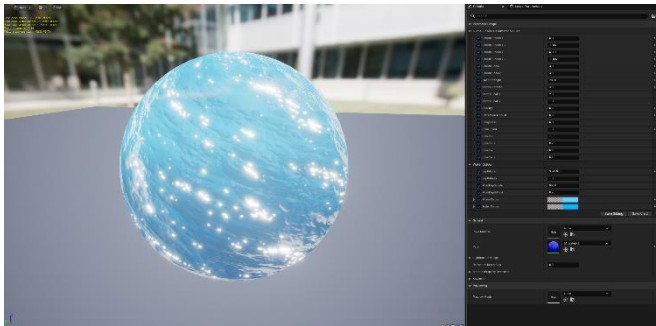


Figure 3: Lots of instance control for use in other projects

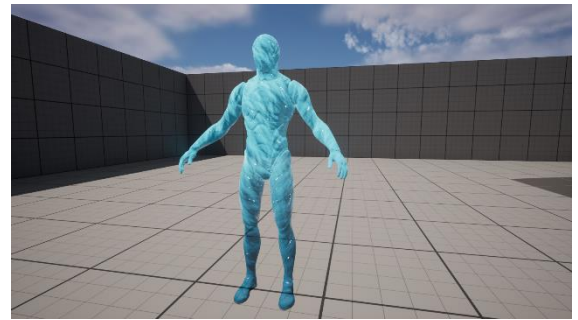


Figure 2: Water texture on default UE character

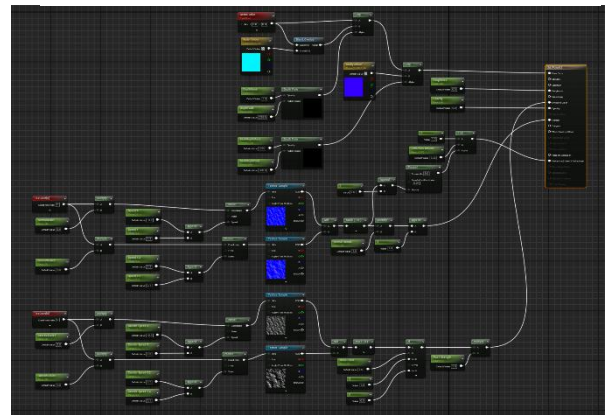


Figure 4: Node tree from water texture

Animating the Material

Cleaned up the material and added "switches" parameters basically swapping from a blank white material to the water material. However, I've ran into a problem that I'm not sure if I can fix it, due to the water texture being opaque my default material is slightly transparent once you get close to the mesh



Figure 6: Video of Material Transition

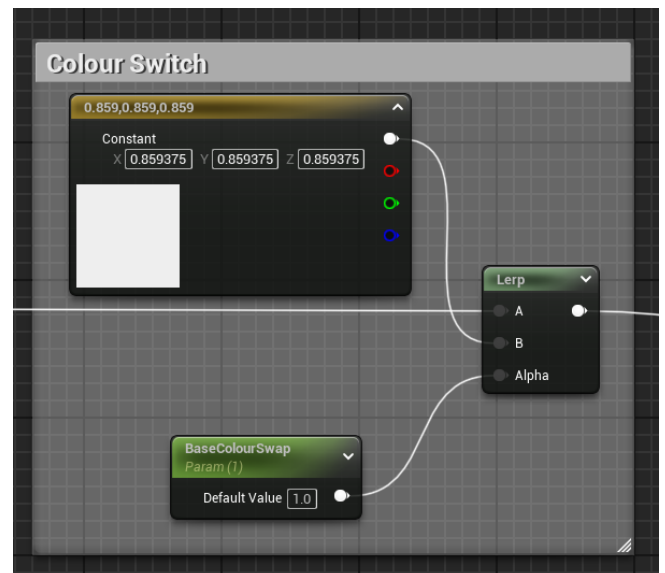


Figure 5: Example of my "Switch"

Creating the Particles

Creating these particles I first used the built in colour node in the particle system to make the colour change over time and eventually fade out, I then edited the particle texture using materials and nodes from creating the water texture, I then placed emitters over the body to get an idea of what it will look like, I did some research into how I would parent the emitters to the body and learned about something called sockets that I'll look into further next time I work on the project, as I'm writing this I just remembered I should make the particles partially opaque at all time because they are water and are meant to be see through.

