Grit Buildup Shader - Documentation

V1.1
10/09/17

Overview

Grit buildup shader is a shader that will allow you to combine two types of 'material' or texture in order to achieve a multi-layered object. Perfect use cases would be objects such as rocks or ground planes that have a base stone texture with a overlay texture of snow, moss, lava or ice.

Shader Breakdown

- **Albedo, Normal, AO** and **Height** are textures that influence the "main" material.
- **Gloss** and **metallic** are standard PBR variables which can be scaled here.
- *AO Scale:* adds or removes AO to the model.
- *UVs:* handle the texture UVs for the Albedo, Normal etc.
- *Layer Direction:* the direction (unnormalized) to 'build up' the second layer.
- *Layer:* The texture supplied for the second built up layer.
- **Layer Gloss** and **Layer Metallic** are the standard PBR variables for the second layer.
- *Displacement:* How much the the vertices are displaced.
- *Layer Tint:* Color tints the second layer.
- *Tessellation Value:* how much the model should tessellate in general.
- *Layer variables:*
  - *Amount:* Level of the second layer based on the Layer Direction (Will update based on World_on_Local_off variable).
  - *Crevice:* Adds overall level based on the crevices of the first material.
  - *Disp:* (Displacement) a second variable to only control the displacement of the vertices affected by the second layer.
- *Power:* This is emulated Falloff, for sharper crevices a higher value might be required.
- *Displace Base:* Is there displacement on the base layer? (Y/N)

- ***Displace Layer:*** Is there displacement on the second layer? (Y/N)
- ***World_on_Local_off:*** (ticked = world, unticked = local) This variable controls if the direction is in local space of the model or if it is in worldspace.
- ***Distance Tessellation:*** This variable is the 'high quality' tessellation while the variable 'Tessellation Value' is the tessellation at larger distances (see below).
- ***Tessellation Fade:*** At which point the tessellation switches from high to low fidelity.

Limitations

Known 'limitations' with this tool mainly relate to the splitting of edges when scaling up the displacement value. Below is an example of what this looks like and how you can avoid displacement scaling pulling apart edges on your meshes.
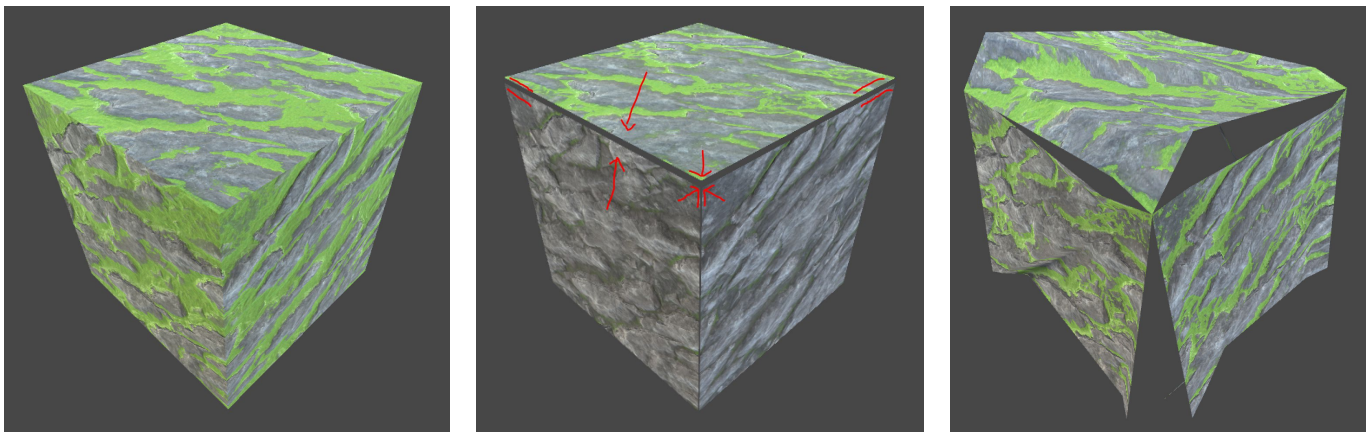
In the image to the right you can observe a cube with the moss material applied using the shader. This cube has layer and base texture displacement turned off and as such has no edge splitting at all, though some additional 'depth' is lost because of this. In the second image, the base displacement is set to 0.01 and the edges split apart. At base displacement 0.09 the edges pull apart drastically and the mesh is visibly distorted in an undesirable way.

The ideal use case for this shader to best perform visually is on environment pieces that either have no back faces like the spheres in the demo -- for example rocks placed against a cliff -- or on objects where seams can be easily obscured by other meshes/ lighting. Otherwise for meshes that you would like to use the shader on and avoid displacement issues at edges, simply leave displacement off for both layers.

Contact

Feel free to contact us with any issues you may be having via any channel. We are always happy to support our customers and will address bug fixes as soon as possible. Please do not hesitate to contact us with feature requests either! We'd love to continue to make our tools and assets better wherever possible.

Email: contact@2ginge.com
Website: www.2ginge.com
Twitter: @TwoGinge | @PezzSp | @JairMcBain

If you'd like to hear about our other projects and tools, please find our newsletter signup form at www.2ginge.com or check out our Unity Asset Store developer profile.