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Subject: Mudbox terrain sculpting

Posted by [Aircraftkiller](#) on Sat, 23 Mar 2013 19:54:26 GMT

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I had a thought hit me last night, which I figured I'd share with everyone. Try using a 3D sculpting program to create Renegade terrain. I've got a Wacom Intuos 3 9x12 that I use with Mudbox, so sculpting in the program is pretty straightforward. Here's a ~30 minute quick sculpt from last night:

Once the quick sculpt is done, take it into MeshLab for decimation.

I had a roughly 68,000 sculpted mesh which I've decimated to 7,000 polygons. Here's the result:

With a bit of time and effort, you could easily make terrain that's "heightfield-like" but with a lot more advanced features. I use Mudbox primarily for high-res sculpting (this definitely is not) and texture painting, but it can easily be adapted to creating Renegade terrain. Keep it in mind if you want to simplify your map development workflow and achieve better results. Of course, MeshLab's decimation needs manual cleanup, but you can definitely get some good results from combining a sculpting program with it.

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Subject: Re: Mudbox terrain sculpting

Posted by [Generalcamo](#) on Sat, 23 Mar 2013 20:02:08 GMT

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Wow, that is nice! Maybe I should try that. I do have a copy of MudBox on here...

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Subject: Re: Mudbox terrain sculpting

Posted by [zunnie](#) on Sun, 24 Mar 2013 06:52:14 GMT

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That looks like shit lol.

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Subject: Re: Mudbox terrain sculpting

Posted by [Reaver11](#) on Sun, 24 Mar 2013 10:52:58 GMT

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A simple fast mountain road 1300 polygons

What about texturing with it? Or would that mess up renegade's terrain setting?

I'm wondering do you use subdivision levels on the terrain or is it best to stay away from it since it would create way to many polygons for Renegade?

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Subject: Re: Mudbox terrain sculpting  
Posted by [Aircraftkiller](#) on Sun, 24 Mar 2013 16:16:04 GMT  
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"zunnie": Come back and troll a bit harder when you have some talent.

Reaver: You could work at a high level of polygons if you wanted to, so long as you use MeshLab or some other method of decimation to reduce its polygon count. I used a flat plane in Max with a displacement map applied to it. I don't remember what the polygon count of the plane originally was, but I didn't work past subdivision level 1 in Mudbox. That left it around 67k.

The level of detail you'd get from MB would also be dependent upon the size of your map. If you made a small map, you could get a lot of sculpted detail into the terrain without needing to decimate it too much. You'd definitely have to reduce it as the terrain gets larger.

Regarding textures, you could cut up the terrain to match any textures you develop for it, but that wouldn't help you much if you were making a large environment. Once you start getting past 50 meters, you'd need something bigger than 2048x to keep it from being blurry when you get up close. So you're really better off just using the mesh you create with a set of tiling textures versus trying to paint the entire map with a single texture in MB.

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Subject: Re: Mudbox terrain sculpting  
Posted by [Ethenal](#) on Sun, 24 Mar 2013 16:44:14 GMT  
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zunnie wrote on Sun, 24 March 2013 01:52That looks like shit lol.  
LMAO

pot  
kettle  
black

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Subject: Re: Mudbox terrain sculpting  
Posted by [Gen\\_Blacky](#) on Mon, 25 Mar 2013 03:36:28 GMT  
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Can you get a copy of mudbox as student? I tried registering at autodesk but it wouldn't go

through. I was playing around in it the other day and its a really easy program to use.

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Subject: Re: Mudbox terrain sculpting  
Posted by [Aircraftkiller](#) on Mon, 25 Mar 2013 05:02:01 GMT  
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Yes, you can.

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Subject: Re: Mudbox terrain sculpting  
Posted by [Ani](#) on Mon, 25 Mar 2013 05:46:07 GMT  
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zunnie wrote on Sun, 24 March 2013 02:52That looks like shit lol.

Nothing for nothing but have you seen your own [recent] maps? .....

If you added actual buildings and my gosh - trees; to this 30 minute sculpture ACK made, the map would probably end up being quite simple and good.

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Subject: Re: Mudbox terrain sculpting  
Posted by [Ethenal](#) on Mon, 25 Mar 2013 06:56:26 GMT  
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"Don't throw stones if you live in a glass house"

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Subject: Re: Mudbox terrain sculpting  
Posted by [Gen\\_Blacky](#) on Mon, 25 Mar 2013 20:01:38 GMT  
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yea got it to work! Guess you cant copy paste email when registering.

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Subject: Re: Mudbox terrain sculpting  
Posted by [c0vert7](#) on Wed, 27 Mar 2013 21:44:54 GMT  
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I actually think the flow looks pretty good, I think if you really put some time into a map in that program you could come up with some nice stuff. I grow tired of using renx and making manual terrain, I might try this

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Subject: Re: Mudbox terrain sculpting  
Posted by [Jerad2142](#) on Sat, 20 Apr 2013 21:27:38 GMT  
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I was thinking it looked like hightfield, but on closer inspection it is clearly far more advanced (it allows for overhangs on the cliffs and stuff). Does this handle lightmaps well or does it take a fair amount of work to do it?

