Guilty Gear Xrd : How does it work ?

shader breakdown (not official)

Textures

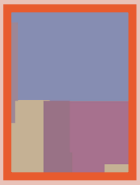
One texture includes
4 Black and White channels

- Red
- Green
- Blue
- Alpha

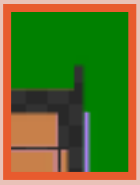
Black and White are computed by the shader as value of 0 to 1

Models from Guilty Gear uses 3 textures:

Color map



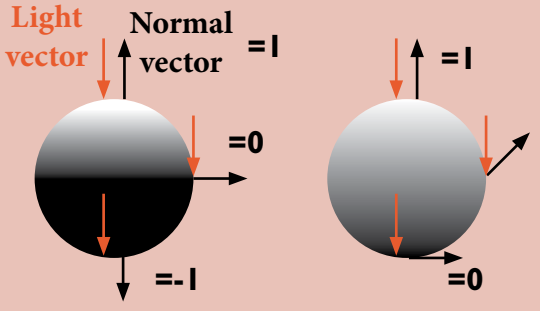
SSS map



Combined map =

Shadows

Diffuse Shader



Default normals | Modified normals

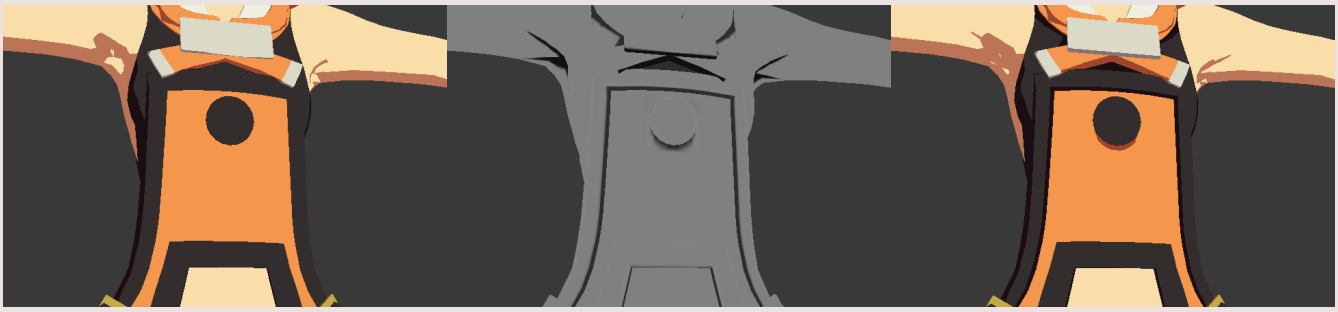
Diffuse is the result of the Dot product of Light and Normal directions. It results a black and white gradient. Normals can be modified to have the desired shadows.

Normal Edit

In order to get «2D» like shadows, Guilty Gear copy normals from a simplified model :

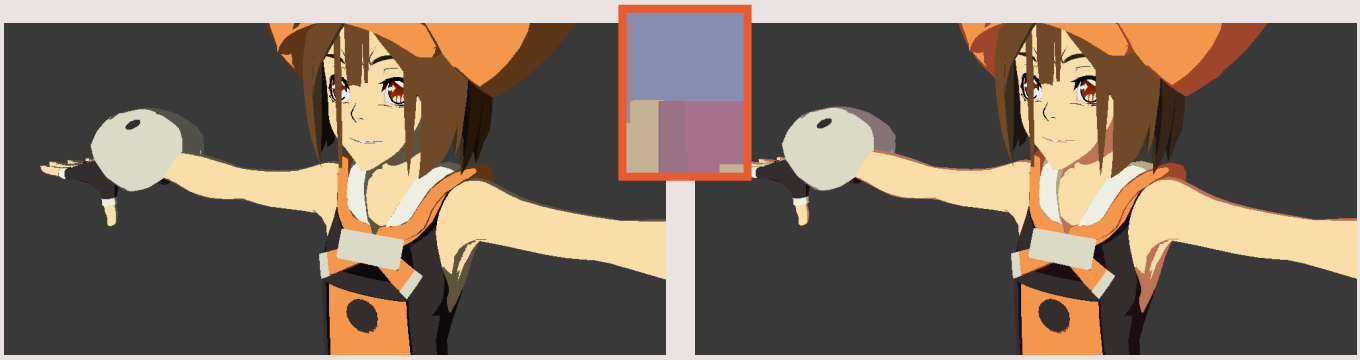
Default normals | Simplified model | Edited normals

They also use a Shadow Map map (the Green channel of the combined texture) to add more shadows that will not be affected by the lightning.



