UBI TEST CHENGDU

TECHNICAL ARTIST TEST 2 SUMMARY

SHADER WRITINGS

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Content

Dev-Environment Setup

UbisoftTest_2/Maya/exporter.py

- I assigned hotkey for automated mesh export. Some variables should be fixed for run on other machines. Assign **ROOT_PATH** for your root folder for Unity project.

UbisoftTest_2/UnityProject/Shader/Assets/Automation/AutoImport.cs

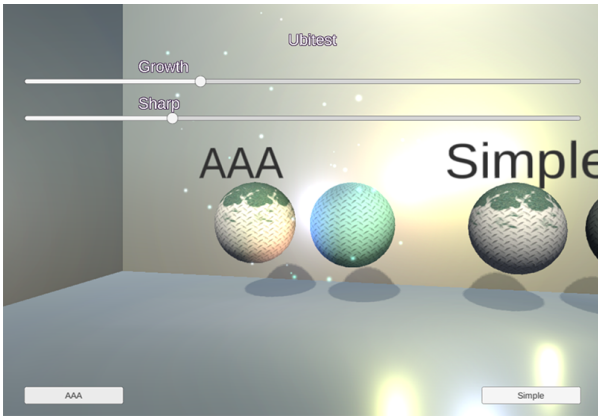
- I wrote importer script in Unity.

Dependencies

- psd_tools: **https://github.com/psd-tools/psd-tools**

These workflow must preserve directory structure under **Shader** folder, and Maya binary scene files must saved under **Raw** folder.

I used some raw psd files as textures, because I expect Unity to optimize it automatically.

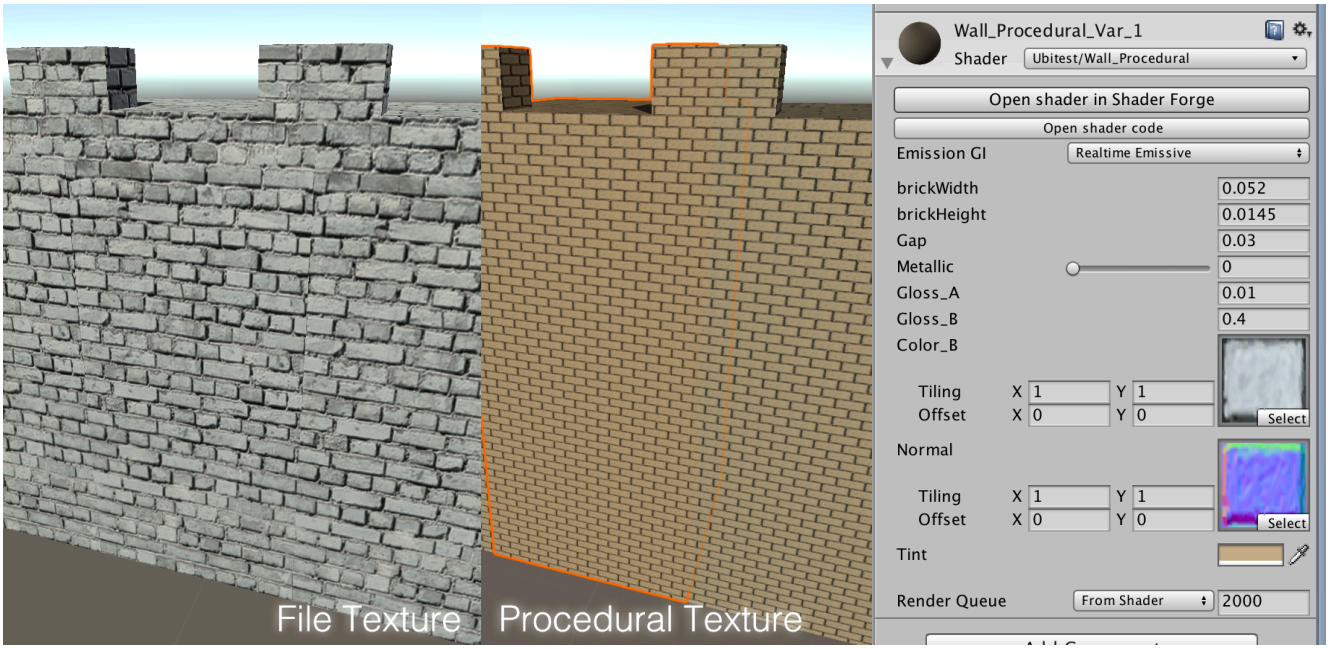


I have uploaded WebGL build for preview here:

- **http://minujeong.com/**

(This requires long loading time: around 10mb)

(WebGL build doesn't support Screen Space Ambient Occlusion.)



