Subject: ZBrush Order of Operations for Color Printing
Posted by dustinbrown on Sat, 26 Jan 2013 17:06:09 GMT
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I"m using ZBrush, and I'm new to 3D printing but not new to sculpting or modeling. I have a client that wants a character sculpted, posed, and painted for 3D color printing at Shapeways. I have the T-Pose sculpt done, but I'm not sure what the best order of operations going forward would be.

I know I need to do the following:

Use Dynamesh to make my multi-subtool model a single, water-tight mesh, then project the detail back down.
Polypaint the model
Create UVs so I can export a color texture map
Pose the model
Decimate the model
Hollow out the model

I'm just not certain what order I should do these things in and why. I don't want to create more work for myself by going about this in a bad way. Would someone mind breaking it down for me? I would really appreciate it.

Subject: Re: ZBrush Order of Operations for Color Printing
Posted by Fredd on Sun, 27 Jan 2013 14:44:12 GMT
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In any program be sure that UV mapping occurs after all the mesh alterations are completed

Subject: Re: ZBrush Order of Operations for Color Printing
Posted by Brian123 on Fri, 01 Feb 2013 00:31:20 GMT
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I can make one suggestion if it helps, but hard to tell without seeing how detailed the color is.

You may be able to skip UVs and just use polypaint to the very end. I'm not sure how you plan to hollow the model, manually, dynamesh, another program? If you plan to use dynamesh to hollow out the the model, you will lose your UVs, so it needs to be done before you paint. Trying to generate UVs again after UVs may give you trouble with all the extra surface area.

If you stick with Polypaint, then dynamesh hollowing, resolution set high-enough, maintain keep the detail and polypaint. Depending on the size of the print, detail loss should not be noticeable.

Then comes decimation before exporting. Decimation does preserves UVs, but you have to use traditional UVs, not the ZBrush blocks. While ZBrush does a nice automated UV unwrap, it's not always perfect and may suffer issues during decimation. I had the an eye get distorted from it and tight areas. Later I learned decimation also preserves polypaint. You turn on this option under the preferences menu where additional decimation master options are, I usually leave at default of 50. When you decimate the model, it will leave polygon detail in areas needed to preserve the polypaint. Though, again, if you model has a lot of fine detail across the whole surface, like a grain or texture, that could prevent it from lowering the poly-count enough. Has worked great with toon models that have solid colors, gradients and sharp color edges.

Once it's hollowed then decimated, you can export a VRML file with from ZBrush with the vertex colors and Shapeways will recognize the vertex coloring with no UVs.

Why do I prefer this method? You always want to make the most cost efficient model, which is done by hollowing it perfectly to the minimum wall thickness. The problem is, what if you decide to make it bigger, or offer different sizes? Leaving the hollowing process to the very end lets you repeat the dynamesh hollow over and over at different thicknesses. UVs would be lost each time you did the hollowing. That is if you have another program that can do good hollowing and preserve uvs, that would be nice.

Of course this process is never perfect, you may still get errors. Sometimes I found re-dynameshing slightly lower before decimation worked, or opening the exported vrml in a program that fixes errors.