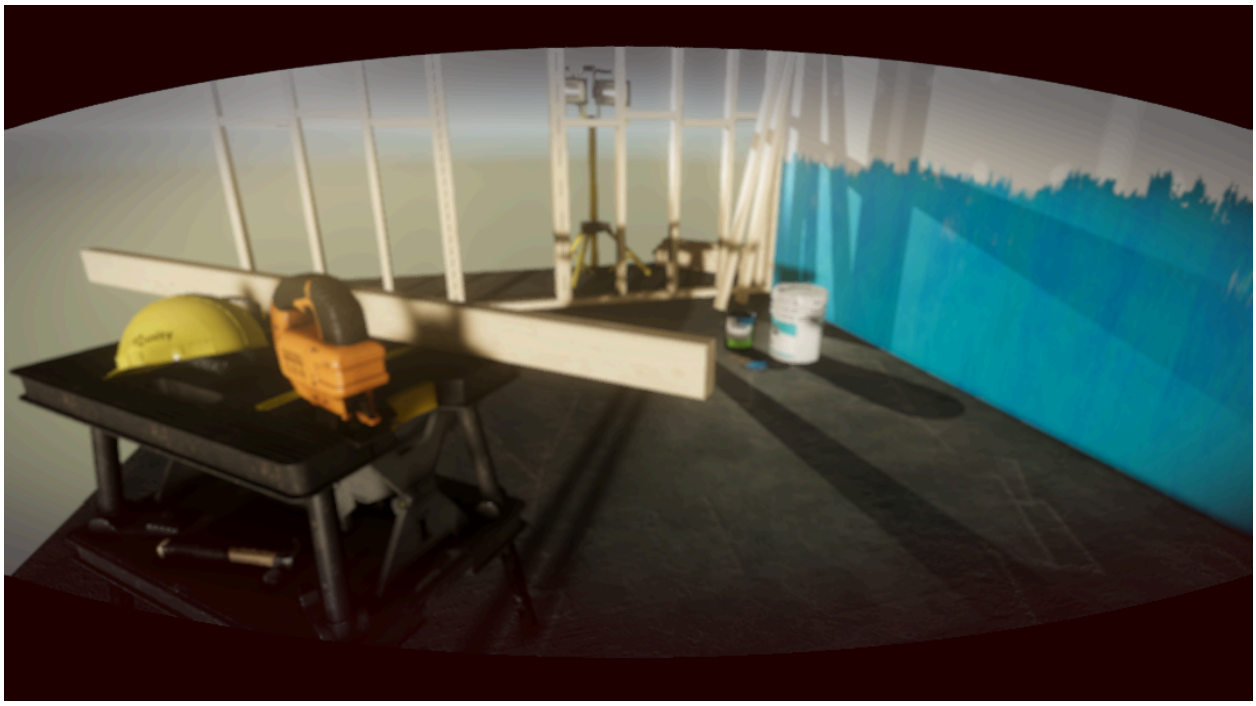


Eye Opening Post Processing

By Joseph Y.

—

Overview

The eye opening post processing is a post processing effect that simulates the look of eyes opening and closing to the camera screen. It is designed to run on the Unity URP pipeline and Unity 6, but theoretically, it could run on Unity 2022 but it is untested. This effect utilizes URP's render feature to integrate it into the render pipeline and HLSL and Shaderlab to create the shader effect.

Installation

Before you begin:

1. Ensure you use the Universal Render Pipeline (URP) and Unity 6 (6000.0.30f1).
2. Ensure you have installed the necessary packages, such as Shader Graph.
3. Ensure that you are using forward rendering in your universal renderer.
4. Ensure that the color space is set to linear in the project settings.
5. Ensure that under the project settings > graphics > Render Graph, you enable Compatibility Mode on (meaning you have Render Graph Disabled).

The effect is contained in a Unity package you can import into Unity. To do this, navigate to Assets > Import Packages, select the Unity package, and open it. A popup will appear showing the contents of the package. Choose to import everything from the package and click OK. They will be imported into the Unity project under the EyeOpening folder.
After importing, you should see several specific items, 3 C# scripts (2 containing our render feature and pass, and the other for its volume component), and 1 shader file which is the shader effect itself.
To apply the effect:

1. Navigate to the universal renderer being used in your project and locate the "Add Render Feature" button.
2. Click the "Add Render Feature" button and choose the Eye Opening Effect render feature.
3. Create a game object or go to the object containing your post-processing volume/volume.

4. Under the volume component, click on **Add Override** and select Eye Opening Effect. If done correctly, the volume component should be updated with a new volume override that says Eye Opening Effect Volume.

You can adjust the render pass event by navigating to the Eye Opening Effect render feature in the universal renderer data. Click on the dropdown beside the setting and change the event to your preference, such as "after post processing".