Brick Shader

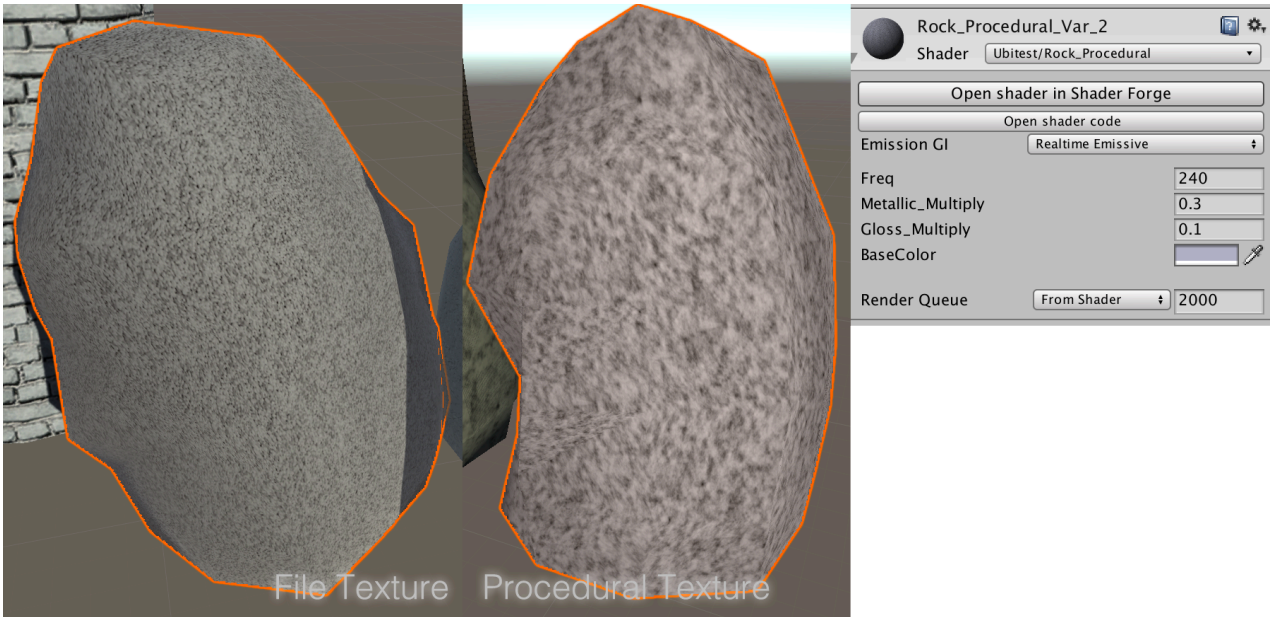
I made comparison for file texture and procedurally generated texture, that we talked in the interview.
You can find node screenshot from: **Documentation/shadernodes/wallshader_nodes.png**

```
// Get Shift
if (frac(0.5 * v / brickHeight) < 0.5)
    return brickWidth * 0.5;
return 0.0;
```

From UV coordination input, shader calculates brick pattern. According to pattern, place given textures repeatedly.
This technique eliminates big amount of texture usage, but need to be more polished for detailed adjustments.

	Unit Size	File Texture	Procedural Texture	Size
Texture Set 1024 * 1024	2.2	2	0	-4.4MB

As a result, reduced around 4mb GPU memory per prefab.

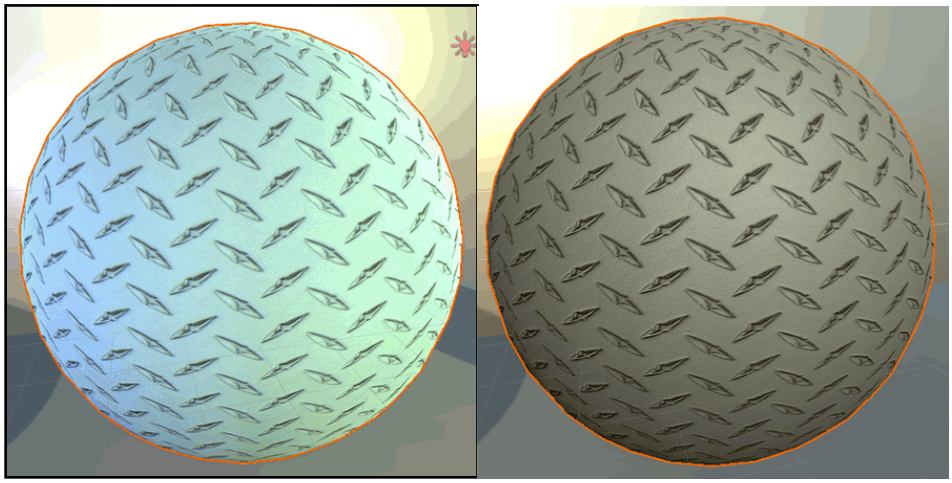


Rock Shader

This is another simple procedurally generated shader example.
You can find node screenshot from: **Documentation/shadernodes/rockshader_nodes.png**
I copied noise function from here: http://acegikmo.com/shaderforge/wiki/index.php?title=Procedural_Noise
This shader produces noise for generating rock texture.