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Subject: Re: Mudbox terrain sculpting  
Posted by [Mad Ivan](#) on Fri, 26 Apr 2013 01:34:50 GMT  
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I haven't been active around here at all and now that this pops up I think I might have something to contribute

I am currently working on a university project with a sound guy (short story: audio-heavy "game" for blind people proof-of-concept) and keeping in mind that I am a coder and my audio guy doesn't know anything about game art (well, apart from sound) there were some tools that helped me a lot.

Disclaimer: I am not an artist, so please refrain from judging the artistic quality of the following. The project's main focus is audio and will be shown to people, so I've just put stuff together to make it look somewhat descent.

Sculptris is a sculpting tool, developed by Pixologic.

It's much simpler, compared to ZBRush/Mudbox (up to 2k textures, brush textures can't zoom in/out if you don't zoom in/out on the model itself, can't switch from texturing mode back to sculpting, texture paint acts weird on some topologies, is in alpha stage), but does support obj import/export, normal map and bump map import/export (paint normals as well) and has a nice games-friendly polygon reduce brush \*and\* is free (including commercial projects!). Link: <http://pixologic.com/sculptris/>

Structure Synth is a really cool tool for creating 3d structures, using design grammars (technically, you "code" your models).

For an example, the following grammar:  
Toggle Spoiler[code] set maxdepth 300

```
10 * { y -0.5 sat 1 color #ccc } box
```

```
4 * { ry 90 sat 1 } spiral
```

```
rule spiral w 100 md 300 > spiral2 {  
  { color #ccc } box
```

```
{ y 0.5 ry 1 rz 1 rx 1.5 s 0.993 } spiral  
}
```

```
rule spiral2 md 50 > flower {
{ color #ccc } box
{ y 0.5 rx 2.5 s 0.993 } spiral2
}
```

```
rule spiral w 1 {
spiral
{ ry 180 z 0.5 rx 45 rz 0 } spiral
}
```

```
rule flower {
1 * { y 0.75 s 4 } 8 * { ry 45 } petal
ball
}
```

```
rule petal {
{ x 0.55 rz 25 s 1 0.05 0.35 color #f09 } box
}
```

```
rule ball {
{ s 1.75 y 0.5 sat 1 color #f60 } sphere
}[/pre][[/align]
```

Generates one of these models.

If you look at the script, you'll see that each model is made out of many cubes and some spheres. The bottom left one is 7756 cubes = 7756x6 faces = 7756x6x2 triangles, which obviously isn't very game friendly (for a tree).

As Aircraftkiller pointed out, you can use MeshLab to optimize:

Toggle Spoiler

0/ Import your model into MeshLab\* (Structure Synth can export obj and ML can import them)

1/ View->Show Layer Dialog to see the layers

2/ Filters->Point Set->Surface Reconstruction: Poisson. These settings worked quite well for me, but they will vary for different models. For an example: using the default will yield an ugly approximation. The result looks something like this.

3/ You can turn off a layer by clicking on the green eye icon next to its name in the layers window on the right. If you turn off your original model's layer, you should see that it didn't do very well with approximating the new model.

3a/ Right-click on the Poisson Mesh layer and delete it and start over with trying different settings  
OR

3b/ Filters->Cleaning and Repairing->Remove Isolated pieces (with Diameter). It pretty much does what the title says, but the dialog box explains it better. The default settings worked ok with that model (except for the circled bit), but for the purpose of this post it will have to do.

4/ With your Poisson Layer selected Filters->Remeshing, Simplification and Reconstruction->Quadric Edge Collapse Decimation. See Aircraftkiller's post about this.

Don't go nuts with the Target Number of Faces. If you dig around other filters, you can lower the amount of faces to 500 or lower without getting too much ugliness (look up Iso Parametrization +

Watertight mesh + How to make a mesh watertight), but generally 10000 didn't crash ML for that model so I just stuck with it.

5/ In some cases you might get a pretty "fat" mesh from the Poisson filter.

Filters->Sampling->Vertex Attribute Transfer should take care of that. Tick Geometry and normal. Quality has gotten me some weird results from time to time, so it's up to you. Source mesh should be the original mesh layer, and Target Mesh should be you Poisson mesh layer.

With enough experimentation you can lower the polycount enough to have a bunch of those in your game without your PC having a heart attack over crazy polycounts.

