Digital_Fabrication_Studio.05
3D Scanning – from atoms to bits

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Today:
* 3D scanning: examples
* 3D scanning: tools and softwares
* 3D scanning: process

01.
3D scanning:
bits from atoms

Radiohead: *House of Cards* video

04:35

No cameras / lights: 3D scanning collected information about the shapes and relative distances of objects. The video was created with visualizations of the data.
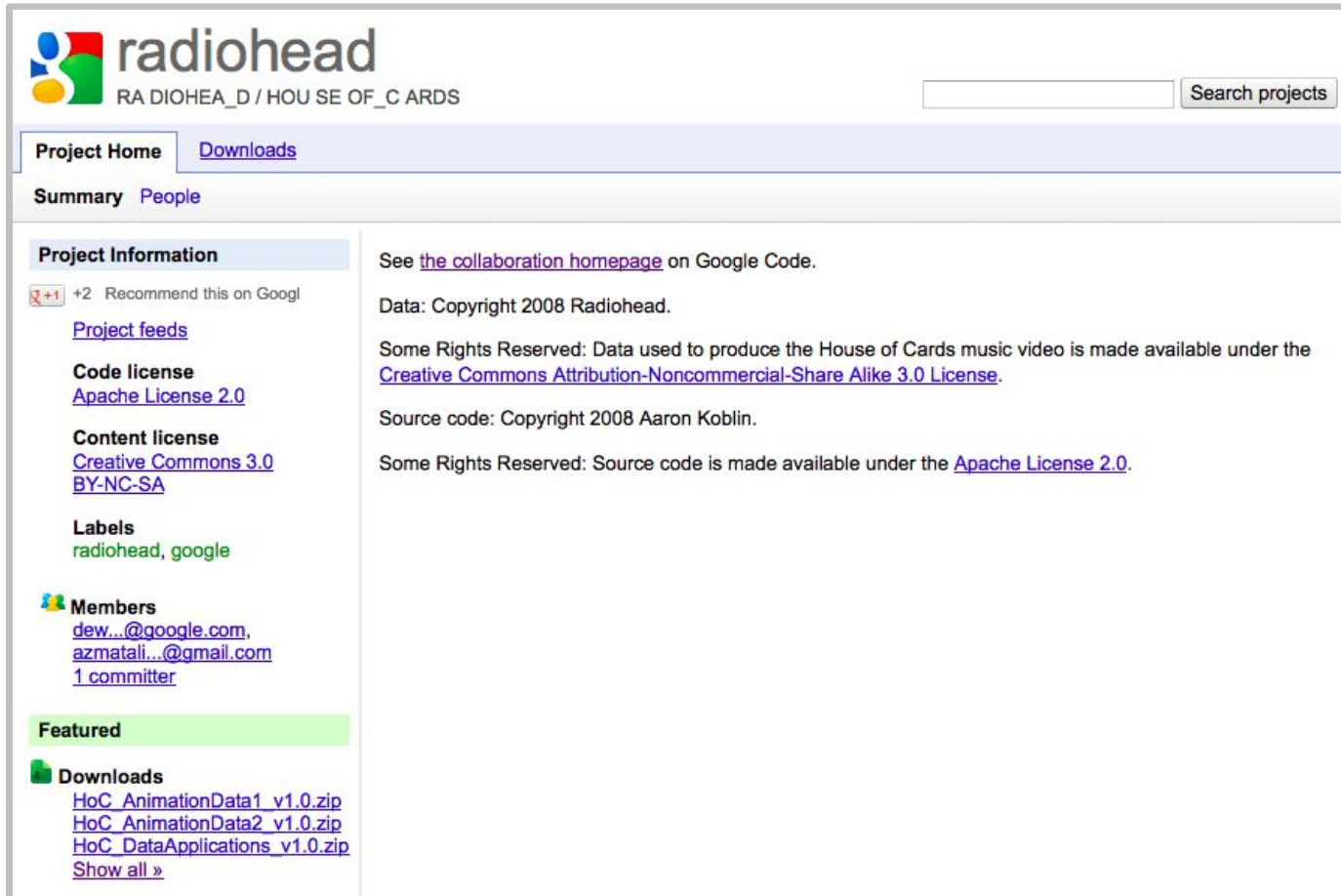
Radiohead: *House of Cards* video

Aaron Koblin

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HO_US E OF/ CARD_S

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Radiohead: *House of Cards* video

An open data / open source project on Google Code: point cloud data and Processing software are available!

Radiohead: *House of Cards* video

Learn about how the video of "House of Cards" was made and the various technologies that were used to capture and render 3D data.

Smithsonian 3D scans its objects

A new effort under way at the world's largest museum could bring more of its 137 million objects will be publicly available.
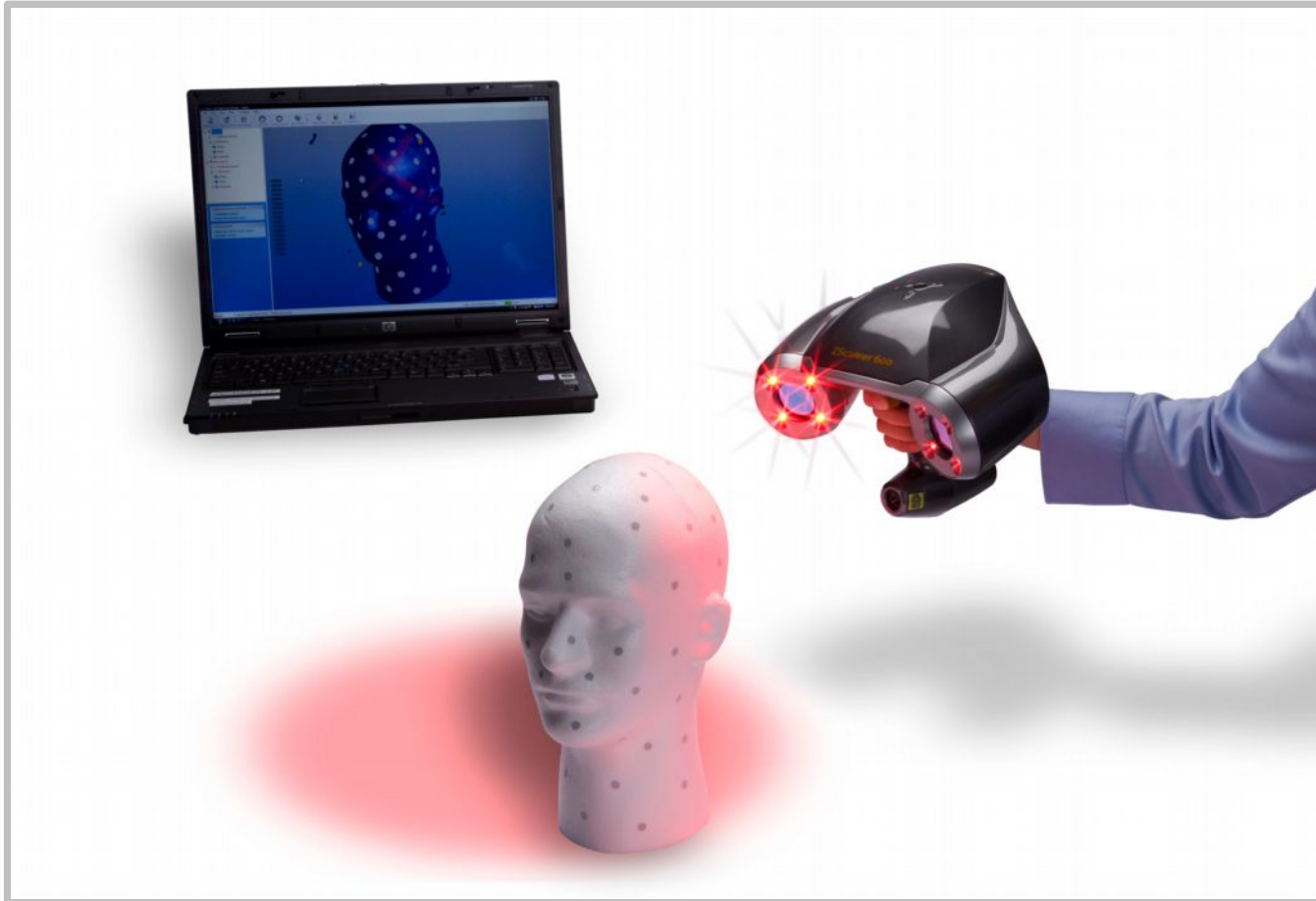
02.
3D scanning:
tools and softwares

