Staffordshire University

School of Digital, Technologies and Arts

Computer Games Design with Animation

GAMES DEVELOPMENT PROJECT:

The First Fight

Research & Development Report

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Contents

1. Overview:

This project aims to achieve a highly stylized and cinematic animation of a fight sequence between a master and his apprentice. I wanted to explore some environmental storytelling and high-octane sequences.

1.1 How it started:

My inspiration for this project came from a small, choreographed fight scene done by a friend and me.

1.2 Storyboard:

I quickly came up with a storyboard to showcase the type of pacing and how I wanted the fight to evolve/playout.
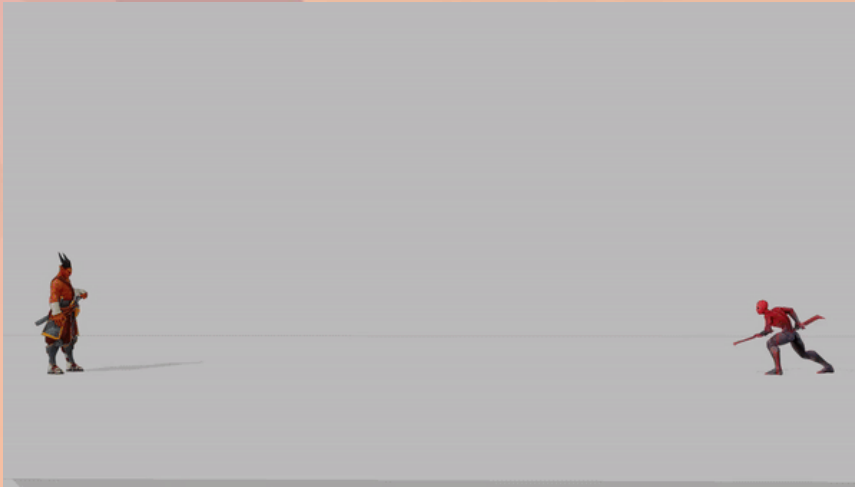
The above video is only a proof of concept, the camera motion and the character action will be changed drastically, as seen on the next page.

1.3 Final Product

Here is the final product I was able to achieve. I will go into further detail on the steps and workflow I adopted to achieve this result.

2. Rigs

Animation of the standard I want to achieve wouldn't be possible without good quality rigs to animate too, as much as I would've liked to make the model and rigs myself, it would've been way too over scoped for this project and I want to solely focus on improving my animation skills with this project, therefore I decided to use the Trident, and Crimson rigs made by the highly talented Pierrick Picaut, aka P2Design, who I drew heavy inspiration from for this project.

