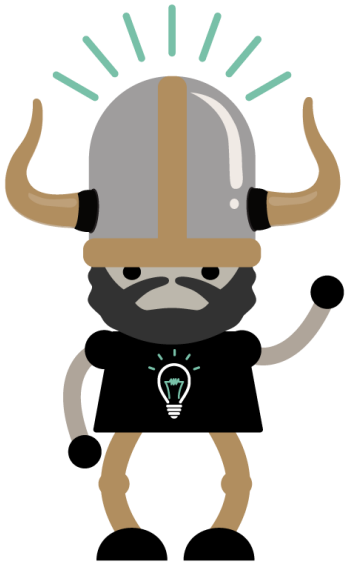
The Many Faces of Joe Vandal (MILL Edition)

Attempting to 3D Scan, Model, and Print a Replica of the 1924 Original Sculpture of Joe Vandal

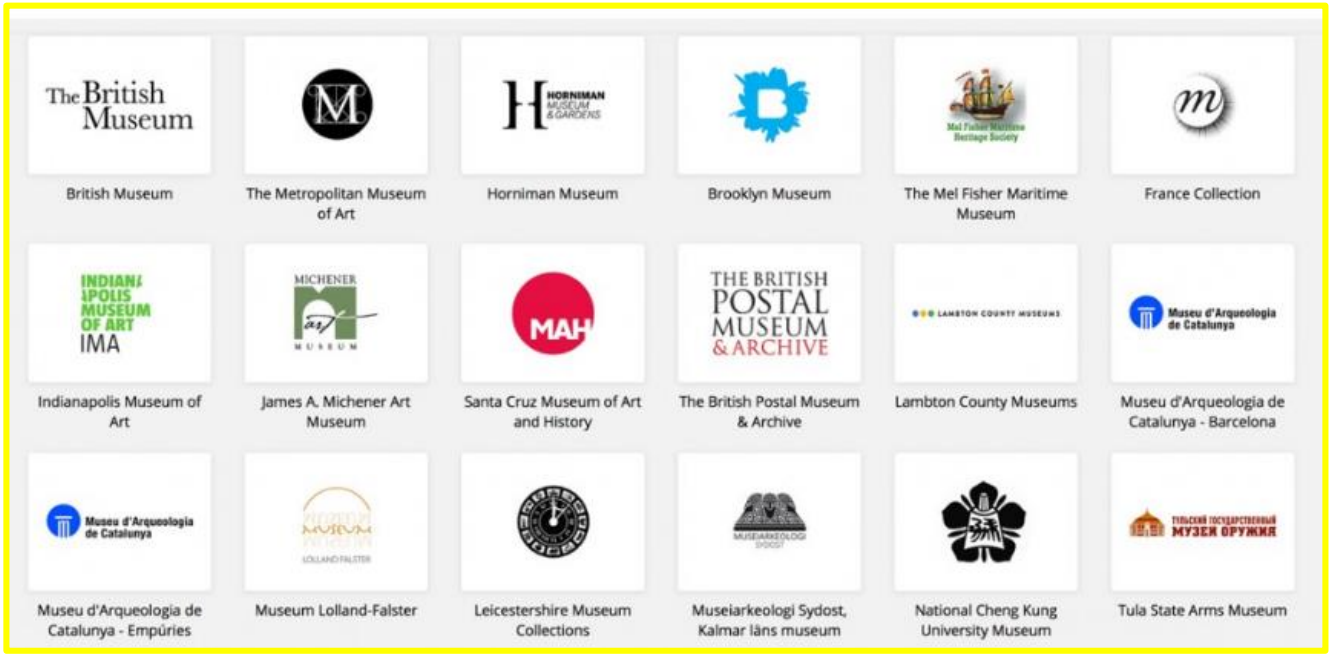


The MILL

- Making, Innovating, Learning Laboratory
- Based on makerspace model = community workshop, tools and help provided
- Inclusive, interdisciplinary space for all members of UI community to create, make, and problem-solve
- Emerging technologies at beginning of college career; students don’t need to wait until they declare majors for access to 3D printing, etc.
- Tools include 3D printing, 3D scanning, circuitry/electronics (Arduino, Raspberry Pi), virtual reality applications, and more

