TextureToMeshGenerator – Manual

Installation

- Copy the whole „TextureToMeshGenerator" folder to your C: drive.
- (In addition, Maya 2016 must be installed in the standard folder. If one wants to use a different Maya version, the path to the respective mayabatch.exe has to be replaced in „2_displace.bat".)

How to use

The workflow of the TextureToMeshGenerator is based on two fundamental steps: the texture generation by the ImageQuilting algorithm (which produces a big texture by making a seamless composition of a small base texture) and the generation of the 3D-Mesh based on this composed texture. The workflow can be separated into the following:

1. Texture generation
   - To start the texture generation, execute "**1_TextureGen [Automatic].exe**". This will automatically take the **input.jpg** as the base texture, the **target.jpg** as the target (the target picture basically sets the target image size) and will generate a composed texture (named **output[X].jpg**) for every config file in the "configs" folder.
   - In a config file, you can put in the settings for the ImageQuilting algorithm. Please note that you should only change the numbers for the settings and nothing else of the config files. You can have as many config files (and thus output textures) as you want.
   - If you, however, want to choose your input and target image freely and on a GUI, you can also generate a composed texture through the manual version of the application ("**1_TextureGen [Manual].exe**"). However, the disadvantage is that this approach will not give you the ability to generate multiple output textures at once.
2. Mesh generation
   - The actual mesh generation is performed by Autodesk Maya. To generate the mesh, execute "**2_MeshGen.bat**". The script will take the **final.jpg** image (this is supposed to be one of the composed textures of the first step) and will perform a displacement on the plain itokawa mesh. The generation takes a few moments and will be performed in the background. The output mesh will be saved as **output.fbx**.

How to use – Short version

- Set config files in config folder
- Choose base texture and name it to **input.jpg**
- Execute "**1_TextureGen [Automatic].exe**"
- Choose one of the results, rename it to **final.jpg**
- Execute "**2_MeshGen.bat**".
- The result will be saved as **output.fbx**.

Changing the mesh/mesh settings

- To change the settings for the mesh generation (such as resolution etc.), open the **displacementObjFromTexture.mb** file in the files folder with Autodesk Maya. The most important settings (the initial and extra sample rates) are located in the "Displacement Map" tab in the "itokawa_meshShape" component. Please note that these settings depend upon

the resolution of the base mesh.
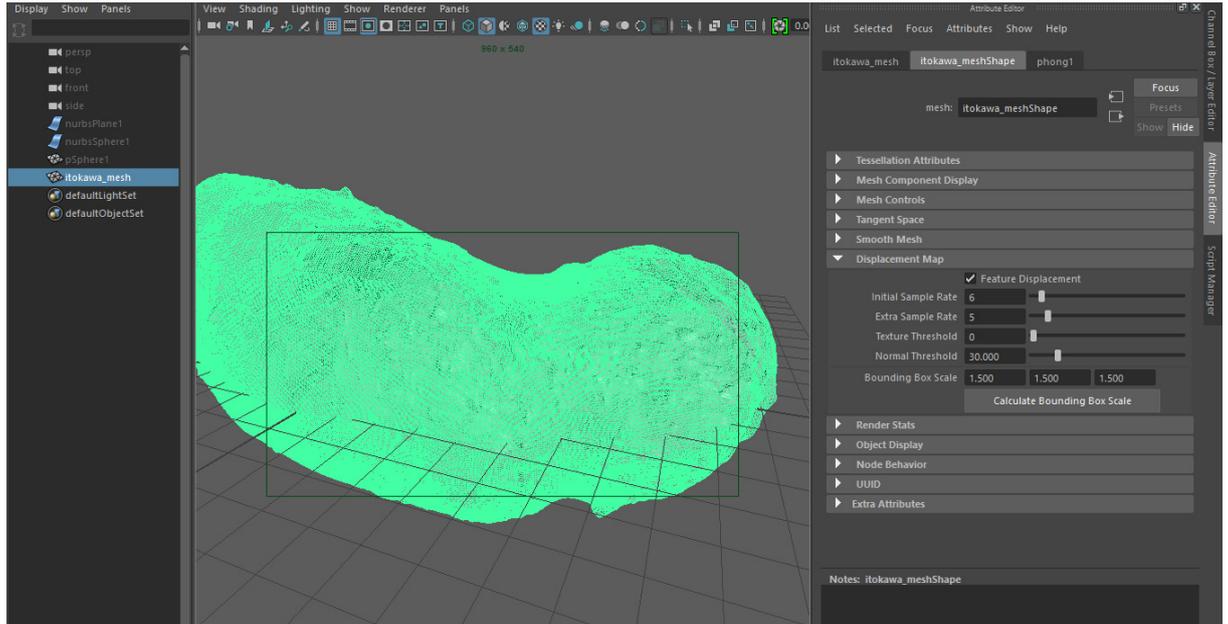
- In order to change the base mesh the displacement will be processed on (currently the itokawa asteroid), one has to delete the old mesh in the scene, then import the new mesh into the scene and rename it to "itokawa_mesh". In addition, the "phong1" material has to be assigned to the new mesh. Save and close the scene.

Misc

- The ImageQuilting implementation is a slightly modified version of Siddharth_Jain's implementation you can find here: http://www.codeproject.com/Articles/24172/Texture-Transfer-using-Efros-Freeman-s-Image-Quilt
- For more information about me/this project, visit www.valentinkraft.de