Hardware: expensive and not complete

There is still the problem of stitching together the meshes obtained.

Hardware: a very good option

The NextEngine 3D Scanner captures objects
in full color with multi-laser precision.

Hardware: cheap DIY version

DAVID-laserscanner is a low-cost system for scanning of 3d objects.
Requirements are a commercial hand-held laser and a standard camera.

Hardware: Modela MDX-20

You can scan also with the Modela, with a special head.

A 3D scanner app for iPhone
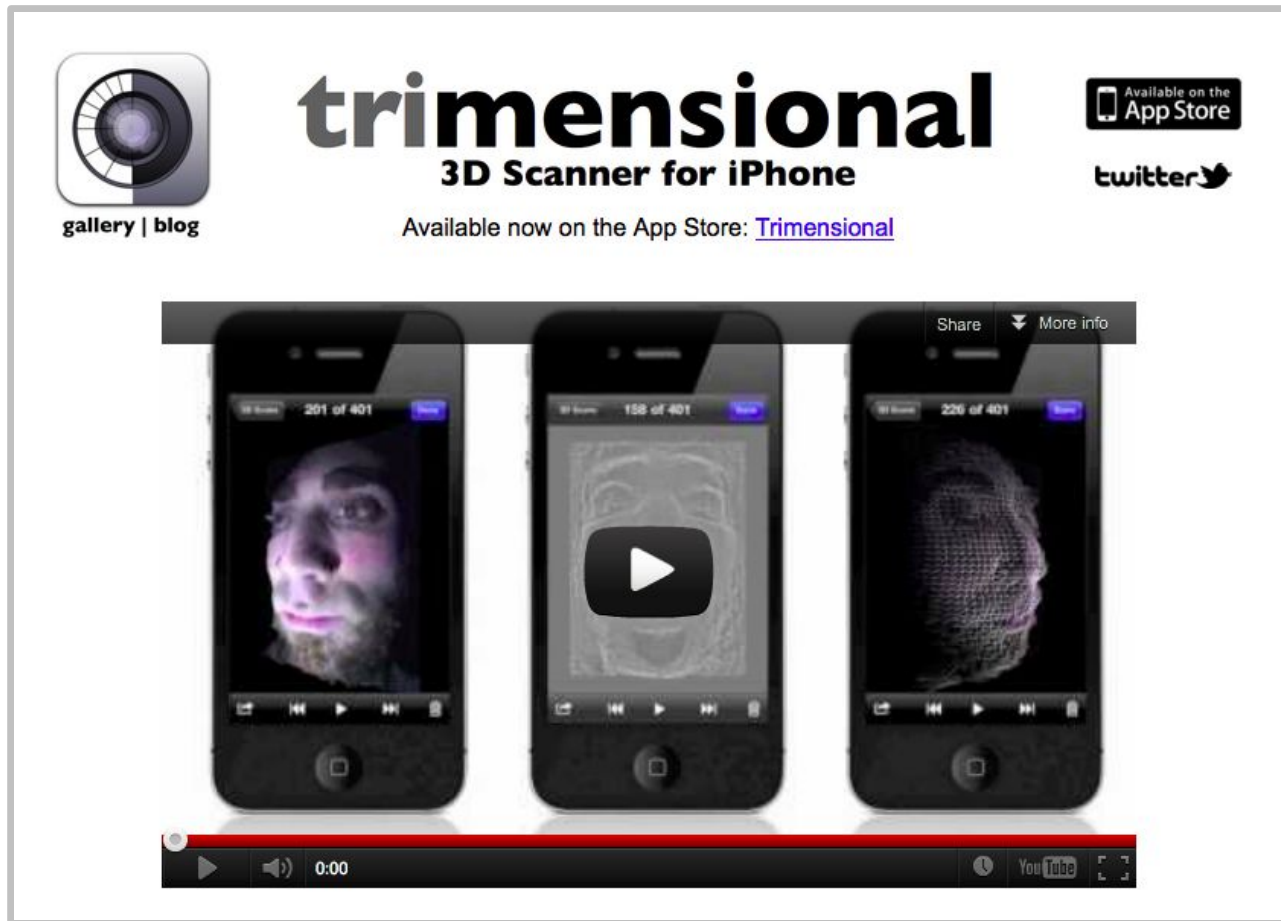
Trimensional uses both the screen and the front-facing camera on an iOS device, detecting patterns of light reflected off your face to build 3D model.

A 3D scanner with Kinect: ReconstructMe

ReconstructMe is a software tool for Windows that uses the Microsoft Kinect (or Asus Xtion PRO LIVE) to capture 3D models in real-time.