	Unit Size	File Texture	Procedural Texture	Size
Texture Set 1024 * 1024	2.2	1	0	-2.2MB

As a result, reduced around 2mb GPU memory per prefab.



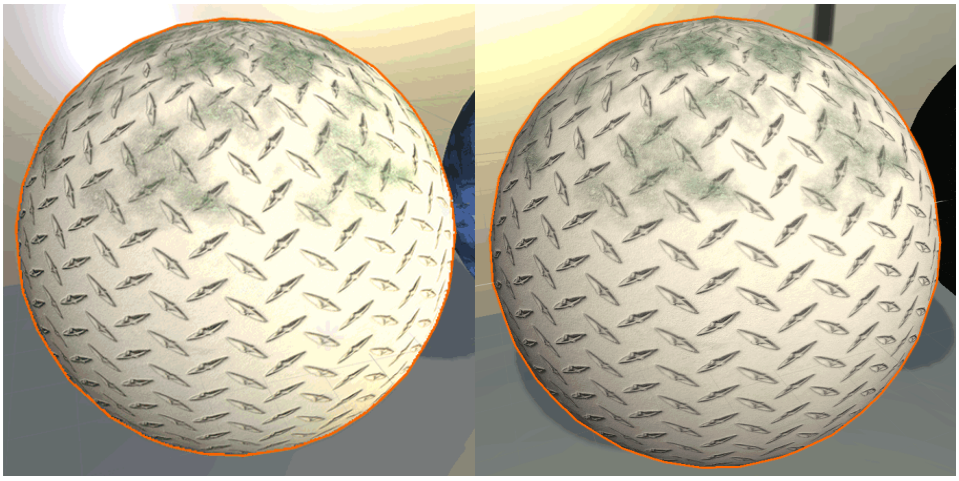
Underwater - Grunge

You can find shader nodes here:
- Documentation/shadernodes/grunge_aaa_nodes.png
- Documentation/shadernodes/grunge_simple_nodes.png

These are two versions of grunge shader: AAA and simple.
I downloaded texture from http://www.textures.com/ for preview.

Grunginess is calculated by comparing **GrungeAmount** value and **GrungeProgress** Texture sampling.

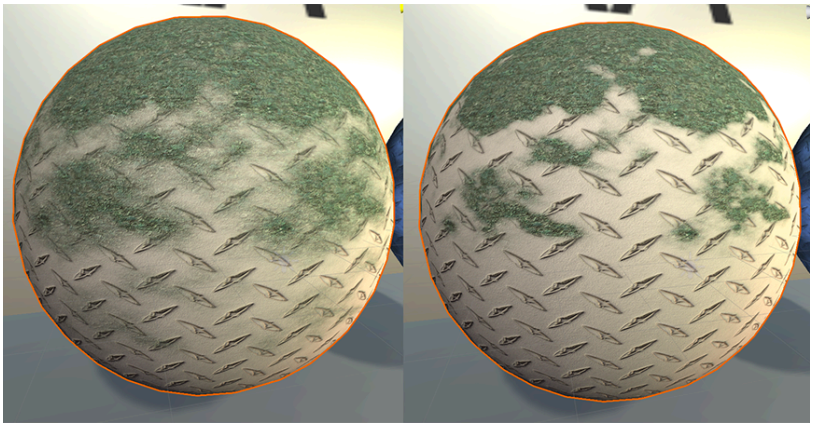
AAA version and Simple version has similar structure, but Simple version only calculates single light and instead of having metallic and gloss map, just assign metallic and gloss value.



Underwater - Moss

You can find shader nodes here:
- Documentation/shadernodes/moss_aaa_nodes.png
- Documentation/shadernodes/moss_simple_nodes.png

Unlike grunge shader, moss shader grows moss from top to bottom, by face normal.
All nodes are same between aaa and simple version, but simple version only calculates one light.



Edge sharpness value determines how much sharp edge will be.
With **GrowthNoise texture**, you can add some randomness for moss growth.