At the start of this project these rigs were broken for the 4.0 version of blender, as blender had recently updated their bone collection feature. Thankfully it didn't take Pierrick to fix his rigs, and this came with the added benefit of coming with built in selection sets which really helped me speed up my workflow.
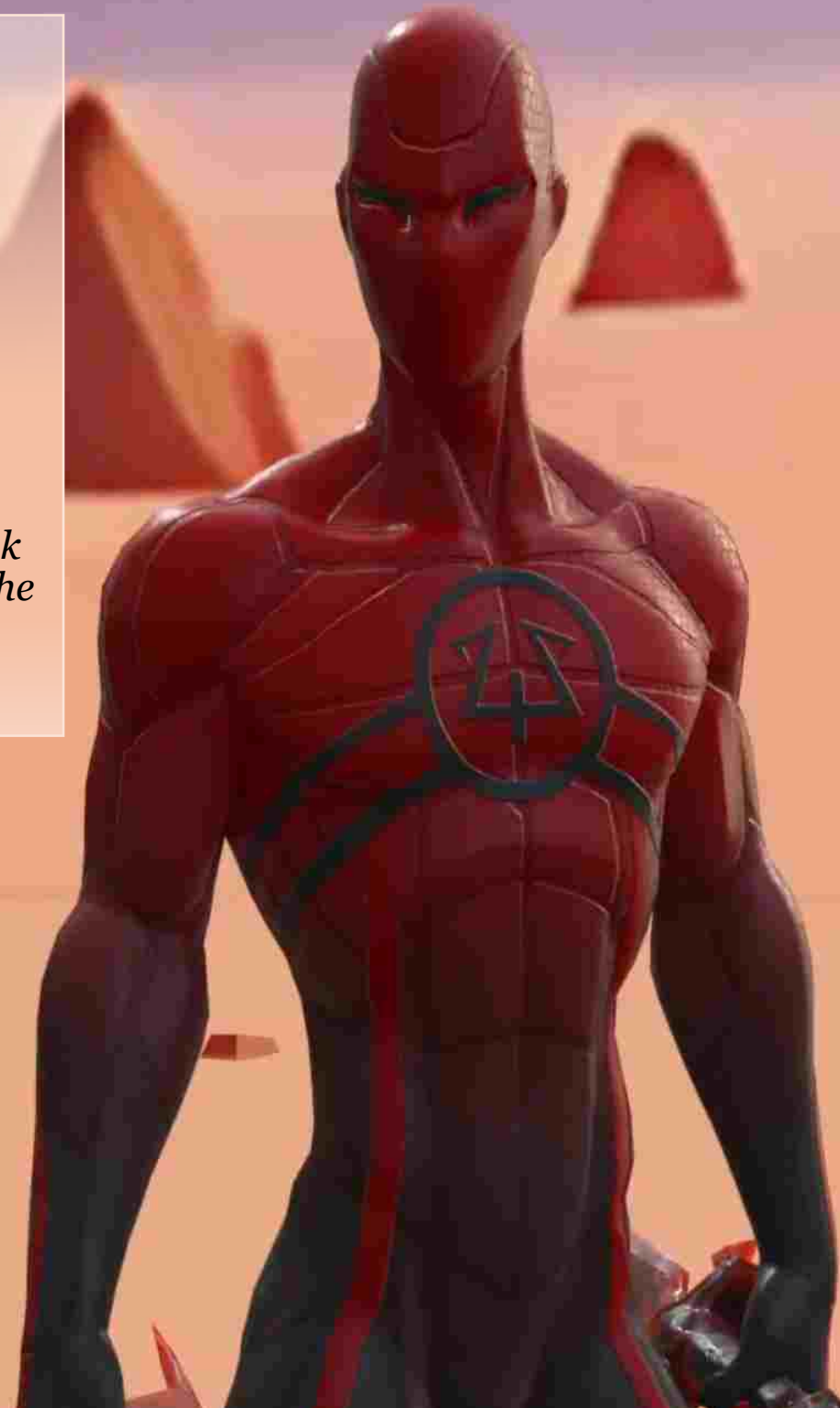
3. Workflow

3.1 Overall workflow

The over all workflow for this project is as follows:

Animation> Environment> VFX> Post-Production

I really wanted to focus on my animation, so that took the most amount of time to finish and then I crafted the environment and vfx to support the animation and enhance it.

3.2 Master workflow

The master has been animated differently to that of the student for story reasons, which will be explained in better detail in a later segment.

But due to this I had to adopt a different workflow from that of the student to animate the master effectively and faster.

The workflow is as follows:

1st pose> 2nd pose> Breakdowns> Settle> Tweak

*To further explain the above workflow, you identify 2 key poses, and proceed to add a breakdown pose so that the software knows how the rig is moving, then you duplicate the 2nd pose and offset it by 10-15 frames, after that you select the original 2nd pose keyframe and set it as automatic. This way you are letting the software overshoot and exaggerate the pose which then you can key and use as a settle pose and revert the original keyframe back to Bezier. You can then work on refining the timing by using the graph editor. This workflow is also known as "**pose-to-pose**" in the industry.*

3.3 Student workflow

The approach I adopted of the student is a combination of 2 well know animation techniques in the industry known as *"Straight ahead"* and *"Layered"* as this gave me the most amount of control to craft his poses every 2 frames.

4. Areas of Exploration

I had to research these topics in particular to achieve the vision I had for this project and helped me to deliver a cohesive final product:

- ❖ **Animation Style**
- ❖ **Smears**
- ❖ **Impact**
- ❖ **Background**
- ❖ **VFX**

4.1 Animation Style

I will now go into more detail on why the student and master are animated differently.

The animation style I decided to try an emulate was heavily inspired by Spider-verse and Puss in Boots: the last wish.

4.1.a Student Animation Style

❖ *Animated on 2s which is to showcase the sloppiness in his fighting style. Unrefined and choppy nature.*

❖ *Uses extra poses to let the opponent know his next move, as he is cocky and confident that he can overpower his opponent.*

❖ *I've used fancy anime speed lines and background effects to show that he likes to show-off and that he is not taking this seriously.*

4.1.b Master Animation Style

❖ *Animated on 1s which is to showcase how fluid and trained he is in his fighting style.*

❖ *Unlike the student, he does not waste any energy by making unnecessary moves, every move he makes is concise and purposeful.*

❖ *I've used very minimum action lines or effects whenever the focus is on the master to show that he is serious and doesn't care if his moves look cool or not.*

4.2 Smears

4.2.a Experimentation:

Initially, I tried using an add-on named Auto Smear, but I decided against it because it lacked the level of control I needed. Additionally, I noticed that it significantly slowed down my viewport and hindered real-time playback.