3D Scanning and character animation

"We have created a full body scan one of our coworkers while using a bigger volume, and he used this as the basis for a character animation."
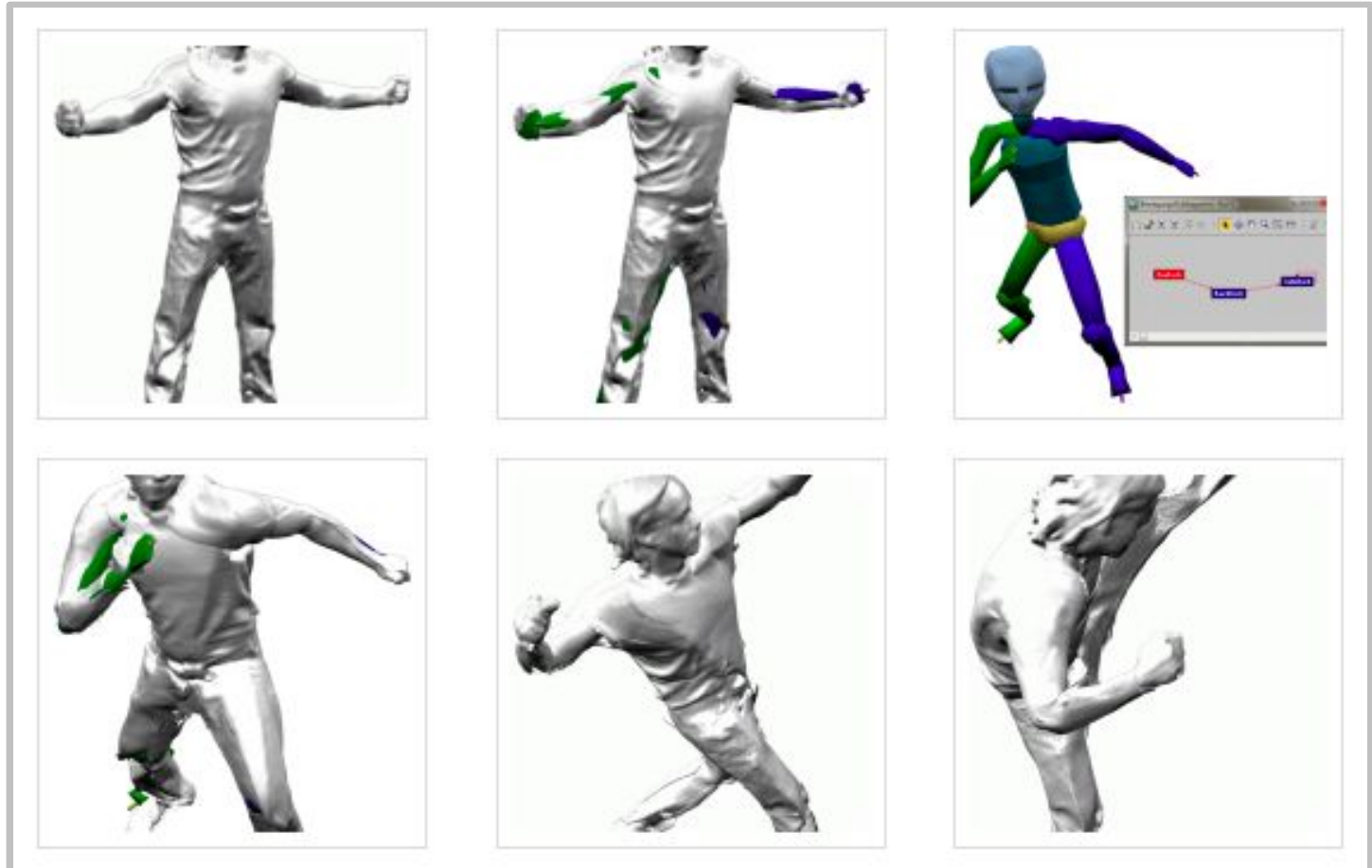
3D Scanning and character animation