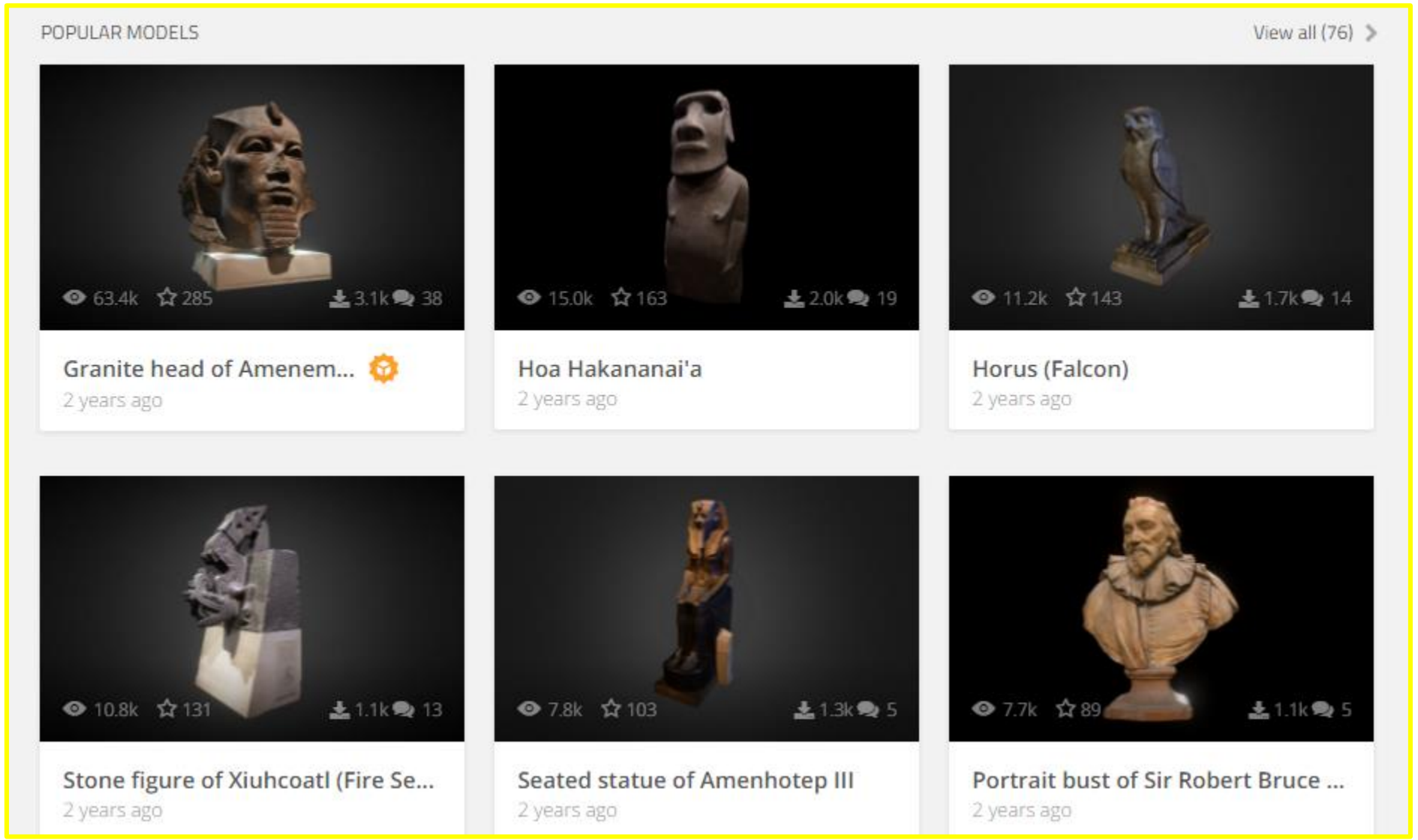
Idea for 3D Model of Joe Vandal

Cultural institutions are exploring 3D scanning of heritage objects as a way to make artefacts more accessible to patrons—could we do the same with our technology, and offer this resource to artists and researchers in our community?



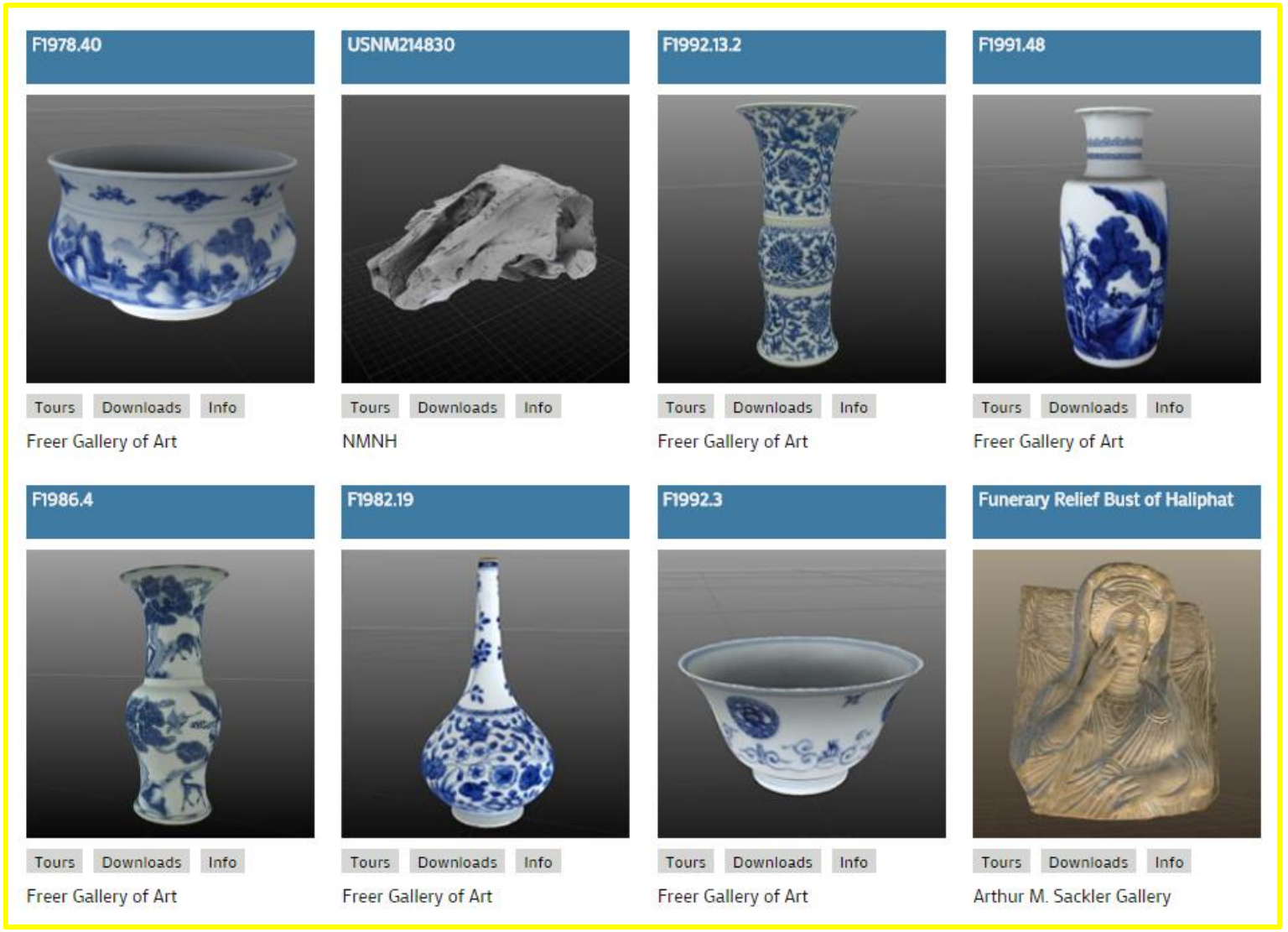
https://3dprintingindustry.com/news/sketchfab-for-museums-boosts-cultural-preservation-with-3d-scanning-60373/

