Subject: Alligator skull
Posted by Camazine on Thu, 08 Nov 2012 14:49:54 GMT
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I am delighted with my latest 3D print of a caiman alligator skull. This is a model of a Yacare caiman alligator skull created from a CT scan of an actual skull measuring 35 cm (14 inches) in length. The skull is 5.6 cm long and 3 cm wide (2.25 inches by 1.2 inches). The Yacare caiman is a species of caiman found in central South America.

I have waited decades to be able to create something like this. Years ago, I was able to cast a few natural objects such as a pine cone or an insect body in silver using the lost wax technique, but this combination of CT scan and 3D printing technology opens up a whole new world of creating replicas of nature's beautiful and intricate creations.

Thank you Shapeways!

File Attachments

1) 674x501_734217_636438_1352227385.jpg, downloaded 619 times
2) Caiman skull and model.jpg, downloaded 632 times

Subject: Re: Alligator skull
Posted by Youknowwho4eva on Thu, 08 Nov 2012 15:38:10 GMT
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Wow, I love it! Add a loop to make it a pendant and I'd want to buy it. Maybe even put it on my Christmas wish list.

Subject: Re: Alligator skull
Posted by Camazine on Thu, 08 Nov 2012 16:52:00 GMT
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Thanks for the compliment! But the beauty is in the natural object itself. Just look at all the incredible sculptural detail on the actual skull. Unfortunately a lot of that detail is lost in the 3D print. (I may have smoothed the CT scan data. I will have to look it over again and perhaps upload another version.)

As for your suggestion of adding a loop, check out the attached pictures! The natural openings in the skull provide a perfect way to string a lanyard for making a necklace. I just threaded the string through the openings in the skull and tied a simple adjustable knot. I did not want to add a loop to mar the beauty of the skull. (But if you really wanted a version with a loop I could do it!)

File Attachments

1) pendant threaded.jpg, downloaded 611 times
2) skull and pendant.jpg, downloaded 600 times
3) pendant threaded2.jpg, downloaded 609 times

Subject: Re: Alligator skull
Posted by Youknowwho4eva on Thu, 08 Nov 2012 18:12:19 GMT
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I actually like the look of it in the eye sockets like that. Share with us the link to buy it, if it's for sale. Unfortunately I'm unable to buy it right now, but for others that are interested.

Subject: Re: Alligator skull
Posted by natalia on Thu, 08 Nov 2012 18:25:51 GMT
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WOW!

I love hearing things like this - that with 3D printing you can do something you were never able to do before.

Congratulations on a fantastic model!

Subject: Re: Alligator skull
Posted by Youknowwho4eva on Thu, 08 Nov 2012 18:47:35 GMT
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Natalia, did I mention that my birthday is the 26th

Subject: Re: Alligator skull
Posted by Camazine on Thu, 08 Nov 2012 19:20:27 GMT
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Yes, the model is for sale. Here is the link:

http://www.shapeways.com/model/734217/76ede8b6564d29bdd80dfc 0fc0882abc?li=

Subject: Re: Alligator skull
Posted by Camazine on Thu, 08 Nov 2012 19:50:02 GMT
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Hi Natalia:
Yes, I think this 3D printing technology is incredible. I am a biologist by profession, and have been fascinated by Nature's incredible patterns and designs ever since I was a kid. Over the years, I have been able to "capture" some of this beauty in bronze lost wax castings, of things such as the fetal pig and white-breasted nuthatch. But my opportunities for bronze castings are very limited, unless I decide to spend $100s of dollars on a project. CT scanning and 3D printing is one way of creating sculptures of natural objects. I suspect that in the not-to-distant future, 3D scanning will be an affordable way for me to build up a collection of 3D prints in steel or silver. For me, there is something very satisfying about having a bronzed sculpture of a beautiful natural object.

File Attachments
1) nuthatch and piglet.jpg, downloaded 573 times

Subject: Re: Alligator skull
Posted by Youknowwho4eva on Thu, 08 Nov 2012 19:56:23 GMT
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Instead of 3D scanning or CT scanning, have you looked into 123D catch? It's a free software that uses images to create a 3D model. They also have an iOS app, unfortunately no Droid app yet. For higher detail you could also use our silver. Yes more expensive, but higher detail. If you'd like other cast metals, be sure to let us know!

Subject: Follow up - 123D Catch
Posted by Camazine on Fri, 09 Nov 2012 16:54:49 GMT
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Hello Youknowwho4eva:

Just wanted to thank you for pointing out 123D Catch as an alternative to other ways of obtaining a printable model from natural objects. I used the online version of 123D Catch to create a model from a monkey skull that I have scanned using CT. It worked out fairly well, although plenty of detail was lost. Attached are some photos to let you compare the various technologies. There is a photo of the actual skull, a rendering of the CT scan, a cleaned version of the CT scan that took many, many hours to fix, and finally two renderings of the 123D Catch obj file.

File Attachments
1) monkey54.jpg, downloaded 506 times
2) monkeyBeforeAfter.jpg, downloaded 508 times
3) monkey 123D catch.jpg, downloaded 484 times

Subject: Re: Follow up - 123D Catch
Posted by Brick on Sat, 10 Nov 2012 05:48:19 GMT
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looks like you talk about posting 4 images, but there are only 3 attachments, only 2 of which work.