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Be your own souvenir

The project from blablabLab uses custom software developed using openKinect and openFrameworks (and Meshlab and Blender).
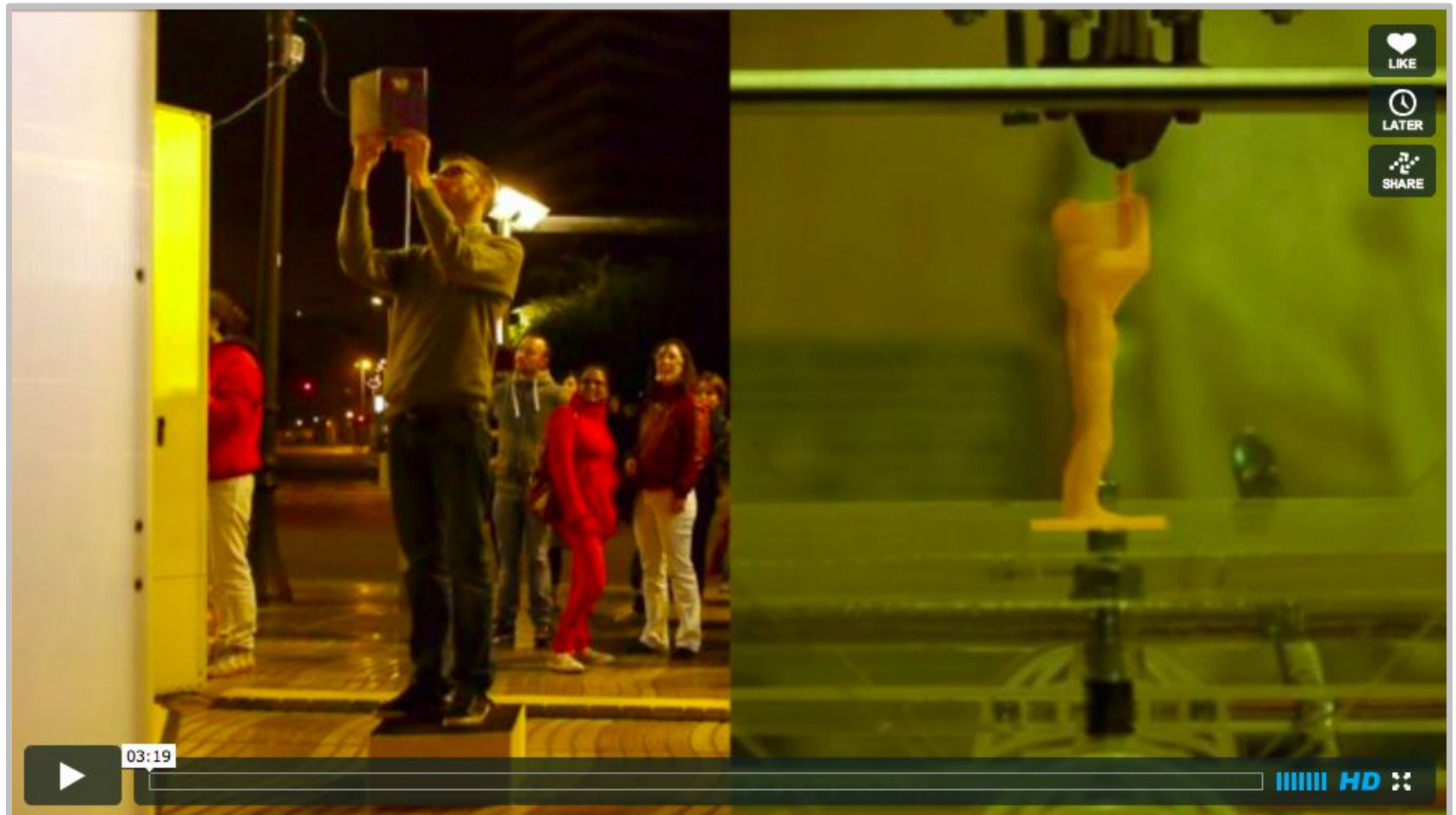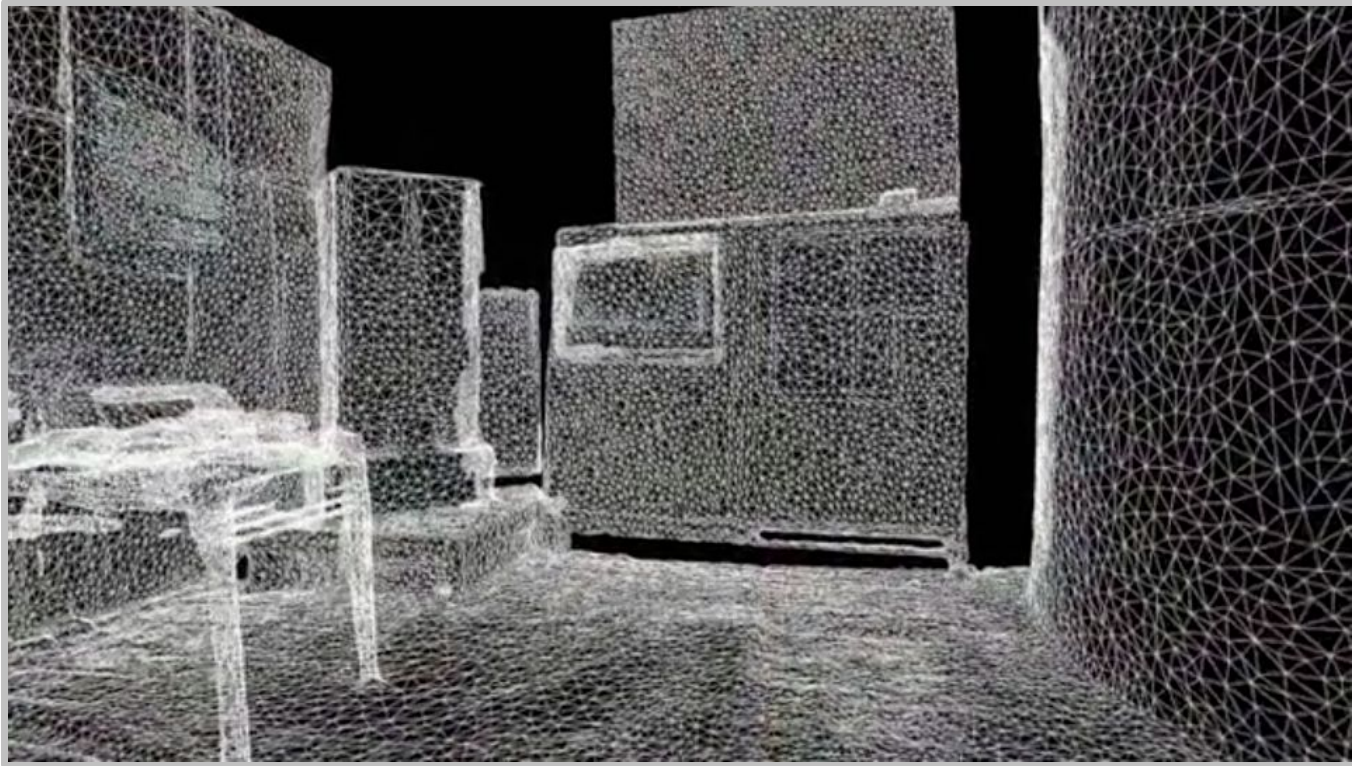
Be your own souvenir

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Scan spaces with Kinect

Matterport is creating a 3D reconstruction system that allows anyone to create 3D models of physical objects and interior spaces.