The British Museum



https://sketchfab.com/britishmuseum?utm_source=oembed&utm_medium=embed&utm_campaign=9246efe1279543a784a08be62e6b96a8

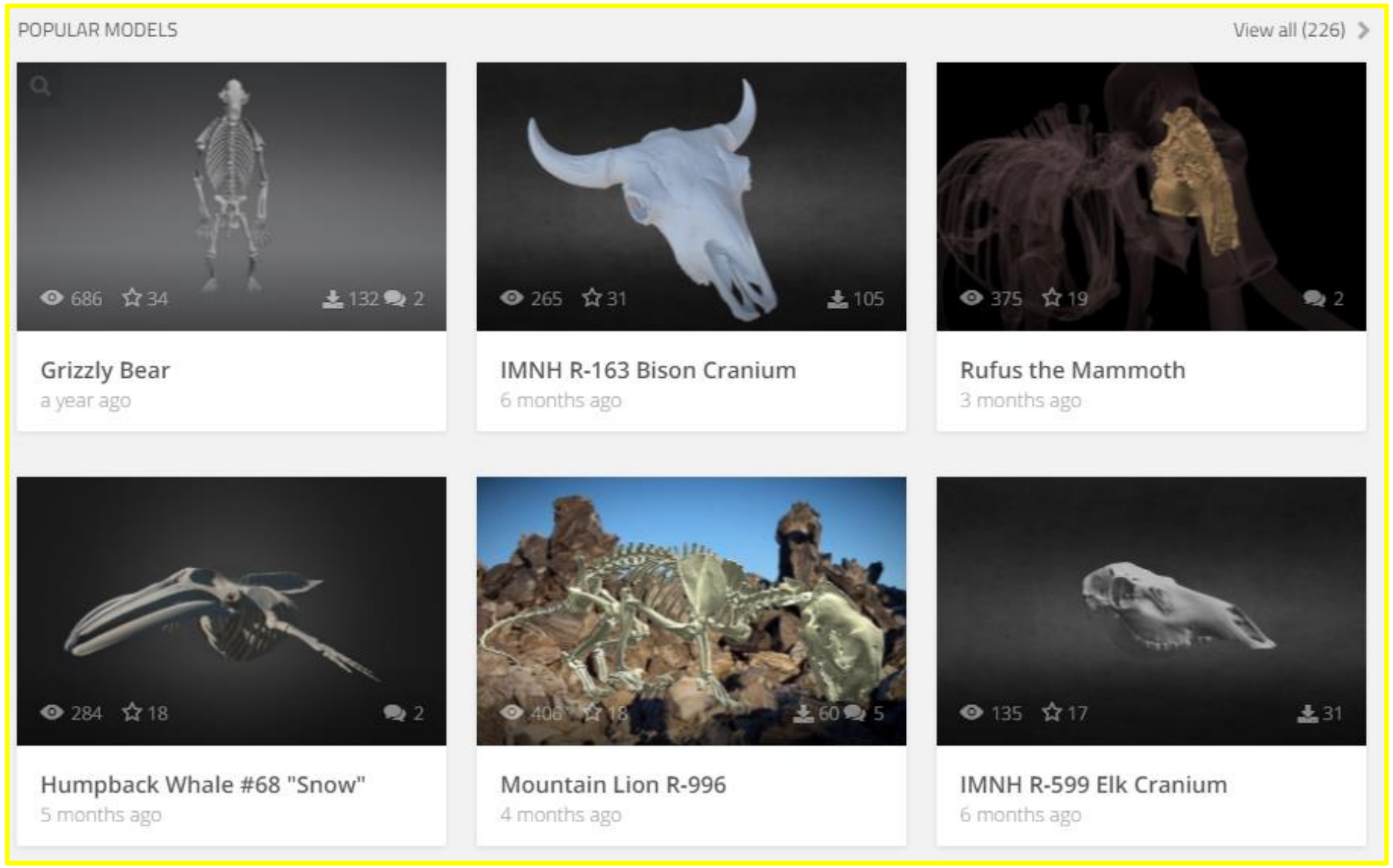
The Smithsonian



https://3d.si.edu/browser

Idaho Virtualization Laboratory

(Idaho Museum of Natural History)



https://sketchfab.com/ivlpaleontology

Also, Homecoming!