Auto Smear

Stretching and multiples

4.2.b Implementation:

I decided to use a combination of 'multiples' and 'stretching', to achieve the desired look of speed for different objects. Examples of 'multiples' can be seen on the sword. Examples of 'stretching' can be seen on the characters.

4.3 Impact

Showcasing impact was quite challenging, in the aspect that the punches did not feel like they had enough power behind them. I figured out a methodology to ensure that the punches have weight and power behind them.

4.3.a Camera Motion

I found out that camera plays a crucial role in conveying the force behind a punch. By having the camera lag behind the punches adds a lot more oomph to them.

4.3.b Impact Frames

Impact frames are hight contrast frames that help convey the explosive amount of power that is being released, so naturally I had to try to implement that for my final attack.

Let's go, Shuichi!

That's clever.

After studying the above examples, I have incorporated them into my project.

Here's the difference when these methods are used:

4.4 Environments

4.4.a Visual style

I created most of my foreground elements using a method shown by P2Design in a couple of videos of his, I found that it fit the feel, I was going for quite well. I wanted the environment to serve the animation and story, so I kept it low poly and a simple 3 tone shader, this way I does not appear noise or distract the viewers eyes from the action.

I downloaded the backdrop on the internet and used blenders built in HDRI for the lighting.

Inspiration

4.4.b Environmental storytelling and Composition

I wanted to show the difference between the student and the master even in the environment, that is why the side with the master is decorated with more sharp/pointy rock formations, to show that the master has refined and sharpened his skill to a point, whereas the student is still blocky/rough around the edges, unrefined, much like the rocks that decorate his side of the screen.

In terms of composition, I've crafted every shot so that the environment creates leading lines that direct the viewers eyes to the focal character.

These are only some of the examples, there's plenty more.
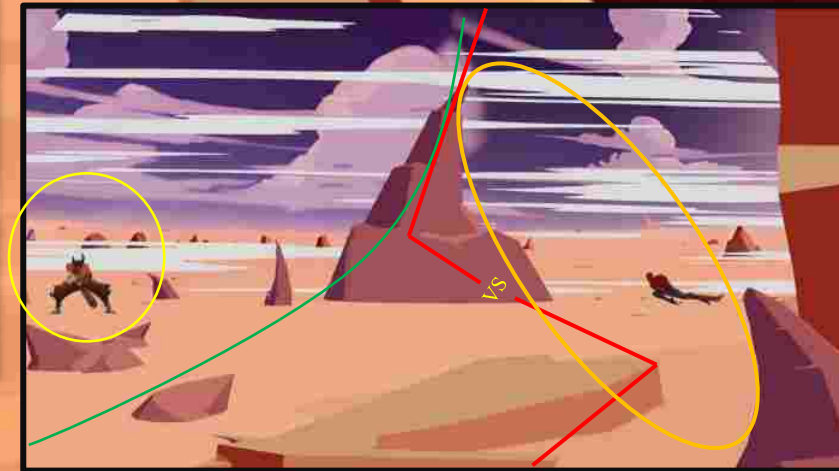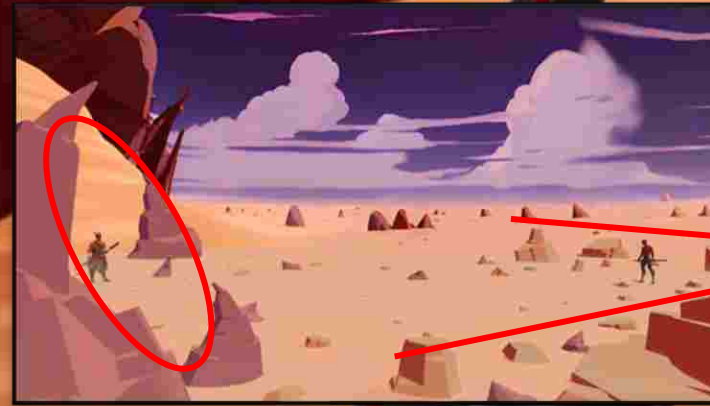
5. Forced Perspective

Forced perspective was implemented in certain shots to enhance the poses which makes it highly dynamic and interesting to watch.

