



Tree Sculpture Tutorial

Creating Tree Sculptures with Blender 3D

by MasterDomino

Introduction

This is a tutorial about creating trees with a custom shape in Blender 3D using the Gen3 script by Sergey Prokhorchuk (stager13). The tutorial is written for all type of users, but you should have some basic knowledge at least. Since I am not familiar with other tree generator scripts, I don't know if it also will work with those other scripts, but actually I guess so (a tree mesh is a tree mesh after all...). Also I am not sure, if

there is not maybe a much easier way to achieve the same effect (maybe with the new Peach Tree Generator?), but this is the way I came up with.

However, if you are some kind of blender nerd and get quickly bored by too much details, I've also created a quick „walk-through“, which explains the steps in a short way.

Quick Walk-Through

Tree Mesh (Mat 1) -> Suzanne Mesh (Mat 2) -> Boolean (Divide) -> Delete Mat 2

If you didn't understand this completely, feel free to read the tutorial, I will go more into detail there. ;)

Creating the Tree

I am not going to explain how to create the tree using Gen3, if you are not familiar with the script I strongly recommend you have a look at the Gen3 tutorial by Kernon Dillon of BlenderNewbies.com which covers basically anything you need to know about how to create trees with that script, I really recommend it. You can find this tutorial at <http://blendernewbies.blogspot.com/2007/08/tree-making-tool-gen3.html>.

If you create a tree that you want to turn into your sculpture it is important to know that the more dense your tree (meaning the branches, twigs and leaves) is, the better your result will be. This is especially true if your mesh is more complex. I am using Suzanne for this tutorial, which I consider a rather complex mesh and

this requires already a very dense tree with a lot of detail.

Unfortunately this also means that you need a rather powerful computer and some steps take quite long. So if your computer is not that powerful you could i.e. follow this tutorial with using a sphere **as your**



Img. 1

basic shape and then make the tree much less dense than I did. And by the way, if you want to make a tree with a cube shape there is a much faster way to achieve that, which is also explained in the tutorial by Kernon Dillon. I also did the pyramid tree with Kernon's method.

Back to the tree I use in this tutorial: You can see the settings I used to generate the tree in image 1 (**Img. 1**).

The resulting tree looks like this (**Img. 2**), I tried to get a tree with a sphere shape, so I will have enough space to place a Suzanne head in it. As you can see we now already have a ridiculous amount of over 500.000 faces.

Because the tree is rather messy for the next steps it helps a lot to open an Outliner window and to

The Custom Mesh

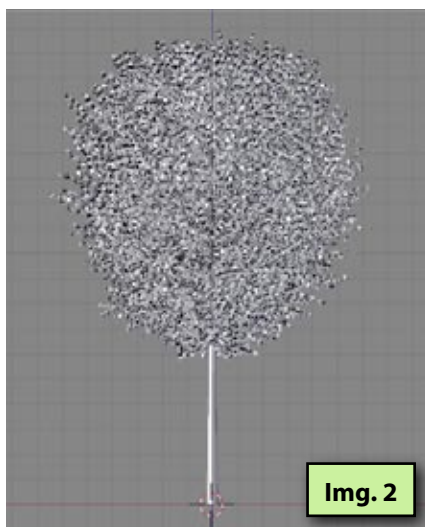
In object mode you have to add your custom shape or eventually model it. I just added the Suzanne mesh. You also have to assign a material to this mesh and in this case it might help to choose a different color than white to have a better visual feedback. I chose some ridiculous pink tone (in case you chose a ridiculous pink tone already for the tree parts you should consider to choose a ridiculous turquoise tone ;)) (**Img. 4**).



Before you move Suzanne in position it is a good idea to thicken the fine parts of the mesh a bit, to make it more likely that twigs will end up in these parts. In

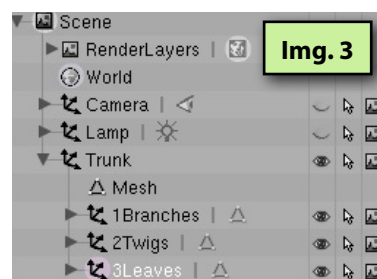
this mesh that would be the ears and the mouth. I have tried this with Suzanne before without thickening anything and in the end I realized that I should have done that, so it is kind of "trial and error". To thicken them just move some vertices around until the ears and the mouth is thicker (**Img. 5**).

choose the different parts in this Outliner window. You should also rename the parts to meaningful names like "Trunk", "Branches", "Twigs" and "Leaves" (**Img. 3**).