Scan with light pattern

A technology for measuring objects in 3D, using only a camera and projector: patterned light is projected and read with a camera.
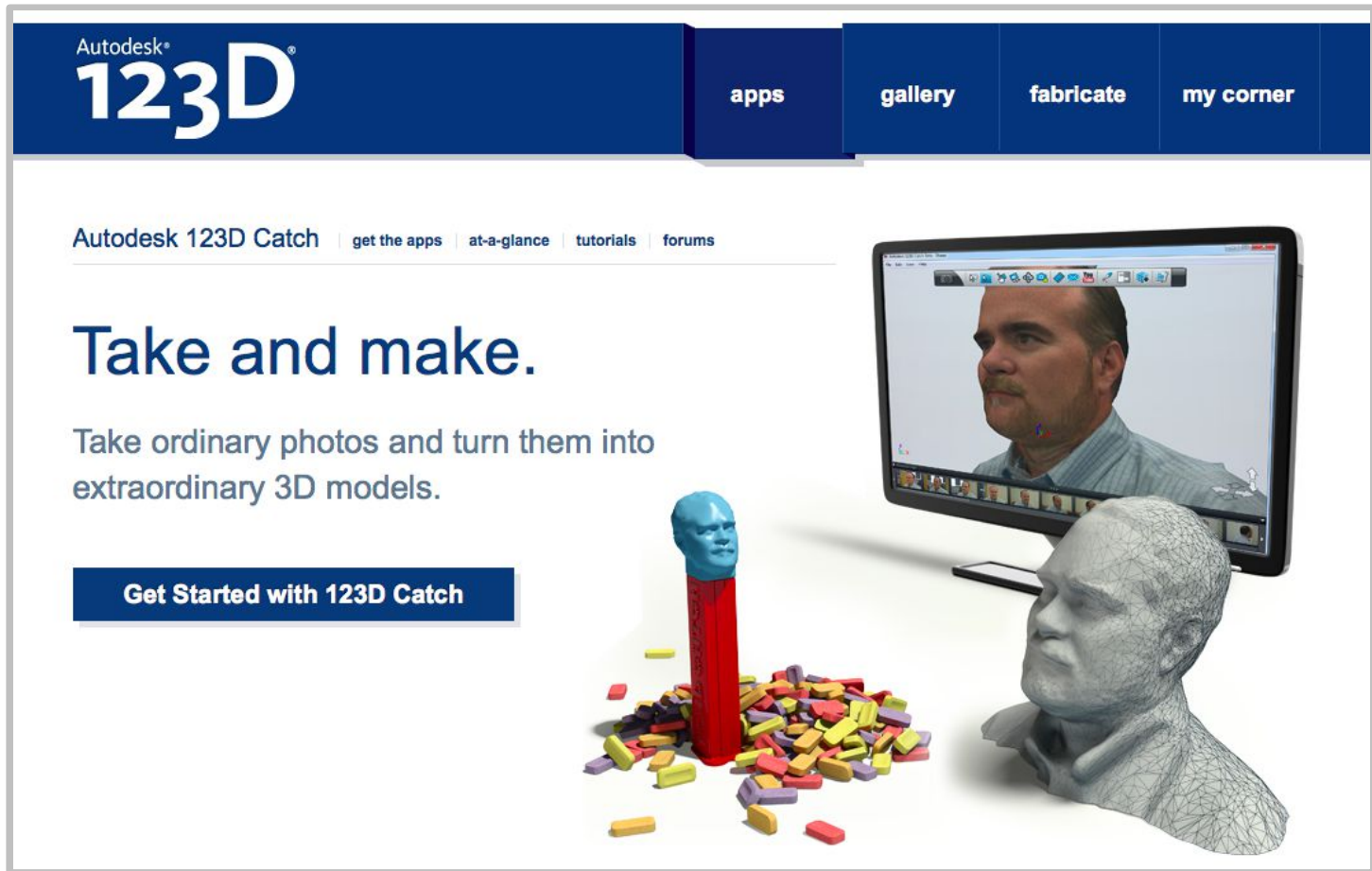
Scan with light pattern

Janne Parviainen: topographic light paintings circumscribe surfaces and people, creating captivating 3-D models in the process.
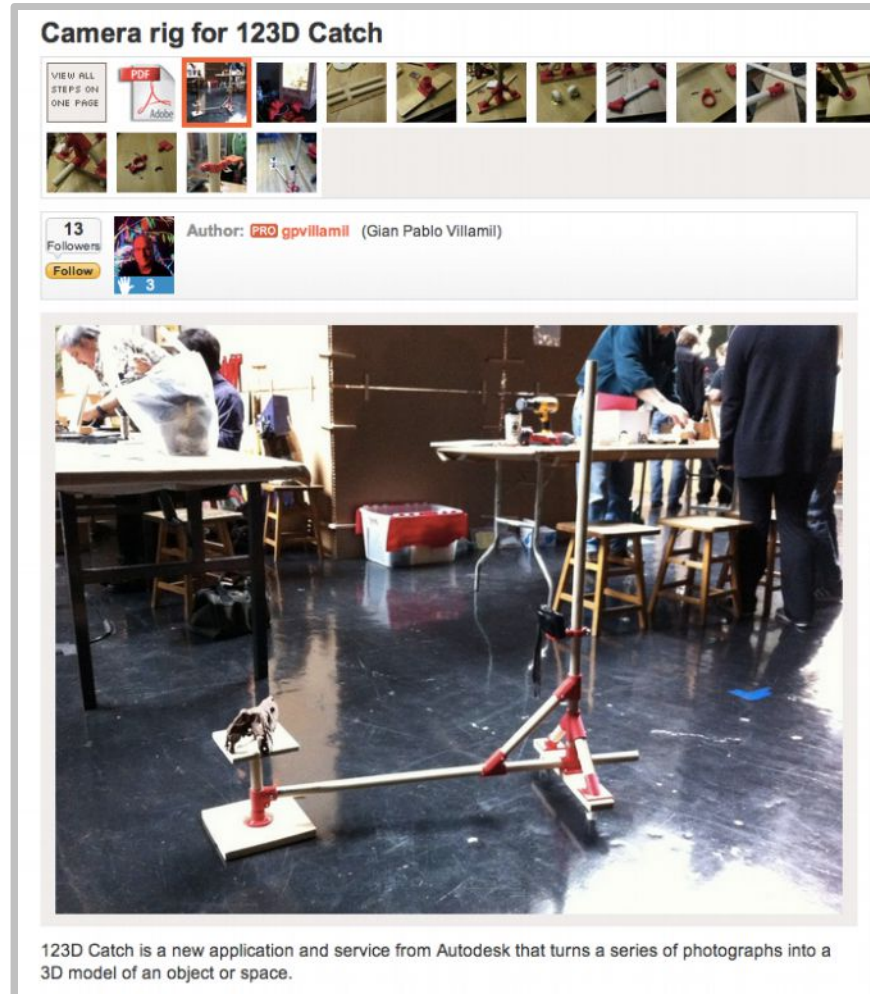
The easiest way: 123D Catch