\*MeshLab can generate structure synth objects as well. Filters->Create New Mesh Layer->Structure Synth Mesh Creation and just paste your script in the grammar box.  
Link: <http://structuresynth.sourceforge.net/>

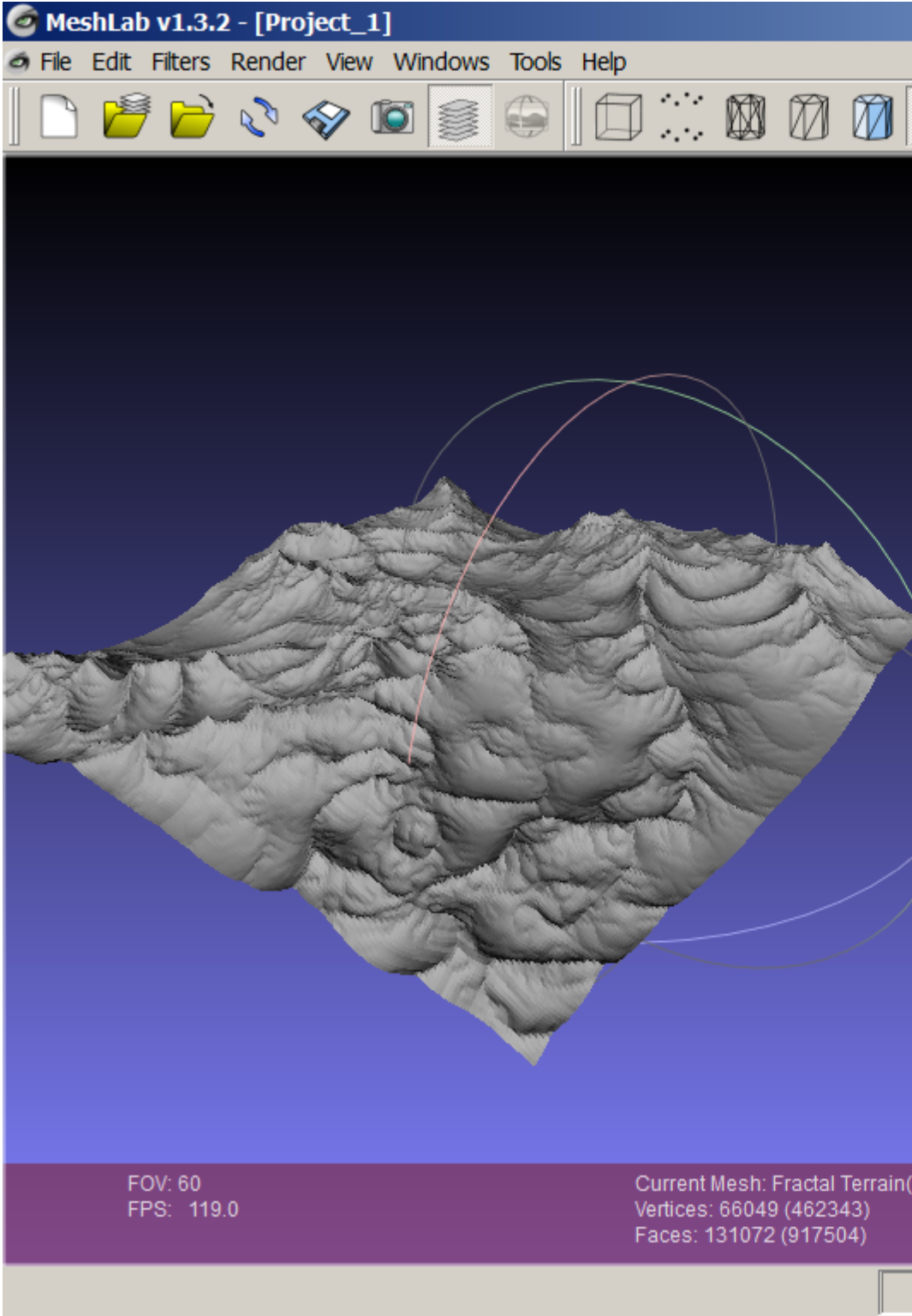
Structure Synth's 2D Version: <http://www.contextfreeart.org/>

And on the topic of terrain, you can try the Filters->Create new Mesh layer->Fractal Terrain filter on for size

## File Attachments

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1) [fbm.png](#), downloaded 515 times



### Fractal Terrain

Generates a fractal terrain perturbation.  
Some good parameter values to start with:

	Seed	Octaves
-		
fBM	1	10
Standard multifractal	1	8
Heterogeneous multifractal	1	8
Hybrid multifractal	1	8
Ridged multifractal	2	8

Detailed algorithms descriptions can be found in:  
Ebert, D.S., Musgrave, F.K., Peachey, D., Reitsma, P., and Worley, K.E. **Texturing and Modeling: A Procedural Approach**. Morgan Kaufmann Publishers Inc., San Francisco, CA, 1995.

Subdivision steps:

Max height:

Scale factor:

Seed:

Algorithm:

Octaves:

Lacunarity:

Fractal increment:

Offset:

Gain:

Save as vertex quality