Gabe.Software

AMBIENT OCCLUSION BAKERY

VERSION 1.0

by

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Ambient Occlusion Bakery

What it is

AO Bakery is a small editor utility aimed at baking Ambient Occlusion to vertex data, granting immediate improvements in visual quality without the overheads of texture painting or post processing.

It works by calculating occlusion for each vertex of the processed model and writing the occlusion value to a newly generated mesh that will replace the one it's analysing.

Interface and usage

The interface is quite straightforward, nonetheless there are a couple of extra features that are worth discussing, following is a breakdown of the settings used and a small insight for the more notable ones.

How does it work

The Bakery works in five steps for each processed object:

- Save a copy of the base mesh filter
- Subdivide the mesh according to the settings
- Calculate and store AO for each vertex of the mesh, according to the settings
- Apply the selected material (if selected)
- Substitute the mesh in the GameObject with the new processed one

Limitations

Since Unity has a hard limit on the number of vertices it can handle for every single mesh asset, the Bakery must abide by the same laws. A single mesh cannot exceed 65535 vertices.

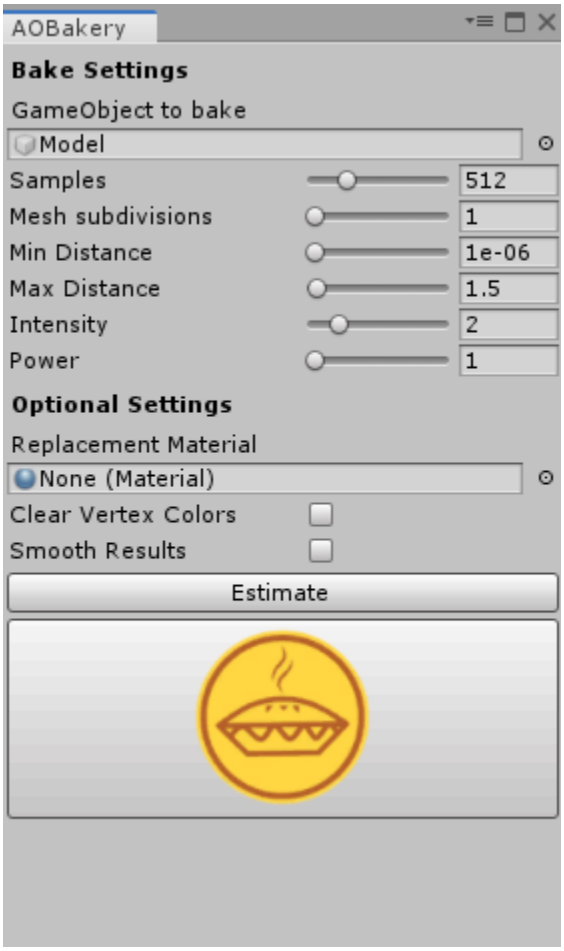
Please refer to the documentation to overcome these limitations:
https://docs.unity3d.com/ScriptReference/Rendering.IndexFormat.html

Settings

Before an object is selected, the Bakery will ask you to select a GameObject containing a MeshFilter; you can still change some settings around, but you will not be able to bake anything.

> *It is to be noted that the Bakery will consider not only the root GameObject, but also all of its children*

Once an object is selected, you will be presented with the following inspector window:



The settings are described as follows:

Samples is the amount of "Raycasts" that are performed on each vertex of the model.

Subdivisions is the number of times the mesh will be subdivided before calculating AO (note that you can always come back to previous versions of the model, this step is non-destructive).

Min and Max distance affect the range of calculations for the AO.

Intensity and Power define how softness and sharpness of the AO, alongside the contrast value for the AO itself.

Replacement Material will define a material to apply to the processed GameObjects if we want to substitute it.

Clear Vertex Colors is self-explanatory.

Smooth Results will average the vertex normal during baking.

The Estimate button uses a heuristic to approximate the bake timings, unfortunately, due to the fact that different CPUs will perform calculations at different speeds, it is impossible to provide an accurate calculation, but we strive to be as accurate as possible.

Finally, the Bake button will perform a baking of the selected GameObject and all its children (if they contain a MeshFilter).