Wanted to create a fun tie-in to Homecoming, Vandal Spirit, and recent campus history publication by Erin Passehl-Stoddart and Kathy Aiken

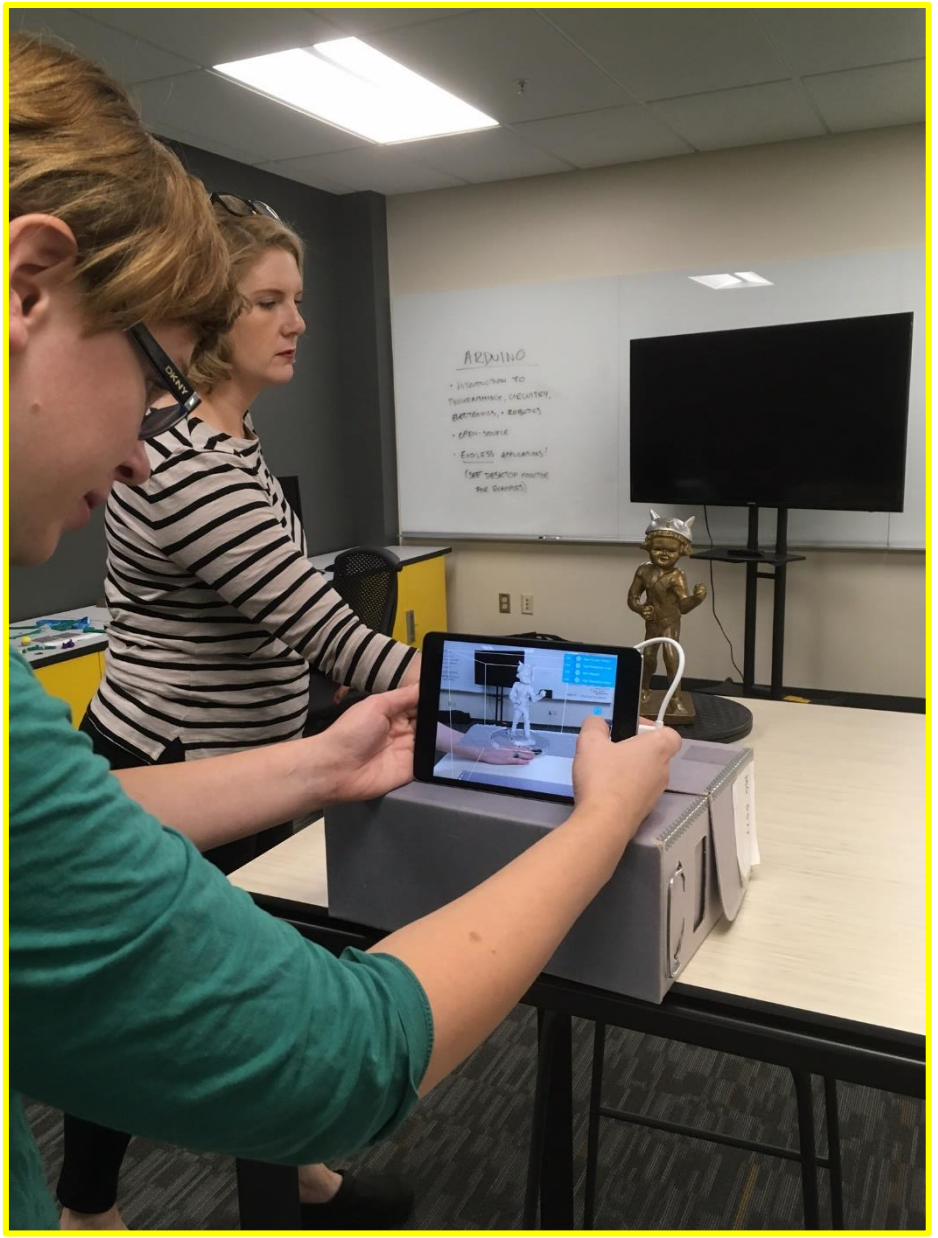
Football Program Cover accessed via University of Idaho Library's Digital Collections: http://digital.lib.uidaho.edu/cdm/search/collection/football/searchterm/SJ.id.9.30.61

3D Scanning Original Joe

- Hardware: Structure Sensor attached to an iPad Mini 4
  - How it works: the scanner “projects a unique infrared pattern of dots out in front of it, and the infrared camera uses that pattern of dots to visualize the shape and distance of objects.” Think of it like throwing a mesh net made of infrared over an object—if you are familiar with an Xbox Kinect, it’s the same principle.

- Software: Structure Sensor “Scanner” default software
  - How it works: once an object is scanned, you have an object file (.obj) which can be uploaded to a rendering program for cleaning and converting to .stl

First attempt: stationary scanner and object placed on a revolving platform



Second attempt: keep object stationary, move the scanner around the object


Back
2:46 PM
Structure Sensor Scanner
X-Ray View
Shaded View
Color View

Let’s 3D Scan!

File Cleanup and Manipulation

- Import object file (.obj) from Structure Sensor into Blender, an open source 3D modeling software

- Time spent ‘cleaning’ file and tweaking to get highest resolution and level of detail…approximately five hours
  - Challenges:
    - Resolution not accurate enough for smaller scale print
    - Scanner too inclusive; file needed cleanup to remove surrounding detail (e.g., table)
    - Overhang areas disjointed; needed modification to link together (e.g., back of head and neck)