The easiest and cheapest way, just take many pictures
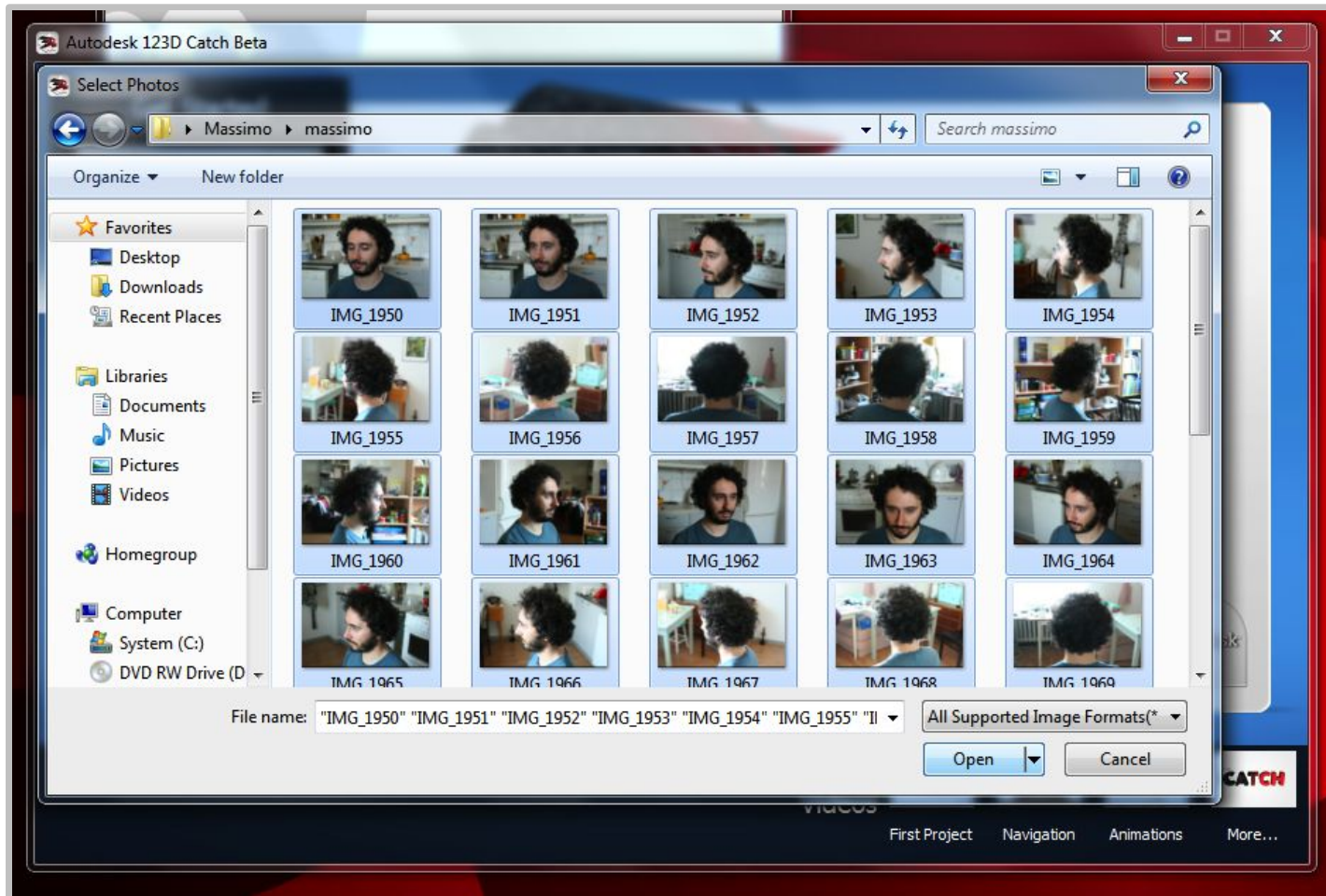(but no reflective and transparent materials).

The easiest way: 123D Catch

The rig helps you structure the photos