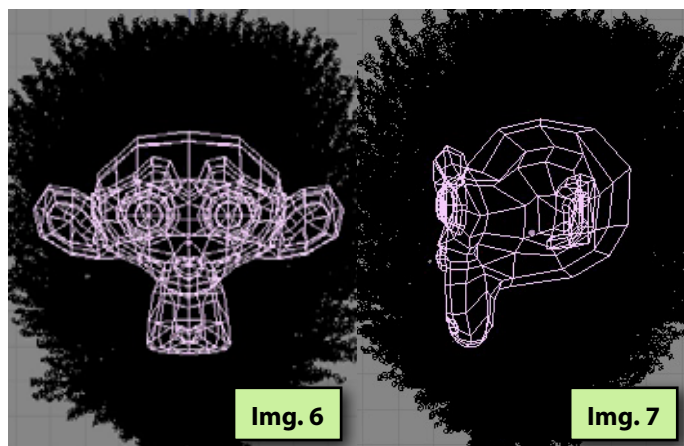
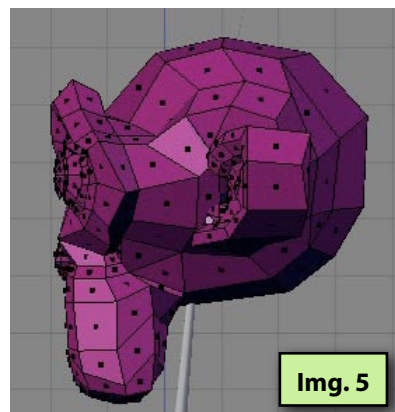


Next thing you should do is selecting all the different parts of the trees, going to edit mode and remove doubles (w -> remove doubles) and smooth all the meshes to give the tree a nicer look. Now I am left with "just" over 400.000 faces.

To finish the tree you have to give all the parts a material. It doesn't matter what type of material it is, but it is important that you give it just some material now, because we will need that later in the tutorial. So I gave my tree parts all the same simple white material.



Now grab Suzanne and drag her up to the leaf part of the tree (for this you should change to wireframe mode to see something). Scale her up and move her, so she fits into the tree without getting too close to the edges. Make sure to check both from front and side view if she fits in (**Img. 6, Img. 7**).



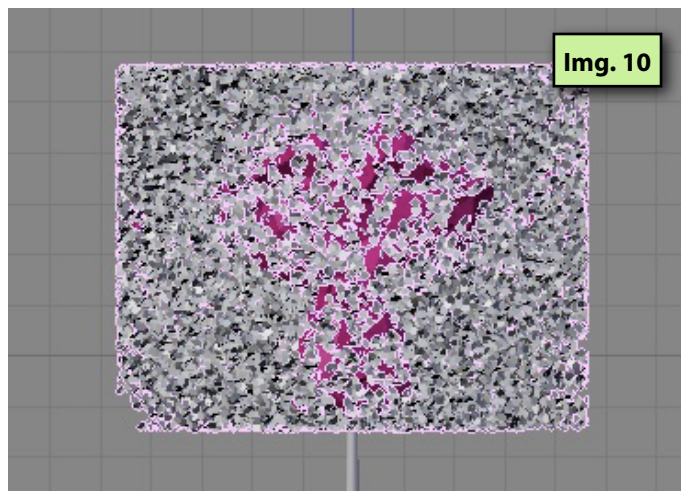
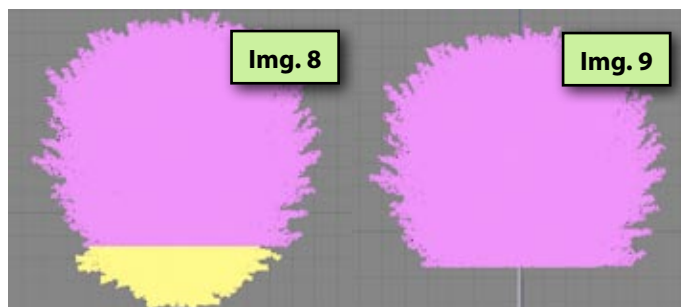
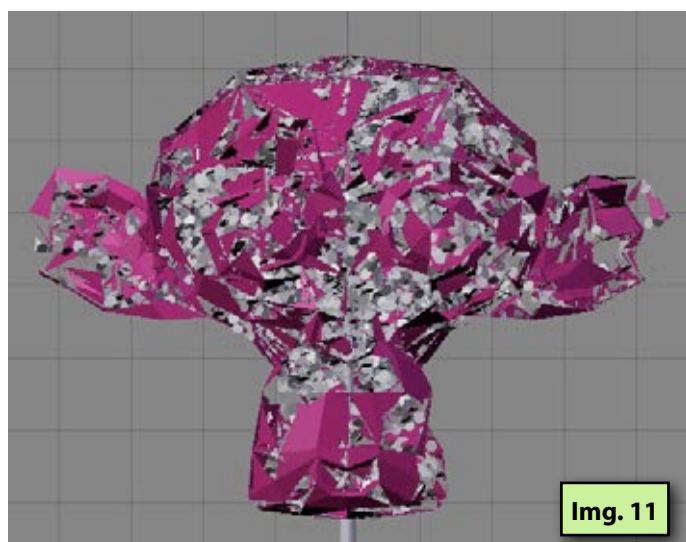
Now it is a very good idea to cut away some parts of the most vertex intensive mesh, the leaves, to reduce the vertex count. To do this, select the leaves, go into edit mode, box select the parts around Suzanne and delete them (**Img. 8**, **Img. 9**). Make sure, that you do not cut anything away too close to Suzanne. Do this also from side view. As a result you have a cube shaped tree (**Img. 10**). This is the actually the cube shaped hedges technique from Kernon Dillon. If you are confident about your computer power you can also skip this step. If the opposite is the case you can repeat the same steps for the twigs and branches.