Toggle Editmode
(1) Model
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Add
Object
Object Mode
Global
View
Marker
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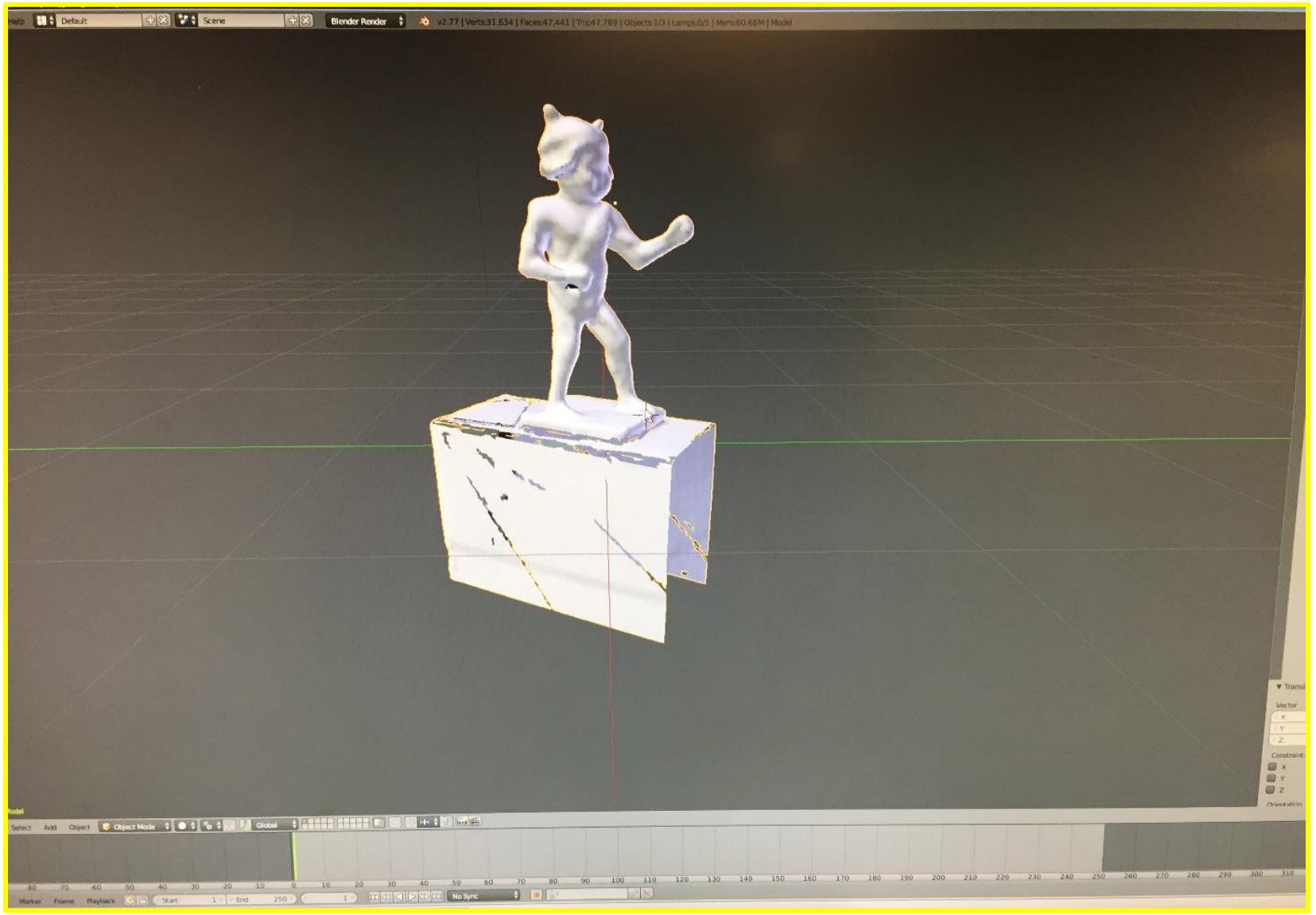
Playback