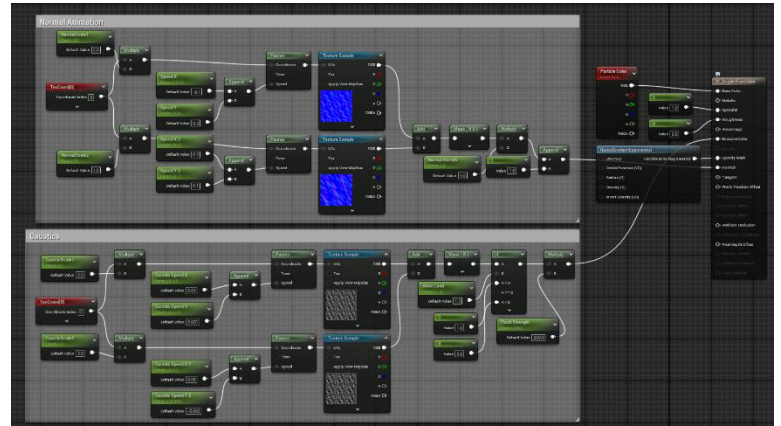


Figure 9: Particle Material Texture Node Tree



Figure 7: Example of Particle Sim



Figure 8: Example Animation (Effects triggered manually)

Creating the puddle

The idea behind the puddle was to have a controllable gloopy water ball that the player could run around as, after looking around online I learnt about distance fields, following external tutorials I made a meta-ball like mesh that I applied my water texture to, I had to slow down the speed the normal UVs spin however I'm really happy with how it came out and I learnt something new!

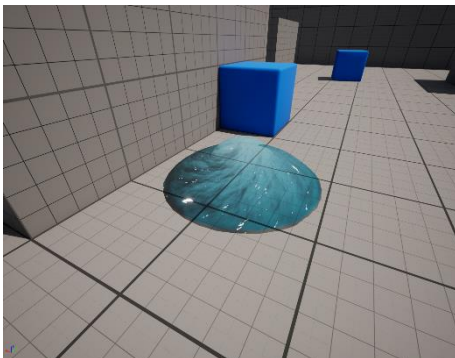


Figure 11: Puddle on the floor

I also created a decal that I will parent to the mesh to let it cover the floor in water as it moves using just a colour, the normal maps from the water texture and masking it with a noise texture and a radial gradient exponential node.

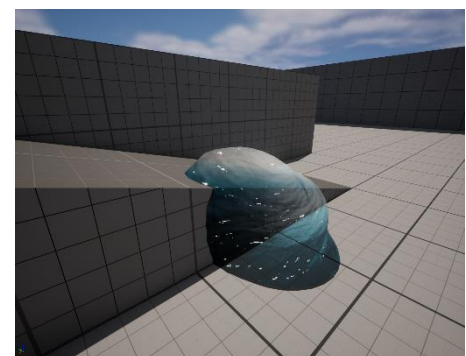


Figure 10: Puddle Mesh on a angled surface warping to its environment

Working with Sequences

Still not 100% sure on how I'm going to string this all together however I worked on animating everything in a sequence, I also cleaned up my project, instead of having 20+ emitters now I have 1 cleaned up my files and node trees and made my first draft, I intend to soon try and copy this sequence over to a moving character model and try and get this effect playable.

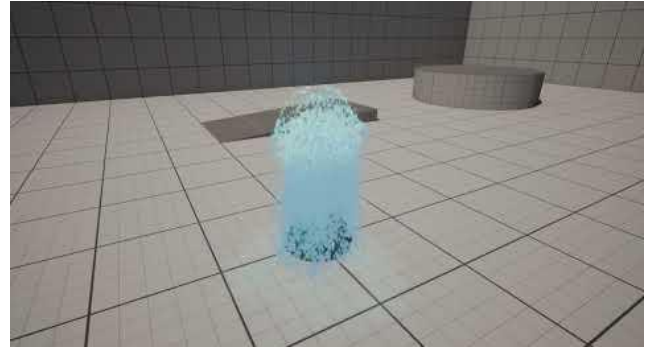


Figure 12: Video of sequence

Changing to Blueprints

Talking to some students on the Games Design course they told me that to create a playable blob I needed to convert my sequence to a blueprint, this took a while and a lot of research however I eventually got it working, I utilized timeline nodes heavily here.



Figure 14: Node Tree of Water falling animation



Figure 13: Video of Blueprint Working

Refining the Animations

After receiving feedback from my lecturer and friends I decided I wanted to change 2 key things

1. I wanted to add a splash particles
2. I wanted to make the ball gloopier

Adding the splash particles was easy just created a new system and hooked it up to the thirdpersonBP, to make the ball gloopier I had to scale the collision capsule down after doing this I realised that the camera also moves down at the same time, which is a cool effect, although the water ball is bigger it looks friendlier so I'm happy with it



Figure 15: Updated Water Effect

Final Changes

As a final change I edited the fade out effect of the particles to make them dissolve following a noise map this gives a more cartoony stylised effect and something that fits better with the artistic direction of the project as a whole, With no more changes left to make I'm going to record one last final video showing off the project.