for best results. It lets you spin the camera around the object at a constant height and distance.
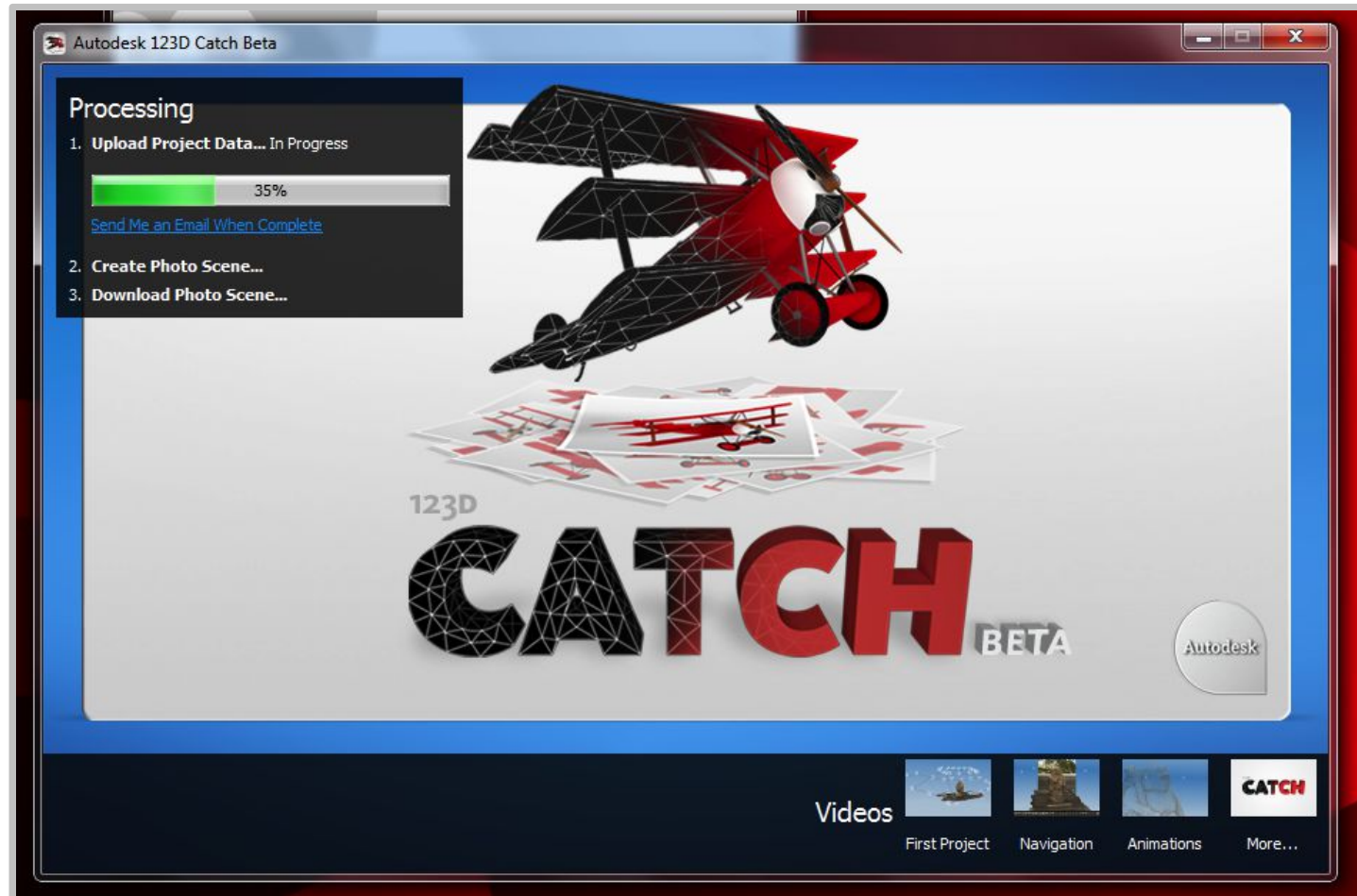
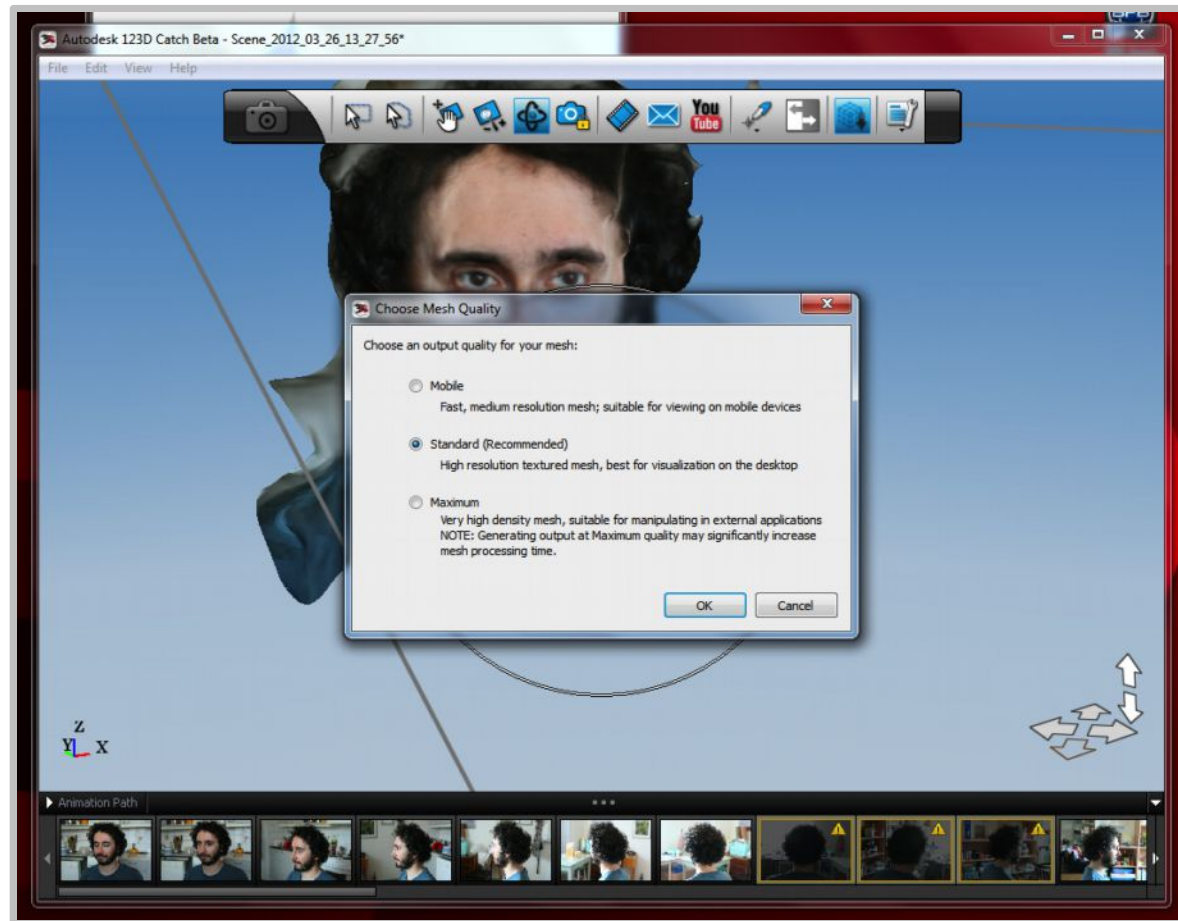# 123D Catch: workflow

