Subject: From a Shapeways printout to a wood sculpture
Posted by Selwy on Wed, 21 Nov 2012 13:17:21 GMT
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Hi Guys,

I would like to share some information about a production process I have developed this year, together with a local wood carving company (www.3dwood.com).
We already use this production pipeline daily now, because it has so many advantagesâ€“ and Shapeways plays a major role! (how could it be otherwise...)
I'm going to explain the steps with the help of two models that are for sale on my website: www.ben-godi.com

1. Digital Sculpting

I use Pixologic ZBrush for sculpting. It allows me to create and sculpt the model entirely on the computer; from concept to final sculpture. I'm able to change things based on client's feedback quickly, with no need of making laborious changes on a clay model for instance.
What I have to keep in mind is, that the outcome will be a physical object and in this special case, an object made out of wood. As you already know for sure, wood consists of fibers that growth in a certain direction. Therefore it's necessary to avoid thin parts that go across that wood grain. They break easily.

2. Preparing the model for 3D Printing

When I'm done with sculpting, I make use of ZBrush's "decimation master" plug-in and reduce the polycount. A super-highres mesh isn't necessary for printing. I use Magics RP from Materialize to combine all shells to a single shell and to fix mesh errors, in case the model has any. Removing shells is necessary for giving your sculpture a wall thickness later on. In Magics RP I also perforate the sculpture, so the dispensable powder can be removed after printing.

3. Prototype and Production 3D printing

For production on the pantograph (see point 4 below) you need to work on a reference model that

is at least twice as big as the final wood figurine.
That's necessary for transferring all the small details to the wood and makes it a lot easier to work with, because you must trace the surface by hand on the profiling machine later on.
But before I order the big printout for production, I go for a small version, ideally the size the final wood sculptures will be, to see how the model looks as a physical object.
Whenever I feel something doesn't look right, I go back to ZBrush and try to fix it (composition, balance...)
Shapeways Sandstone material is fantastic for printing prototype models â€“ it's really affordable and looks great. For production, I go for Strong and Flexible with a wall thickness of 1.5 mm.
These models are pretty big, up to a total height of 50 cm and sometimes more.

4. Production on the Pantograph (3d profiling machine)

I fill the double sized plastic 3D printout with a special resin and mount it on a metal plate.
Everything has to be assembled very strong to prevent it from bending or changing its position during tracing on the machine.
The tracing itself isn't an automated process yet; you still have to do it by hand. And you have to be super careful. Oh boy, in a moment of carelessness you ruin the whole row of figures!
You start with some bigger milling heads for rough machining and switch to the smaller once for detailing. I use maple wood for my work. It doesn't change its color over the years and allows very fine details.

5. Finishing and Refining

The figures that come straight from the pantograph look great but aren't finished yet. It needs a lot of sandpaper work to smooth the surface.
I add details with my set of small carving knifes and boost the once that disappear during milling.
Finally I paint the parts I want to be painted and add a thin layer of wax that prevents the wood from getting dirty.

6. The final product

If you keep an eye on some production restrictions, (wood as a living material, the dimensions the pantograph allows, avoiding spots that are difficult to reach with the milling heads...), the

possibilities are endless!

For more information, please feel free to visit:

www.ben-godi.com
www.selwy.com
www.3dwood.com
www.pixologic.com

Kind regards,
Ben

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by kevinweinewyork on Wed, 21 Nov 2012 13:50:33 GMT
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Hey Ben, awesome post!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by DarioScapittaDesign on Wed, 21 Nov 2012 17:25:02 GMT
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Just amazing!... lovely!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by natalia on Wed, 21 Nov 2012 18:09:13 GMT
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Wow this is so cool.
Fantastic post! Thank you for sharing!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by Piers on Wed, 21 Nov 2012 20:03:19 GMT
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Thanks for posting that great job

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by Fairesure on Thu, 22 Nov 2012 02:20:17 GMT
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Just awesome!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by Selwy on Thu, 22 Nov 2012 07:50:41 GMT
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Hey guys,

Thank you very much! I'm really glad you like it.
I think the whole process can be further optimized and enhanced. We are still at the beginning

Cheers,
Ben

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by Vidalcris on Thu, 22 Nov 2012 09:36:45 GMT
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Omg this is awesome work ! Congrats

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by MitchellJetten on Thu, 22 Nov 2012 10:36:31 GMT
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Please do show more Ben!

Love your work!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by mygadgetlife on Thu, 22 Nov 2012 11:08:36 GMT
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Wow, this is amazing!

Thanks for sharing!

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by macouno on Fri, 23 Nov 2012 08:56:14 GMT
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That's great work!

I wonder... is there a similar sort of technique you could use to also scale your work up? I've been thinking of having some of my stuff done in "life size bronze" for instance.

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by Selwy on Sat, 24 Nov 2012 13:04:11 GMT
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Guys,

Once again, thank you very much for your comments. That really means a lot to me!
A big THANK YOU goes to Mitchell for his great support during the last 12 months!

@macouno: Yes, there is a way to scale up a model and make a life-size statue out of it. You would have to produce the piece with a KUKA robot for instance. You can also use different materials; it doesn't have to be wood. I sculpted a bust of a local politician last year and 3dWood brought it to life with their robot: http://www.selwy.com/2012/cnc-milling-the-human-head/

This one didn't made it to the profiling machine... It's available on my shapeways shop: http://www.shapeways.com/shops/selwy

Have a great weekend!
Cheers,
Ben

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by lensman on Sun, 25 Nov 2012 00:35:00 GMT
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Man, it's your ZBrush modeling that blows me away, quite apart from the rest of this. Do you by any chance haunt the ZBrush Central forums and have any modeling tutorials, etc? If not, you absolutely should. This stuff would go over like crazy there!

Glenn

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by lensman on Sun, 25 Nov 2012 00:35:00 GMT
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Man, it's your ZBrush modeling that blows me away, quite apart from the rest of this. Do you by any chance haunt the ZBrush Central forums and have any modeling tutorials, etc? If not, you absolutely should. This stuff would go over like crazy there!

Glenn

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by denali3ddesign on Sun, 25 Nov 2012 07:13:02 GMT
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Agreed, your modeling is top notch Ben - mind blown!

Thank you for sharing.

Subject: Re: From a Shapeways printout to a wood sculpture
Posted by natalia on Fri, 30 Nov 2012 17:32:13 GMT

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Hi Ben,

I couldn't keep this to myself, so I posted your fantastic tutorial on our blog!

http://www.shapeways.com/blog/archives/1800-3D-Printing-rein vigorating-wood-sculpture.html

Hope you like it!

Best,
Natalia