

Met MakerBot Hackathon Notes

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How do we conceptualize and repackage all of this for bringing it into the classroom? How do we make this accessible for teachers and students? What are the educational implications?

Has to be some acknowledgement of how to take the met hackerthon and bring it into the classroom.

Unique learning opportunities:

*capturing images of the sculptures in the round. Examining an object through multiple perspectives/angles; however, it's easy to get so engaged that you lose awareness of your body in space, which can be hazardous to the objects.

* if 3D print a replica of a sculpture from the collection, can provide students with something to hold and experience with their other senses, not the same as the real object, but can provide a different embodied experience of an object, which can also be used for touch tours. The modern day plaster cast. If students are the ones who take the images, that becomes a 3D printed model they can take it back with them to the classroom.

*haptic devices

*because it's printing, can easily make changes, tweak the original and print another. Potential for series and learning from your mistakes or learning from trial and error about how to make a printable structure.

*a way to make 3D objects personally meaningful in your artistic practice, before used collage to directly appropriate 2D work, now have a method for 3D work, however the learning curve is higher (need to check the models in Thingiverse and test using Tinkercad)

Check Makerbot curriculum page

-doesn't seem to have an art curriculum section, it's for math, science, computer science and technology

Reconstructme, free program that uses the Kinect (infrared scan) to generate a 3D model. They did a demo in Seattle where they scanned 100 kids and turned their heads into Pez dispensers. Seems to be a very simple process, requires a backless rotating chair. The scan requires using another program in order to be able to 3D print it

Presentations of Projects

Johnathan Monaghan, animator, was artist in residence at MakerBot
There are 3D scanners now and ways to make a marble copy

Changing the material and changing the context can be very powerful, but keeping the data the same

Merged the agony(marsya) and the sensual Leda and the swan

Value of the process is to create new relevance to these old pieces. Can often go unnoticed, putting them into the digital realm and getting to manipulate them makes them come alive, lends new interpretive meanings to old pieces
Also experimented taking images of the frames of paintings

Noah

Media artist

Bakamediasystems.com

Looking at the objects that have been selected to endure through time
Originally wanted to scan in all the beautiful face on the Greek and Roman sculptures

Took Bernd and Hilla Becher photographs, grammar of an object

Captured monuments of the bases of sculptures

123D catch is finicky

The word community really matters here. Ability for people to enjoy others

Botfarm? Many people fabricated parts to fit all together

MakerBot Creative Team (Rebecca & Jason)

Gangsta is an iconic Thingiverse derivatives

Both using existing files on Thingiverse to mashup with MET works of art

John

Director of projects at MakerBot

Wanted to collect as much data as possible

Put PostIt notes on the wall to get better tracking, got a high definition scan as a result, with the lion, took both 10 images and compared to 50 and essentially the same model resulted

Got really detailed works

One technique used was when the back was missing, so mashed it with a fabricated bowl, to solve the problem and make a new object

David

Used Photoshop Lightroom

Photographer from MakerBot

Used a dSLR and 123D Catch, the dSLR worked better, because has higher sensitivity (iso) especially in darker settings like the museum, so can capture better depth of field.

Polished metal, granite, the reflection moves as you move around it and messes up the scan.

NOTE: Autodesk suggested using a point and shoot camera because it has less brains, JPEG files on high ISO, cropping as tight as possible, try to avoid overhead lights. To fill in the gaps, need to shoot from high medium and low.

Ipad had mixed results, because has no control of apertures and ISO

If use 123d/Autodesk on a PC you will know what images failed and can tweak them

Has successful captures with as low as 25 images as high as 70

Reflections, hard to focus, low depth of field is what messes up 123D capture

Can shoot details of objects to fill in areas rather than relying on images where the whole piece is in every shot

Getting images from above/in and from all sides is the best, so large objects are more likely to have gaps

To your advantage to mask overhead lights

Program reads the metadata (Autodesk) and the program uses that data to get a better image, so never crop your images, it will mess up the program. Zooming in should work

Jason

Maker and modeler at MakerBot

Acted as an experiment Control, only used an iPhone and 123D catch, never had used the app before, so testing how it should work out for novices

Only 12 shots from an iPhone got a good results

Used Zbrush to fix holes

Bringing technology to introducing new cultural influences, just like what happened in the past with arts form

Annie and Keith

When walk in a museum, not allowed to touch anything

Design, make and play, getting to more closely interact with the art, hold it, look from different angles, being able to walk all around was the most successful, getting to experience it with more detail, got to play with the artwork, manipulate it then learn from others

Meshmixer

Annie

Puppeteer

Getting to reattach missing limbs, investigating into the symbolism, the story behind the original, and the figure/character/god supposed to represent

Make a durga puppet, she actually moves!

There is a lot of lining up to do, trial and error

Used Blender

Used mirror to even out the damaged head

Used a G9 camera to take the images but used 123D catch to generate

Want us to go out and teach this to people, share objects we love with the world by posting it to Thingiverse

Will have a community meeting to think further about what happened here.

Empower people to play with the art, it will inspire the next generation of designers

Tom Burton

Artist, in Chicago

Like scifi nanofax, ability to put a Teddy Bear in a machine in one country and have a duplicate show up across the world

Is this art, or is it technology?