I would like to see the CT render

Subject: Re: Alligator skull
Posted by Dotsan on Sat, 10 Nov 2012 06:43:11 GMT
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Great work, thanks for sharing.
V

Subject: Re: Follow up - 123D Catch
Posted by Camazine on Sat, 10 Nov 2012 12:54:46 GMT
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Hello Brick:

There are only the three attachments in my previous message because I combined the different views into single images. The first (whitish) image is the actual monkey skull. The second image (red) shows the rendering of the CT scan data next to the repaired CT scan. The third image (yellowish) shows a rendering of the 123D Catch model that I made from 67 overlapping photos of the actual skull.

Sorry for the confusion. Hope that helps.

Scott

Subject: Re: Follow up - 123D Catch
Posted by bvr on Sat, 10 Nov 2012 13:01:09 GMT
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Camazine,
Very nice work! A few questions, how/where are you getting ct scans done and how or what software are you using to convert the scans?
bvr

Subject: Re: Follow up - 123D Catch
Posted by Camazine on Sat, 10 Nov 2012 13:18:51 GMT
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Hello bvr:

I am an emergency room doctor in my other life, so I have friends that will occasionally shoot a CT scan for me. I would be happy to share the CT scan data with anyone who would like to play with it. CT scans are stored in a file format called DICOM. You can open DICOM files with various programs. I use a free software package called OSIRIX. You can get it here:

www.osirix-viewer.com/

Within the program you can export an .OBJ file of the data you are manipulating. I took a CT scan of my entire body, so if I wanted to I could make a silver 3D Shapeways print of my heart,

kidney or skull! Wow, wouldn't that be fun. LOL.

The problem with the CT scan data that I have for the monkey and black bear is that it is not high resolution. A friend has spent many, many hours using z-brush software techniques to clean up the models. If anyone out there listening knows how to do such things, and would like to work on any of these models, I would be happy to collaborate by providing you with the CT scans in return for having you share your results with me and others who are interested. The caiman alligator skull that I printed at Shapeways did not need any repairing since the bones were so dense that the CT file worked fine.

http://www.shapeways.com/model/734217/76ede8b6564d29bdd80dfc

Scott

Subject: Re: Follow up - 123D Catch
Posted by Brick on Sat, 10 Nov 2012 18:34:36 GMT
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the CT picture(s) are still a broken link for me.

Subject: Re: Follow up - 123D Catch
Posted by Camazine on Sat, 10 Nov 2012 22:46:13 GMT
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Hi Brick:

Not sure what is going on with your problem downloading the 3 images. As you can see from the attached screenshot, lots of people have been downloading the pictures. And you can also see them in the message without downloading them. The CT scan render of the monkey is the file called "MonkeyBeforeAfter.jpg" Scroll up to message labelled "Follow up - 123D Catch Fri, 09 November 2012 16:54 UTC" and you should be able to download the 3 jpeg files.

File Attachments
1) Screen Shot 2012-11-10 at 5.38.39 PM.png, downloaded 412 times

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Subject: Re: Follow up - 123D Catch
Posted by Brick on Sun, 11 Nov 2012 01:35:46 GMT
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the middle picture is still a broken link for me, within the message, and when I click.

BTW, even thougth I get a broken link when I click the link, it still counts as a 'download'. I'd like to hear if others can see that image.

Subject: Re: Follow up - 123D Catch
Posted by Camazine on Sun, 11 Nov 2012 01:48:37 GMT
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I'm not sure what the issue is on your computer. I can see all three images, and when I control-click on each one, I am able to save the image to my desktop.

Subject: Re: Follow up - 123D Catch
Posted by Brick on Sun, 11 Nov 2012 06:33:56 GMT
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i give up, lol. I've tried on 2 different computers, logged in and logged out, and both have broken links for the CT picture. Oh well...

Subject: Re: Alligator skull
Posted by Youknowwho4eva on Mon, 12 Nov 2012 13:53:39 GMT
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All images look good to me. You got far better results from Catch than I ever have!

Subject: Re: Alligator skull

Posted by Camazine on Mon, 12 Nov 2012 14:52:17 GMT
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Just wanted to let folks know that someone recently ordered a print of the alligator. I assume it it someone who has been participating in this discussion. Unfortunately Shapeways Service says that the skull could not be printed even in Frosted Ultra Detail because of thin areas on the model. I knew that there were thin areas on the model, and tried to fix them with MeshLab. Apparently I still missed a few areas. The original model that I printed in Stainless steel also had these thin areas but printed fine.

If anyone wants to download the model I have online, they are welcome to do so. I will change the settings to allow downloads. However, I really would appreciate it, if you would also share the model if you work on it, so that others could benefit from your work.

Thanks,

scott

Subject: Re: Alligator skull
Posted by lensman on Fri, 30 Nov 2012 17:52:36 GMT
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I can't view the CT monkey scan either. I suspect my clicking on it also generated a download even tho all I saw was the dreaded red X. The other two images were fine. Viewed in Internet Explorer 8 running under Windows Enterprise.

Scott, I use ZBrush and would be willing to download the free programme you mentioned for viewing and exporting scan files. If you would like to send me a scan I could work on it and be willing to share whatever luck I have. Please send me a PM if you're interested.

Glenn