The Shaped Tree

These were all the preparations, now you can start to make the shaped tree.

Hide all meshes in the scene apart from Suzanne and the leaves. Now select both meshes and press W to bring up the Boolean Operation Menu. Choose Intersect. This will create a new mesh which just consists of the regions the previous two meshes shared together. This can take a very long time for your computer to calculate (in fact on my computer it took around half an hour. I'm working on a Mac PPC, 1.5 GHz, 1 GB RAM). So go and get a coffee now.

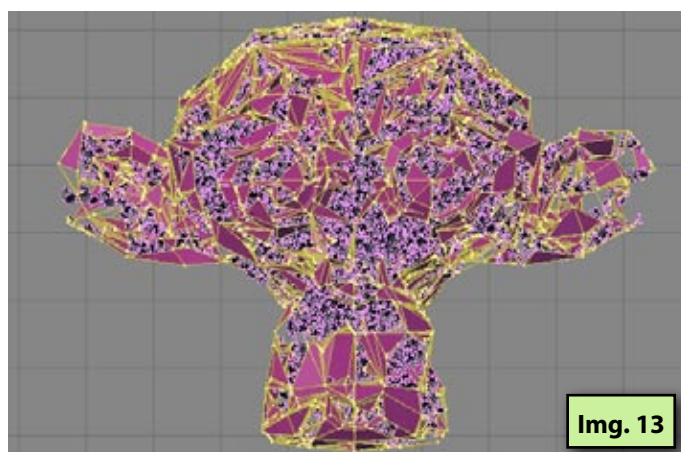
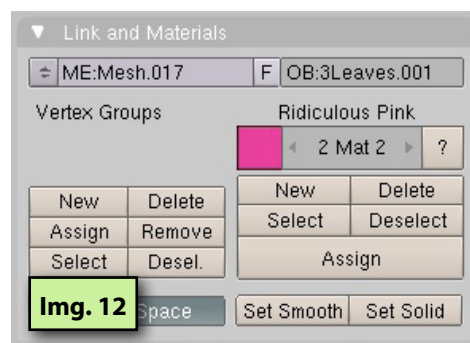
After this is done you have a new mesh in your scene, which is – depending on the order you selected the two other meshes earlier – either called „Leaves.001“ or „Suzanne.001“ (personally I prefer to select Suzanne first and then the tree part, because the resulting mesh will be child of the trunk, apart from that the order does not matter). Hide all the other meshes to have a look at the new mesh. It looks like a pink Suzanne head with a lot of holes in it and leaves inside (**Img. 11**).

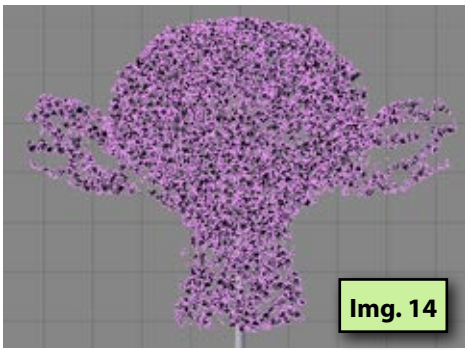


Since you don't need the pink "shell" you have to delete it. This is why you

needed to assign two different materials earlier. To do this, with the new mesh in Edit Mode go to the editing panel in the buttons window and find the Link and Material Tab (**Img. 12**).

Here you have to choose your ridiculous pink material (it should read "2 Mat 2"). Now click the **Select** button below it. All the vertices of the mesh with the pink material (and therefore belonging to the shell) will be selected (**Img. 13**). Now go just ahead and delete them.

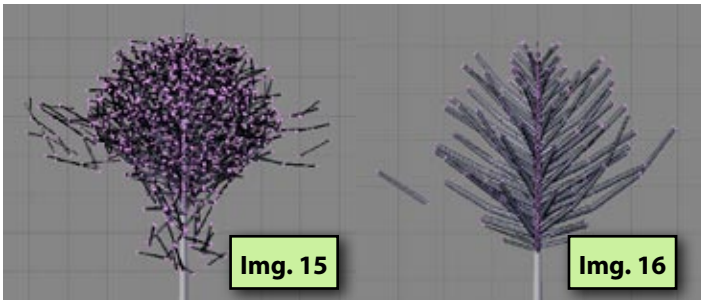




Now you are just left with all the leaves that were inside of our Suzanne Head (**Img. 14**).