Didn't have much success with shooting images

Tom Krushman

Has been doing 3D modeling for many years but not 3D printing

Houdan Bather added wings, changed the hair

Took a Buddha head and extruded the body to be worm-like

Designed a big hit owl on Thingiverse

Meshmixer another free Autodesk product

Liz

Education outreach at Makerbot, middle school teacher

Potential for bringing 3D printing into the art curriculum

123D catch plus working with it, helps develop a deeper relationship with the pieces

Being inspired

Combining lights, simple robotics/electronics on inside

Making a small version like the insect collection box, the creative potential

Liz just learned 123D catch and Meshmixer last week and has been teaching it ever sense, so it is very easy to learn.

Matt

Physical relationship of the iPad and capturing an object in 3D,

Relates to sketching at museums, directly relating to the artworks in the museum.

Have to move all around the objects, so encounter it from many different angles

Enjoyed capturing objects when you couldn't see the whole piece, 2.5D relief figure, suggests new uses, i.e. book ends, decorating sides of boxes

Shrinking them down, sticking on coins

Giving these tokens to others makes them want to go see the real thing for themselves

Wood sculptures transfers well to printing in plastic

Shoot through the glass, ignoring the warning that it wouldn't work through glass,

and still had success

Can be inspiring for learning how to model in digital 3D

Kacie

Scenic designer, Thingiverse participant

Brainstormed ideas in advance, took a helmet that is in storage and not on display, but Don had done a 3D scan of this piece

Doesn't have modeling background

Used sculptress, looked at images to recreate the detail that was lost

With the replicator can print in process to get a better idea of where you are

Implications of problem solving as a group, learning from everyone and developing a collective repertoire

Has a costumes background

Has a personal replicator for business, but this experience got her to think about it for personal expression

Wants a series of women's fashion pieces from this helmet, derivatives

*implications for art restoration

Todd

Buddha of the future

MakerBot

Baltimorenode.org

Engineer by trade

Never took a 3D scan but rarely takes a scan to completion to print, using meshdataing to use the original and print that

Also used Meshmixer to get rid of the errors in the scan and to close the holes

Used Netfab to slice off back and make it square, wanted a hole in the back to put led lights in the back so it can be a real Buddha of the future

Put own face into a Buddha

Meshmixer a powerful and free tool, lets you do quick and easy modeling, very simple.

Idea- I wonder if you could take an image of a stained glass window, print in 3D and fill the reliefs with nail polish or paint to recreate the window?

Miles Lightwood

From LA, staff software engineer at Disney

3D printing lets him get back with his own art, just filling up notebooks with ideas

Artist in residency at MakerBot

Crowd source 3D printed hermit crab shell- Paris Shellton

Wants to implement what we did at the Met in LA museums

Used 3D catch for first time

Used Oceania slit gong, a musical instrument, a gong cleaned up in Meshmixer, wanted to take this monumental object and make it a small whistle, in order to do

so, took a whistle already created, make negative of that whistle and put it in the dong
Will put the whistle negative up on Thingiverse so people can make whistles out of anything (think of the implications for music and art interdisciplinary lessons)

Dan

YouTube look for 3d scan object point cloud augmented reality on android
Better augmented reality
Recognizing nonstandard images
Callcom library
Point cloud?
Go pro?

Ana

Artist, masters in teaching from NYU
Installation based work, rapid prototypes
Art dialogue potentials of 3D printing in variety of materials
Effects objects have when you are surrounded by them all the time
Taking the stories attached to the objects taken at the Met
Used sculptress
*sparking interest in the originals, how that research informs the derivatives
What is the botfarm?
How to apply to education? How to rescue a file and make it printable?

Micah and Colette Robins

Share a studio
Collette- Artist, does large scale graphite paintings
Doesn't use a material unless she feels it fits with her concept of working with faces, heads
Wanted to create own Janice, Cambodian figure, combine them, inspired by Giacometti
Potentials, groups of teenagers with all their gadgets and cellphones taking photos of everything, they see with their phones not their eyes so there is tremendous potential

Micah- primarily a painter but has some computer animation experience from HS
Technology both solves and creates more problems wanted to make similar sculptures as compliments to paintings, uses MakerBots to fabricate them now
Also used catch files that the met staff submitted early, so hadn't seen in person the work he had been working with. Going to print a massive version in multiple parts
Spent time exploring 123D catch, changes the way artists go to museums, you take reference photos, but with this app, you can have the whole object, have a catalogue objects

Jackie & Don, final wrap-up of Hackathon
Met Museum Education

Community, teaching and learning from one another. How a community of people can advance knowledge

Idea of experimentation, even for the advanced and experienced folks

Creativity of looking and getting to know something and then working from it

A way to get up close and "own" these objects

Spending time developing, reconstructing something that can't see in person, but getting ideas for creative practice in the process of spending time enhancing the model

Experiences for artists, designers coming together. What would you keep, and what would you change if this event was bigger?

This time the artists were bringing the tools and know-how of professionals but most people don't have any repertoire to build from.

But now that there are existing, cleaned up files of objects in the Met, exploring those has great potential, the QR card could be on the info card, so people could download the file and have a copy for themselves and new way to experience the art in 3D

Scope of the access, got to scan things that aren't on display that are hidden away in the basement.

Talk to the curators, what goals do they have where this technology could come in handy, especially in terms of experiencing texture

Importance of physically moving around an object.

Importance of not having to encounter a lot of impediments to the experience.

Criteria for good projects:

No set end point, not knowing where you're going but trail blazing ahead

Networking, meeting new people

The seed has been planted, now how do we go forward, how to go forward individually and as a community, how to further share this experience.

All the ancestral artwork, yet bringing it into the contemporary era.