Start:
End:
No Sync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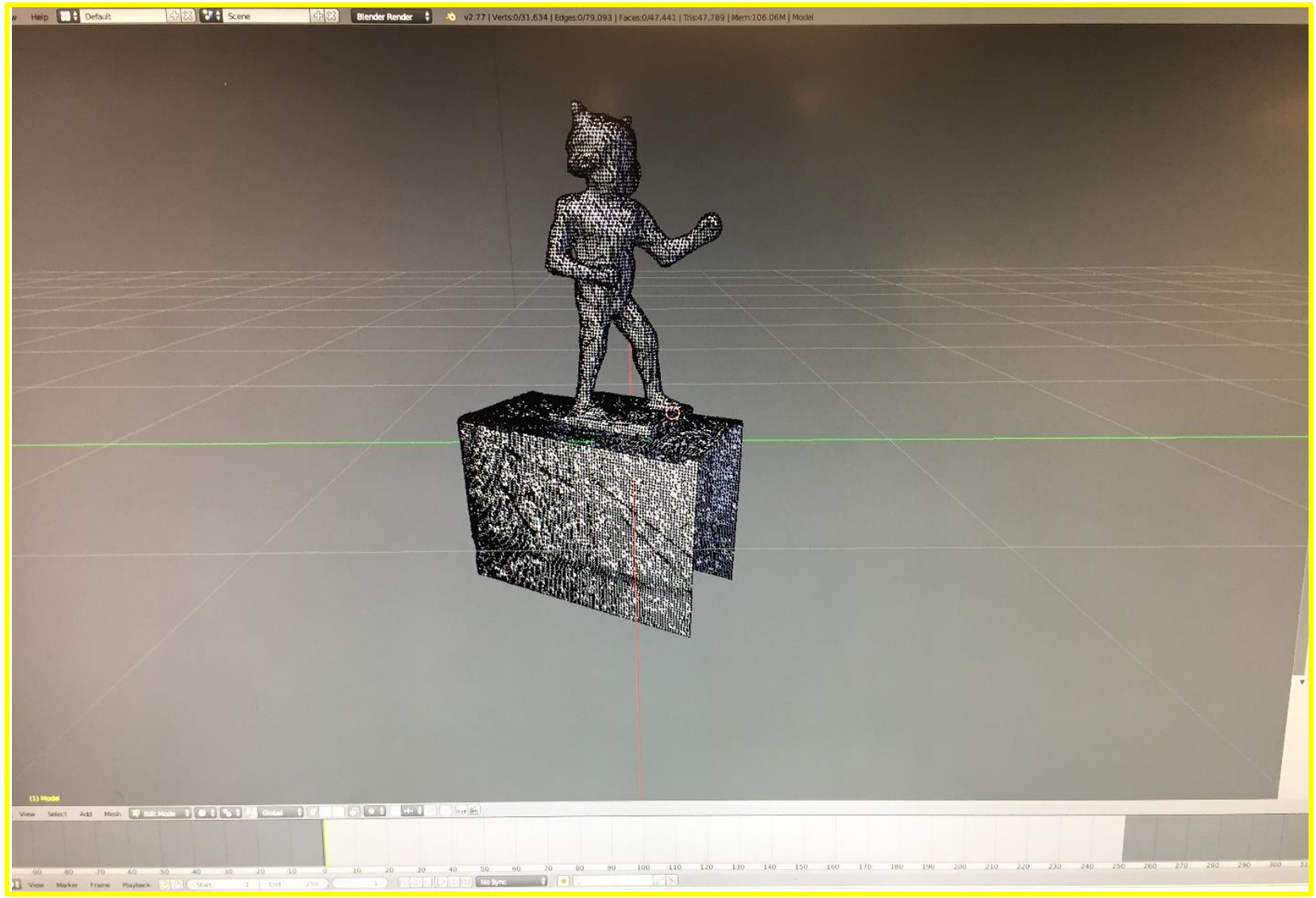
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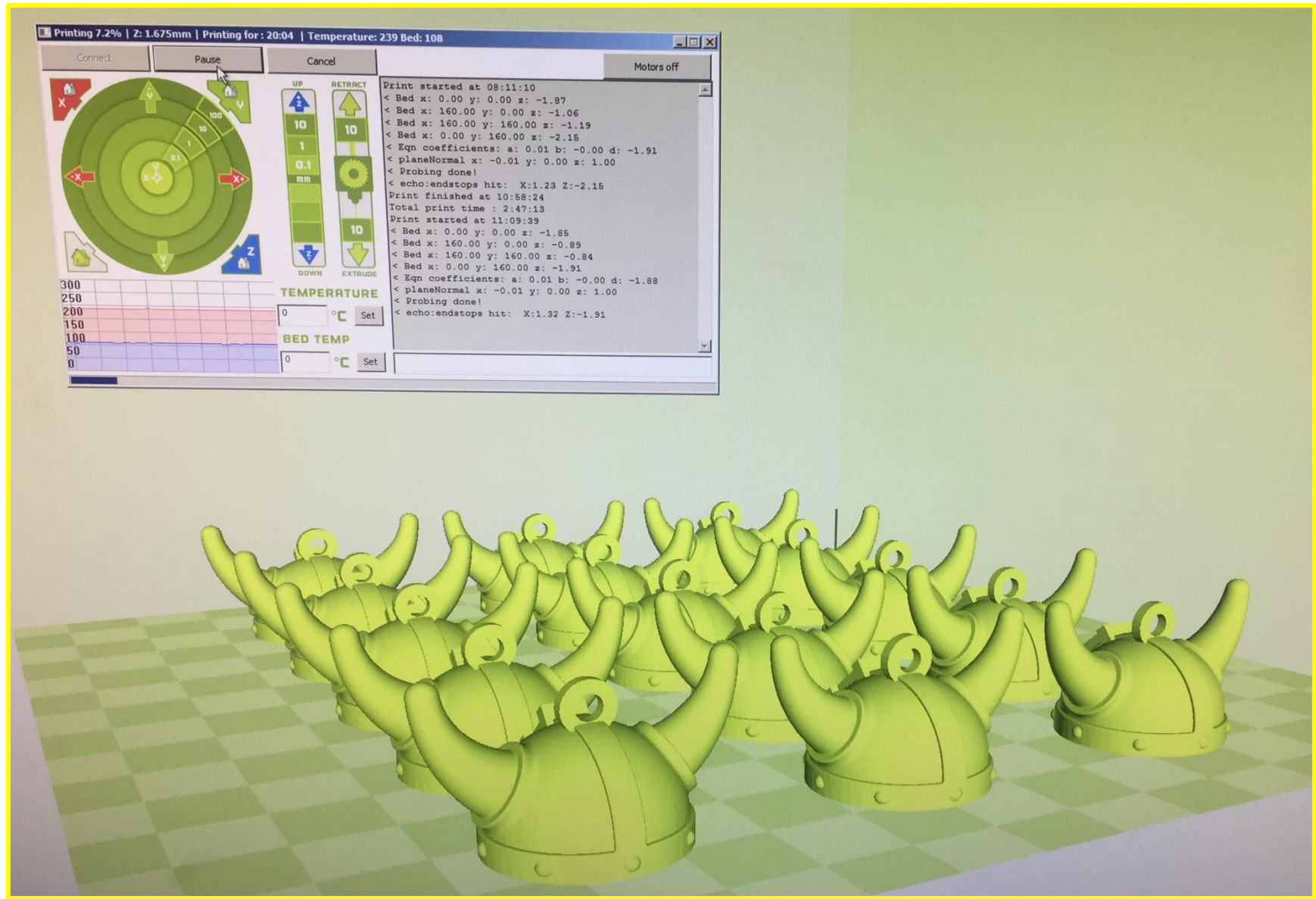
No Sync