I couldn't find many opportunities to apply forced perspective in my animation, but here are some examples of where I have utilized it.

6. VFX

Some VFX such as the fire trail, and the white anime speed lines were made using blenders built in node editor. Again, it was videos from p2design that really helped me out to create these effects.

While the more anime-esq backgrounds were downloaded from internet sources such as stock videos, and YouTube.

The dust clouds that appear from the student are greenscreen effects from YouTube that I took into DaVinci resolve to colour shift it to a colour that fit the environment.

STYLISED VFX
Smears, speed lines, slash..

7. Use of AI

Using AI in my animation projects has been incredibly helpful, allowing me to focus more on the creative aspects of my work. I've utilized AI as a tool to generate backgrounds that perfectly align with the narrative of my animations. This has not only saved me time but has also ensured that every scene seamlessly complements the storyline.

Moreover, AI has assisted me in upscaling low-resolution VFX, such as the anime speed lines downloaded from the internet. This enhancement not only improves the visual fidelity of my animations but also maintains consistency throughout, preventing any jarring discrepancies in image quality.

By leveraging AI technology in these ways, I can dedicate more of my time and energy to refining character animation, storytelling, and other creative elements.
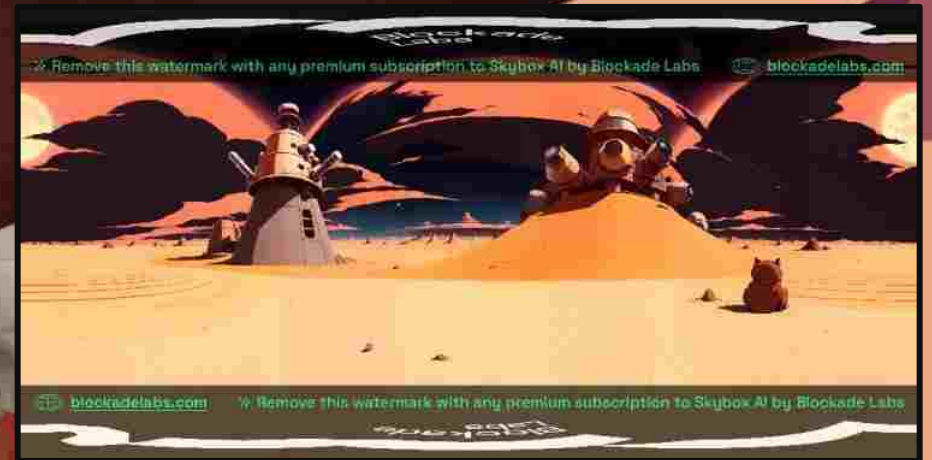
8. Iterative Development

The hardest part of this project was controlling the camera in a believable way. Achieving my desired results required numerous iterations and meticulous attention to detail.

There were moments of frustration where I was struggling to find the right balance between speed, fluidity, and impact, but thanks to Ben and Amir's (supervisors) help I was able to dial into the look and feel I wanted for the camera.

9. Continuity Decisions

In my animation, I carefully planned certain continuity decisions to serve compositional purposes and emphasize the intentionality behind these choices. Here are two examples:

1. I deliberately shifted the master's sword from his left side to his right. This was because I wanted the master's stance to juxtapose the student's stance at the start, and his stance was better when the sword was on his left, later I wanted the master and the student to be facing the camera when they both swing their swords, and that shot only works if the sword was on his right.

2. Another deliberate decision was made when the master punched the student. To improve the clarity and impact of this action, I chose to hide the gear around the master's waist. This adjustment was intended to make the character's silhouette more readable and minimize distractions, allowing the viewer to focus on the intensity of the moment without unnecessary visual clutter.

By making these intentional continuity choices, I aimed to elevate the effectiveness of the animation while ensuring that every detail served a specific purpose in enhancing the viewer's experience.

10. References

It is advised never to animate without references, and that a good animator know how to either acquire references or shoot one themselves, so here is a compilation of the references I shot/used.

11. Conclusion

In conclusion, I feel like I have hit the brief that was set in the initial proposal; 'a highly stylized and cinematic animation of a fight sequence between a master and his apprentice'. Although I would have liked to have expanded on this project more, I am happy with the final animation. Compared to industry, there is definitely room for improvement, as some of the poses are not strong enough, I would have liked to have experimented with 'grease pencil' for the hand drawn VFX, which is something I will definitely look into in the future.

Overall, this project has pushed my skills to areas I had not worked in before and forced me to step out of my comfort zone and expand on my abilities.

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