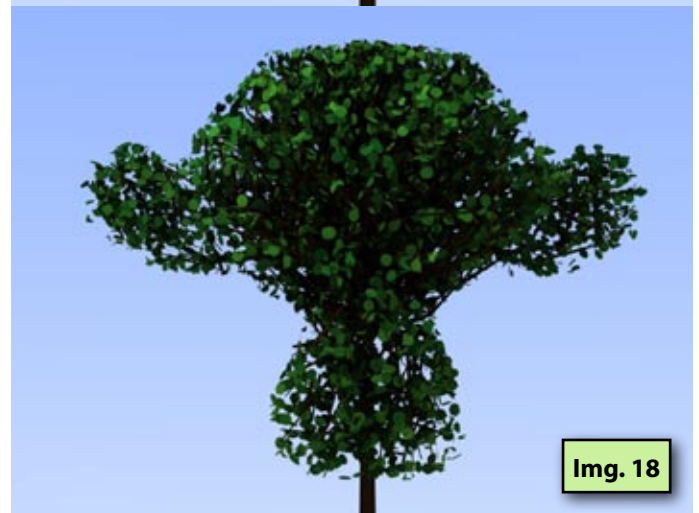
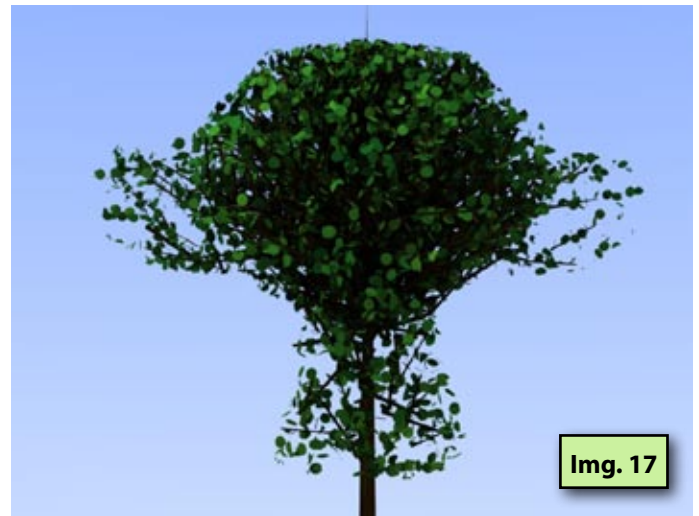
Before you go over to the twigs now,

there is one more thing you can do to keep your mesh clean: The new mesh will have a lot of vertices which are not connected to any faces and are therefore useless. To get rid of them do this: Still in Edit Mode switch to Face select mode. Now box select around the whole mesh (do NOT press a to select all!), which selects all faces. Now switch to vertex select mode. If you now inverse the selection (**Select -> Inverse**) you have all the useless vertices selected. Go ahead and delete them.



You are finished with giving the leaves their shapes, so hide this new "Suzanne Leaves" mesh for now. To go on with the twigs and the branches just repeat the same steps you did for the leaves: Select the twig mesh and your original Suzanne head, do a Intersect Boolean operation (**W**), which should be a bit faster this time and delete all the vertices you don't need. Then you do the same for the branches (**Img. 15**, **Img. 16**).

Now all the parts have their shape and you could give them some tree materials now, hide all the original meshes that you don't need and do a quick render to have a look at the result (**Img. 17**).



Improving the Result

As you can see the result is not quite perfect. Even after thickening the ears and the mouth there are not enough tree parts to make it look good. To fix this you either need to start with a bigger tree (which does not mean just scaling it up, but having more branches and leaves), or you just go into edit mode with the tree parts, duplicate some parts of the mesh and simply move them to the ears. Then you remove some leaves which are too much out of place and that should be it! My result was achieved that way and you can see that after doing this it looks much better and the result is good enough for me (**Img. 18**).

I also used the same mesh on the „front page“ of this tutorial and as you can see, you hardly see any flaws anymore, because the tree is simply not that close to the camera. So also always think about how detailed your tree will be seen in your final render, you may not need to improve it at all in some cases.

This is all there is to say, hope you enjoyed the tutorial. If you have some questions or some recommendations for improving the tutorial feel free to tell me on blenderartists.org . Also let me know if you maybe know a better or quicker way. And don't forget to show me your results.

Thanks to Sergey Prokhorchuk for the fantastic script and to Kernon Dillon for his great tutorial about it.

Happy blendering,
MasterDomino