Colored Shadows

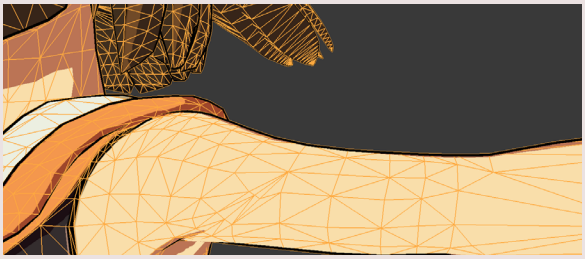
To add colors, the shadows are multiplied with the SSS map and the ambient color of the scene



lines

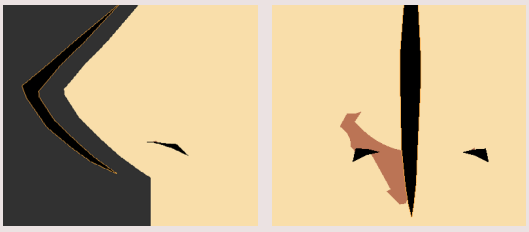
Outlines

The outline is a slighlty larger black mesh with inverted normals so it will show the model in front of him.



The Nose

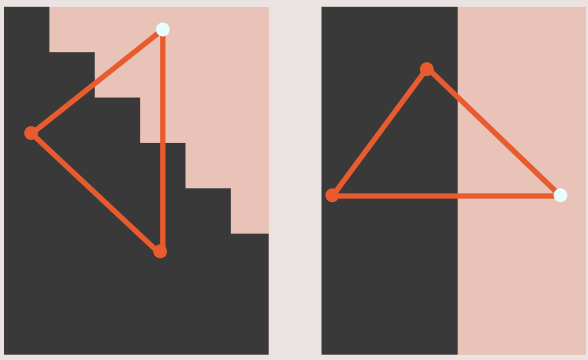
A nice little touch : the nose is made with an extra geometry !



Interior lines

The interior lines are made with the Alpha channel of the combined texture.

The UVs are stretched to avoid pixel artifacts on the lines :

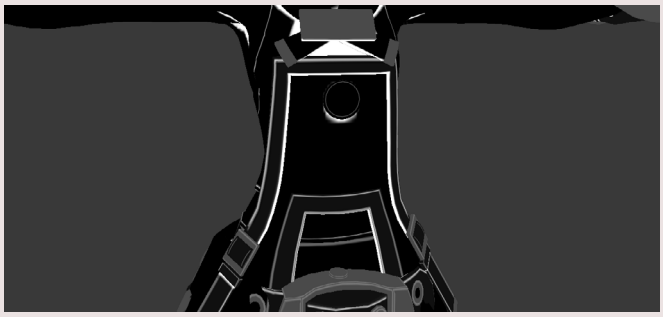


shematic UV view

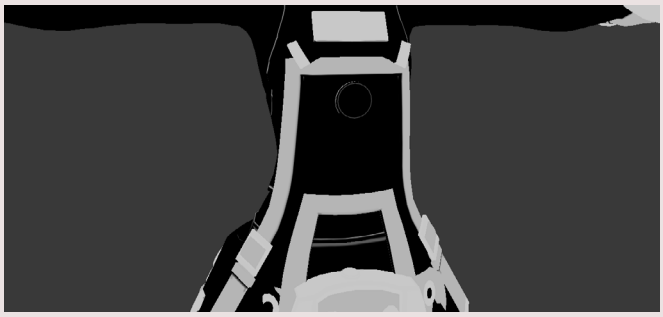
Specular

The shader use **2** maps from the **combined** texture : the **R**ed (specular **intensity**) and the **B**lue (specular **size**) channel.

The specular **size** map will influence the shape of the specular for example to increase the specualr on the edges :



The specular **intensity** map will influence color of the specular to differenciate skin and metal parts :



AO by Vertex painting

The **vertex color** of the model is hand painted and used as an **Ambient occlusion** to correct the shadows.

Result

without Vertex AO

A lot of other technics are used in several aspect of the game to enhance the awesome 2D look (animations, background painting, etc.).

made with blender

if you have any **questions,** contact me :

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