3D Printing

- Need to further develop modeling skills before attempting to 3D print Joe
- In the meantime—needed to print something that represented Vandal Pride and school spirit.
- How about one of Joe Vandal's accessories?

3D Printing Modified Viking Helmet

- Searched thingiverse.com for an appealing Viking Helmet model
- Selected file, downloaded to SketchUp
  - Created raised “I” for Idaho
  - Created hoop for keyring
- Ran through online correction tool to clean up model (similar to Microsoft CleanUp)
- Exported to Cura
- Trial and error; experimented with working model size and print temperatures
- Once prototype identified—off to the races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Connect
Pause
Cancel
Motors off
Print started at 08:11:10
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< Bed x: 160.00 y: 0.00 z: -1.06
< Bed x: 160.00 y: 160.00 z: -1.19
< Bed x: 0.00 y: 160.00 z: -2.15
< Eqn coefficients: a: 0.01 b: -0.00 d: -1.91
< planeNormal x: -0.01 y: 0.00 z: 1.00
< Probing done!
< echo:endstops hit: X:1.23 Z:-2.15
Print finished at 10:58:24
Total print time : 2:47:13
Print started at 11:09:39
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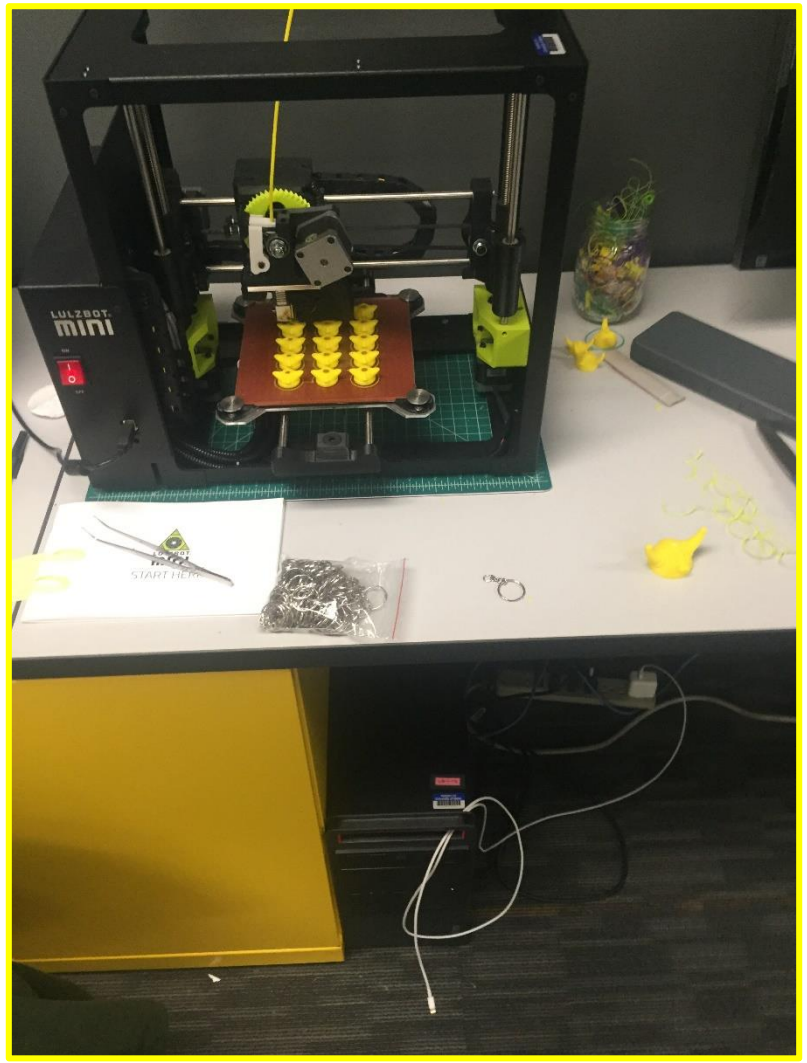
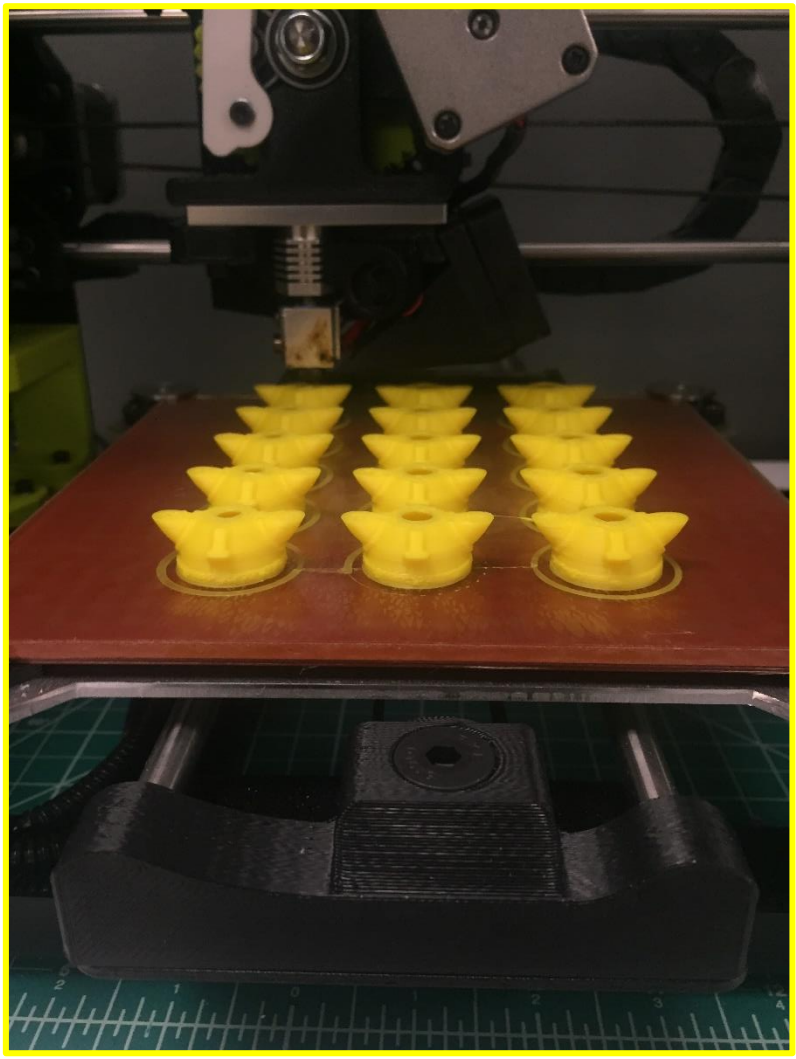
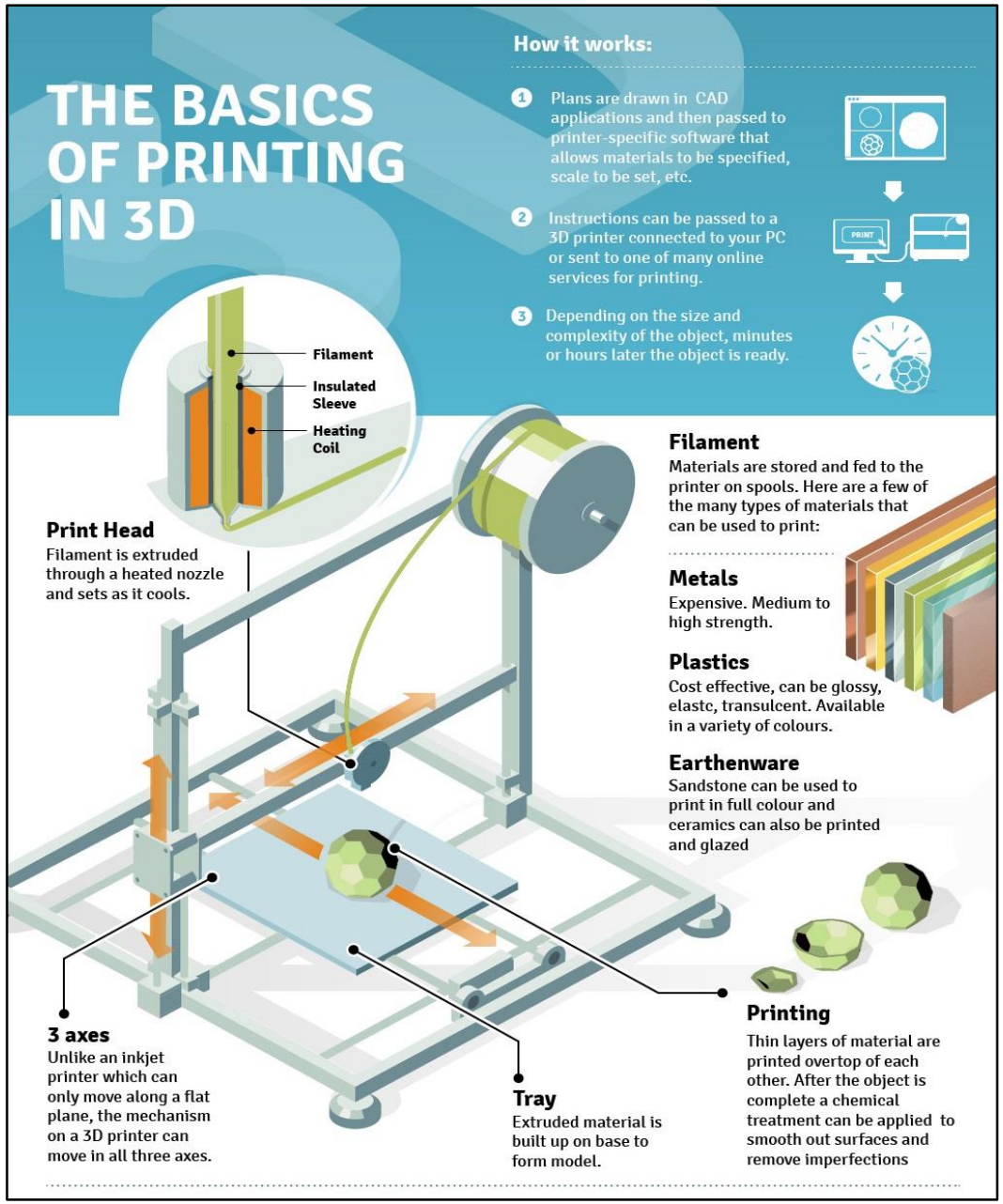

LULZBOT
mini





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Making, Innovating, and Learning Laboratory
University of Idaho Library

Website: http://mill.lib.uidaho.edu/

Fall Hours: 12-5 Monday to Friday

Drop-In 3D Printer Training Fridays at 11 a.m.

Questions?
Email Kristin Henrich (khenrich@uidaho.edu) or
Annie Gaines (againes@uidaho.edu)