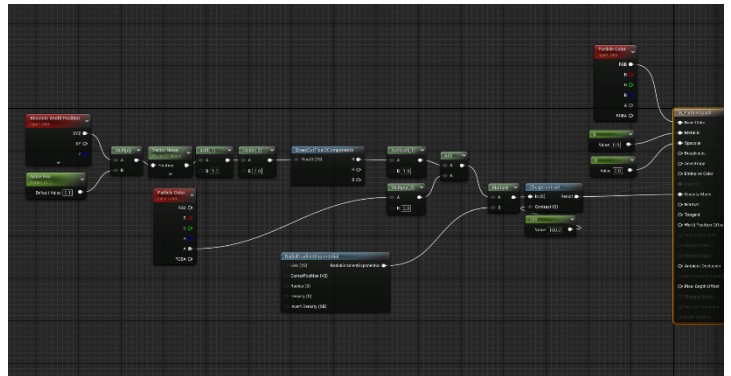
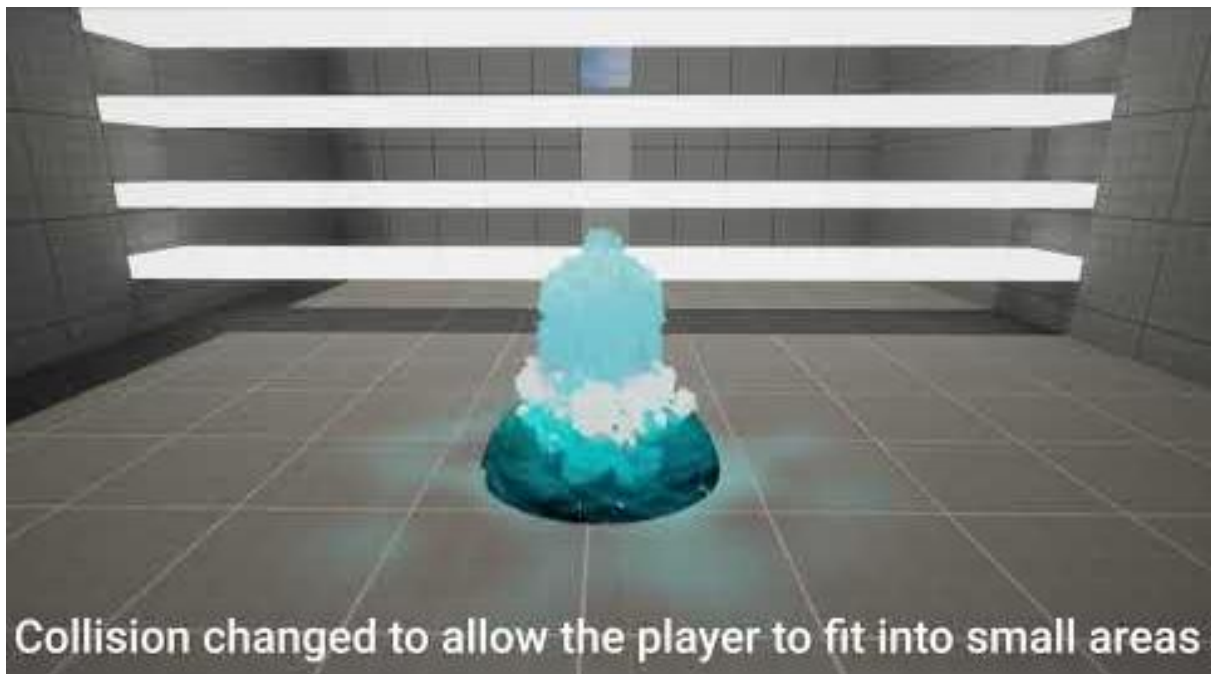


Figure 16: Showing node tree that controls the opacity mask of the particles.

Final Result



Thoughts

Looking back at this project I'm extremely happy I decided to do this, I've enjoyed most of it however staying up late at night bug fixing was a low point, I am so happy with how it turned out I really love the personality behind the blob and the gameplay features I accidentally included. This project has helped me grasp Niagara Systems that I'll continue to use back in Film VFX, and I've learnt so many things about materials that I can't wait to use in other projects. Another big thing I wanted to get out of this was creating assets that I can use in other projects going forward examples of these include the main water material I used for the production, the noise texture I made and the noise feathering effect on the Niagara particles.

Some areas of the project I would do differently include the way I approached the puddle, in an ideal world I would create a water simulation to flow up and down the character's body for the transition however I didn't have the knowledge or time to learn that as well, I would also look into any deform nodes I could use to stretch the puddle mesh in the direction it's moving to give it more gloopyness and character, and lastly there's still so much stuff I need to learn about Niagara particles to make my transition even cleaner.

Overall, I'm happy to add this to my portfolio and I'm happy to have had the opportunity to compete in this competition. Though I'm studying as a Film VFX student my goal is to enter a cinematics team at a games studio to create high-res trailers (think Blizzard and Square Enix) for games and hope this is a step in that direction.

References

Here is a list of sources where I learnt how to do some of these effects

<https://www.youtube.com/watch?v=yqZnWuLrDO4>

https://www.youtube.com/watch?v=6JFBL_239M

<https://realtimevfx.com/t/niagara-4-25-particle-decals-mini-tutorial/13177>

<https://www.youtube.com/watch?v=dhjmdXdjw2E>

<https://www.youtube.com/watch?v=yzvq8aonDYQ>

<https://www.youtube.com/watch?v=l63VMLwTJ3g&t=308s>

<https://www.youtube.com/watch?v=dhjmdXdjw2E&t=673s>