Emulating aspects of existing videogame visual design

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Abstract

The goal of this paper is to outline the uses of the post processing stack in the project “The First Valkyrie Remastered”, this will cover the bloom post processing and how to implement the post processing stack in unity .

Introduction

Firstly, we must understand what post processing is and how it works in order to dive into the main content of the paper. As per unity documentation “Post-processing is the process of applying full-screen filters and effects to a camera’s image buffer before it is displayed to screen. It can drastically improve the visuals of your product with little setup time.” (Unity Technologies, 2017). However the simpler explanation is that it replicates the feel of AAA games visually speaking.

It is to be noted that these effects were previously known as the “Cinematic image effects” according to unity technologies and should not confuse users of the newly introduced “Post processing stack”, the only difference between the two is that the post processing stack is more integrated in the unity component system wherein the previous image effects required a script to be attached per processing effect IE: script for bloom, motion blur etc. (Unity, 2016)

Common uses

The post processing stacks main goal is to reduce the dependency of the 3rd part assets which emulate smaller effects and to offer the developer the ability potentially to create AAA quality games in the unity game engine and to perhaps break the common stigmas associated with the engine, wherein the engine is often attributed with low quality content, however this is not true which is evident by some popular unity titles such as Homeworld: Deserts of Kharak or even ReCore with many more examples found on Wikipedia . ("List of Unity games," 2018)

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The problem

Many simple games from the early days of gaming utilized GUIs and later color, this was very technologically advanced for its time and thus making a game which is inspired by such games would need advanced visuals to complement the modern times and modern hardware, to replicate the visual effects we chose the game Pac-man 256 as a benchmark for the type of art we wanted our game to emulate, the reasoning for this was that it is remake of a modern game much like the first Valkyrie.

(, 2016)

As can be seen in the screenshots below we have emulated two crucial visual components of Pac man which are its colors and the bloom effect that it has to create a visually appealing game , doing this can be challenging thus there is a small how to guide in the next section to explain what is being done .

To start off the project must be in unity 2017 and the post processing stack needs to be imported, once it is then it's just a matter of adding the post processing behavior script which needs a crucial component to be passed into it known as the post processing profile, this will give an array of options, however only one is needed which is known as the bloom component.

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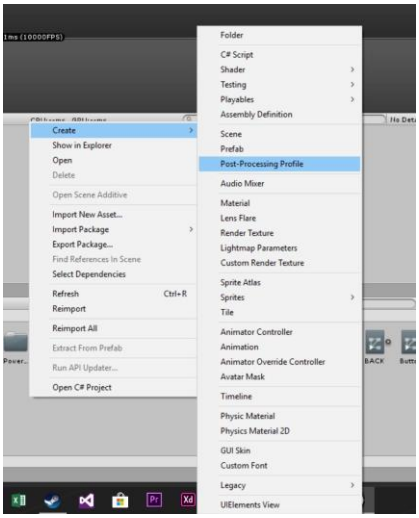
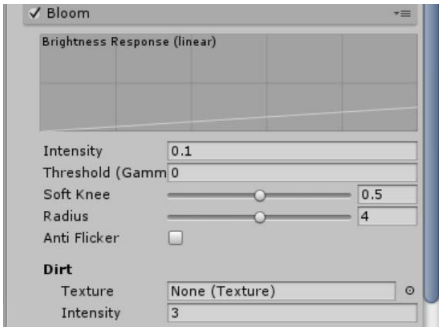
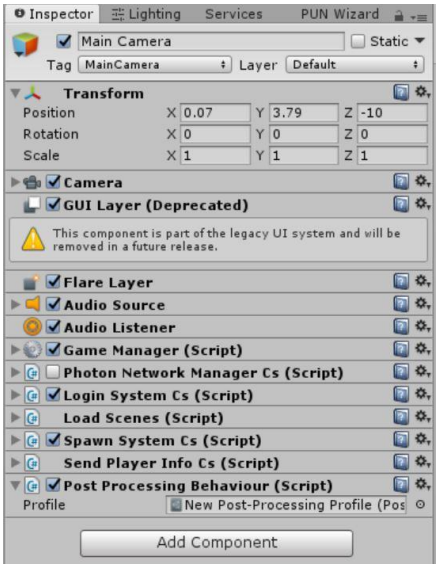
To start off you will need to create a profile which can be seen in the image below. Then the post processing component must be attached to the main camera after which the bloom settings must be altered to meet the games requirements.







After applying the post processing effects there will be a glow in all in game objects apart from any UI being rendered in the overlay space , this is because the UI is not recognized as a game object although it has all the attributes of one however this can be fixed by moving it into world space / screen space – camera .

Below is an example of before and after post processing.

Conclusion

Unity is on the path to being an engine for AAA games however the visual fidelity which can be achieved by the post processing stack adds to the simple-most project is that which every developer must learn in order to get the visual standards or technologies suited for the modern times .

References

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