Using the effect

To adjust the effect, go to the volume game object with the Eye Opening Effect volume on to adjust it. Here are the details about the parameters:

1. **Eye Openness:** Affects the eye opening and closing. 0 means that the eye is closed while 1 means that the eye is open. Use this value to animate eye opening and closing.
2. **Eye Width:** Affects the width of the eye and its lips.
3. **Screen Color:** The color of the masked out area (where the eyelids are located).
4. **Scattering Transition Screen Color:** The transition color of the masked out area (where the eyelids are located) to simulate subsurface scattering on the eyelids.
5. **Scattering Transition Threshold:** Affects the scattering screen color transition's threshold. Lower means that the transition will start at lower eye opening values and higher means that the transition will start at higher eye opening values.
6. **Scattering Transition Smoothing:** Affects the smoothing of the scattering screen color transition. Higher means that the scattering screen color will be applied much earlier and lower means that the scattering screen color will be applied much later.
7. **Scattering Color:** The color used for the in between blending of the eyelid mask and the scene view to give a more subtle blending effect to the subsurface scattering effect.
8. **Scattering Intensity:** Affects the intensity of the scattering effect. Higher means more intensive and lower means less intensive.
9. **Scattering Width:** Affects the width within the blending of the effect, which influences how much of a vignette the effect would have on the scene's view/vision. Higher means that the vision appears more focused while lesser means that the vision appears to be more clearer.

10. **Scattering Offset:** Affects the offset of the top part of the scattering effect. The op part was very problematic at the early stages, but it's now mostly resolved. Use it for debugging or to adjust the top part a bit if it is off by a bit.
11. **Blur Intensity:** Affects the blurring intensity of the vision, the blur is apparent at the start of the effect. Higher means it's more intensive and lower means it's less intensive.
12. **Blur Quality:** Affects the quality of the blurring. 1 is Recommended but you can increase its steps up to 3 which will make it look more cleaner.
13. **Fade Out Transition Threshold:** Affects the fade out transition at the end of the effect. Lower means that the transition will start at lower than default eye opening values and higher means that the transition will start at higher than default eye opening values.
14. **Fade Out Transition Smoothing:** Affects the smoothing of the fade out transition. Lower means that the transition will be applied much earlier and higher means that the transition will be applied much later.

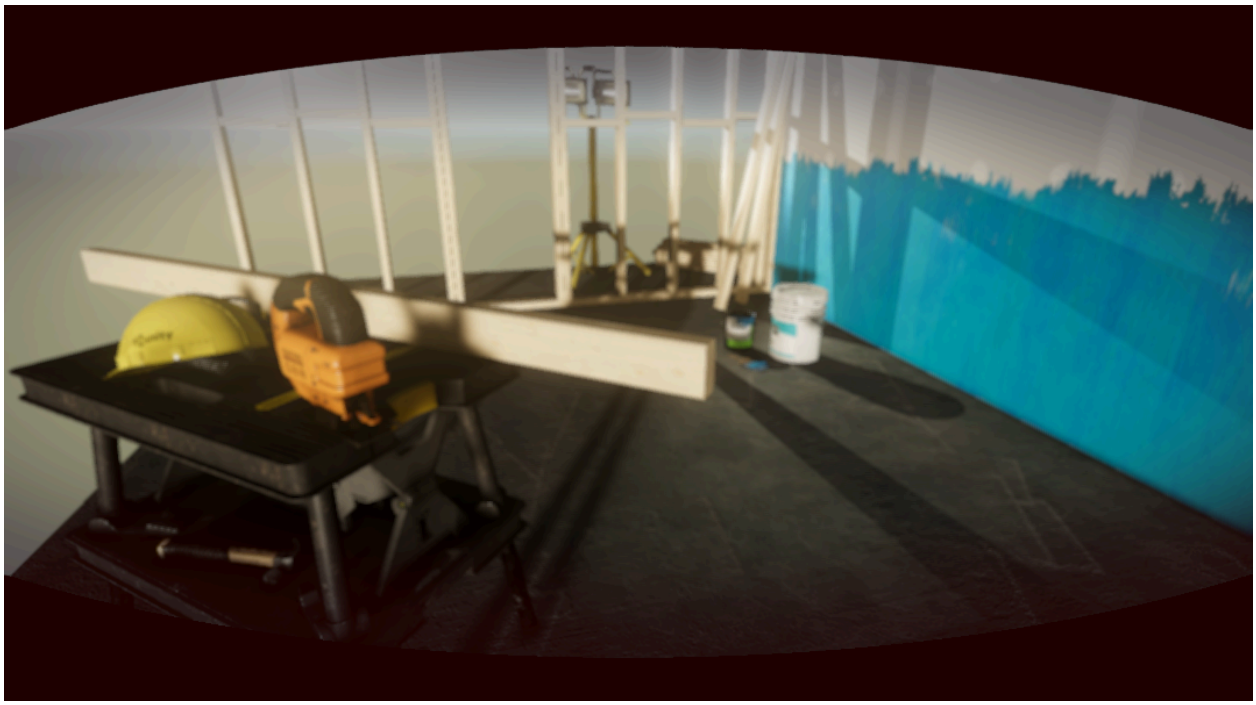
Known Issue

On some surfaces like lightly coloured walls, the blur blending between the player's view and the eye shape mask may become less apparent or in some cases, not apparent at all. This is due to the way the effect is coded to be able to blend with the subsurface scattering like simulation, eye mask, and the player's view effectively. This may not be an issue if the eye opening effect is used for a very short period of time and to be more of a subtle effect. Other than that, the blending effect is still rendered there but it is just not so apparent.

Update Log

V0.9: The base implementation of the post processing.

Example Screenshots



What it looks like with the effect on