Read the whole workflow here (exercise 10):

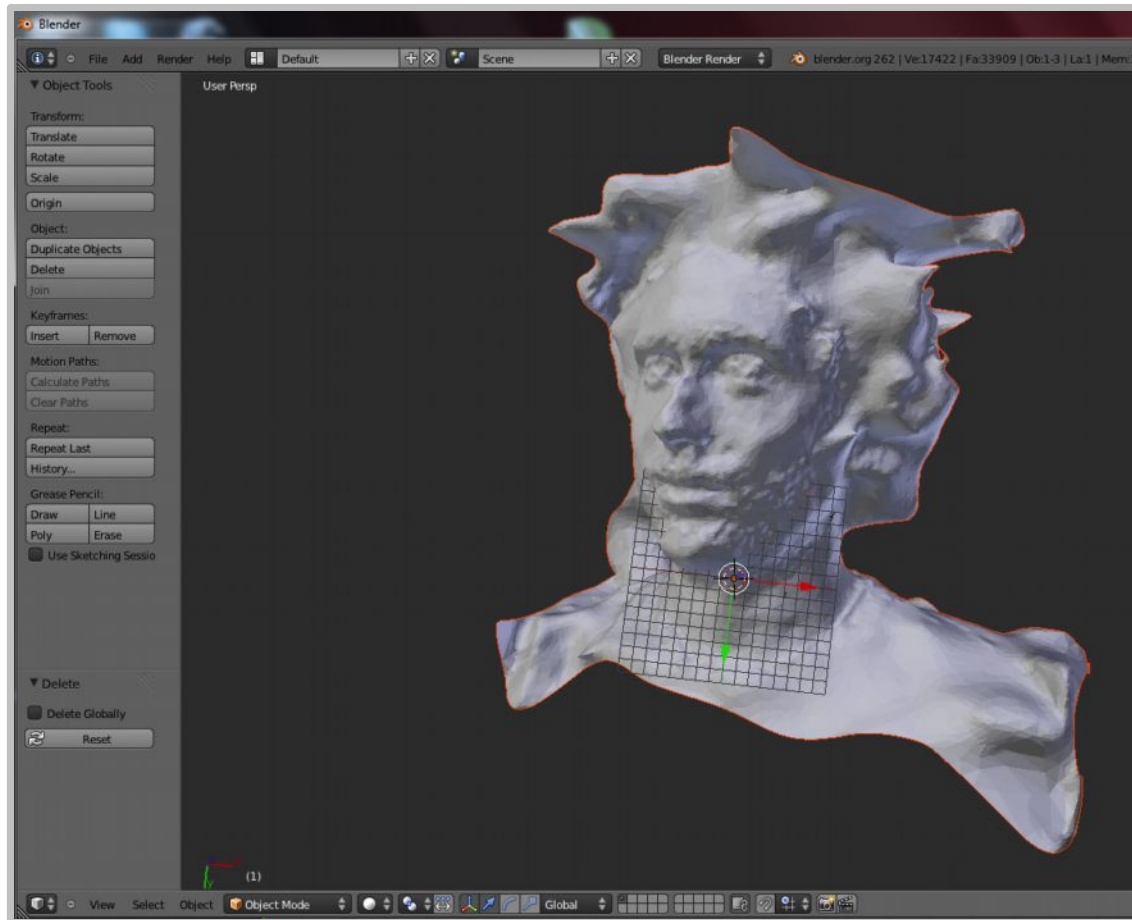# 123D Catch: workflow

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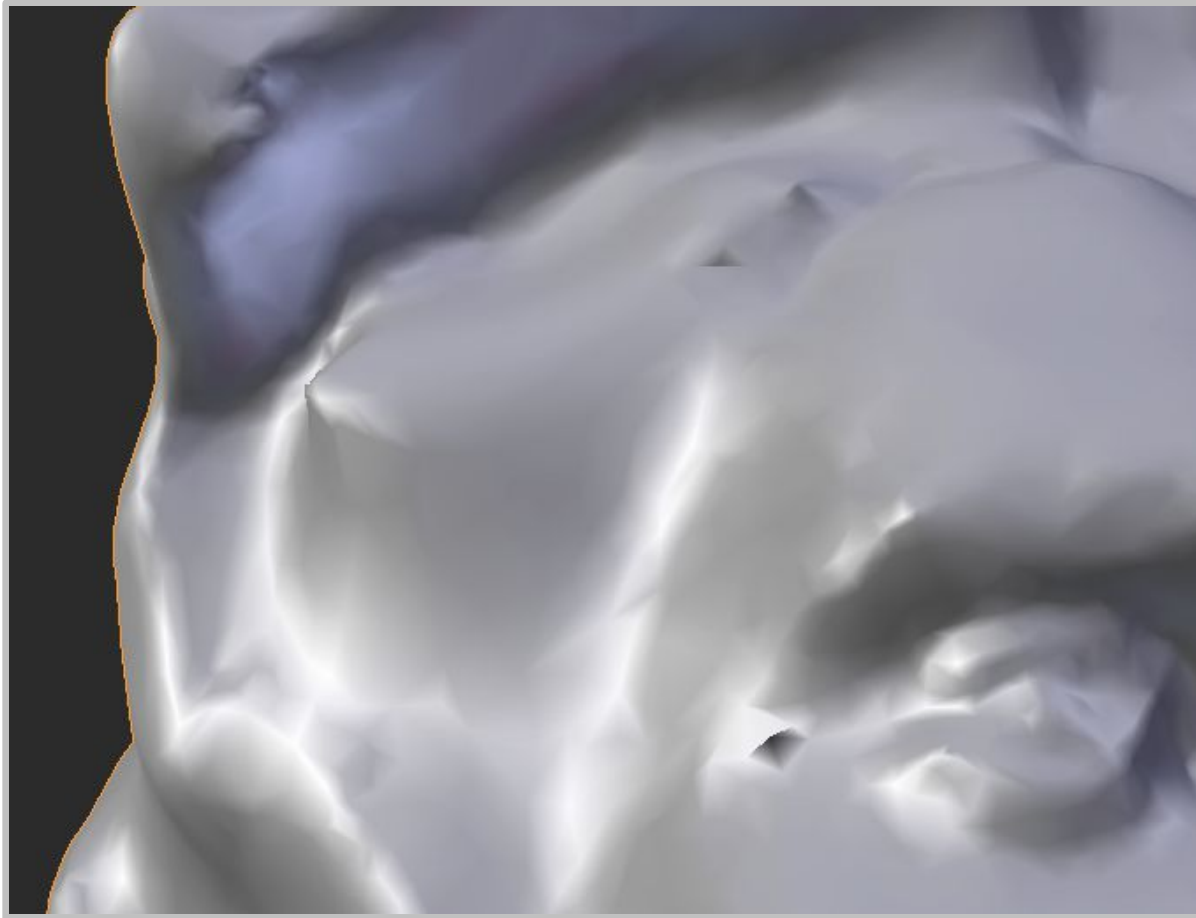# 123D Catch: workflow

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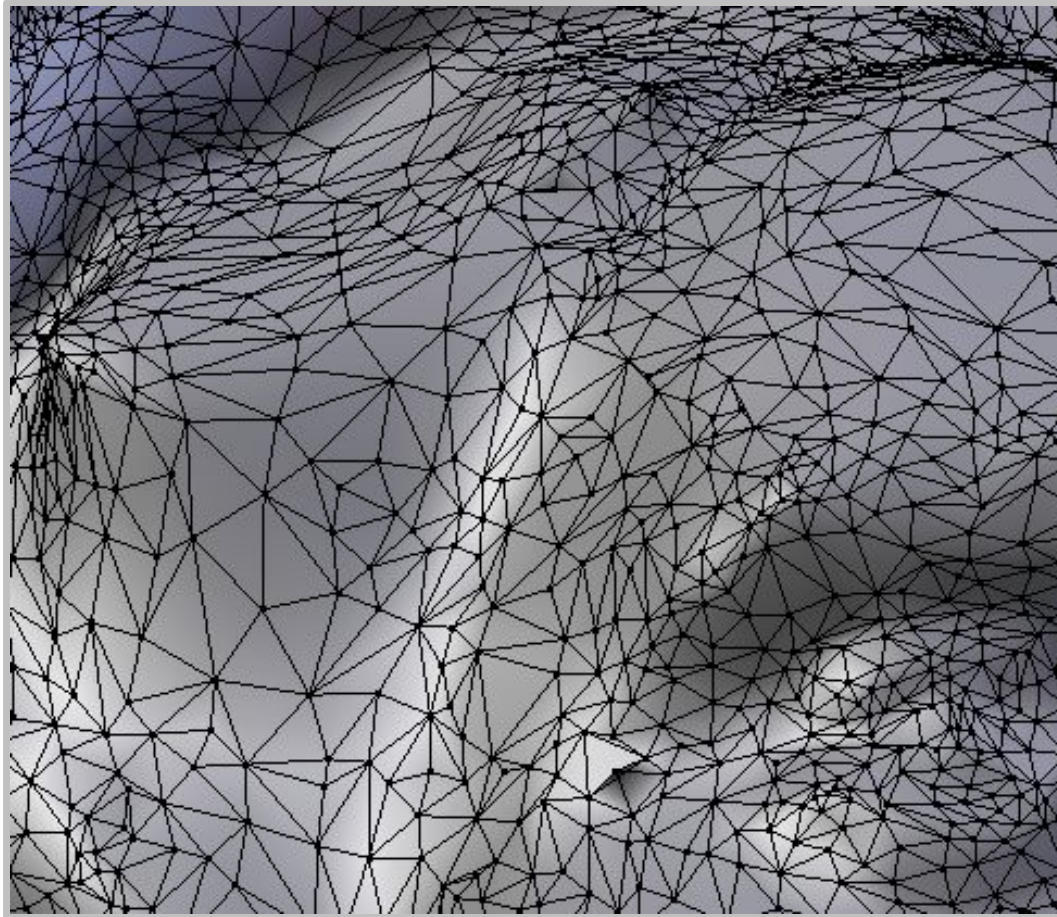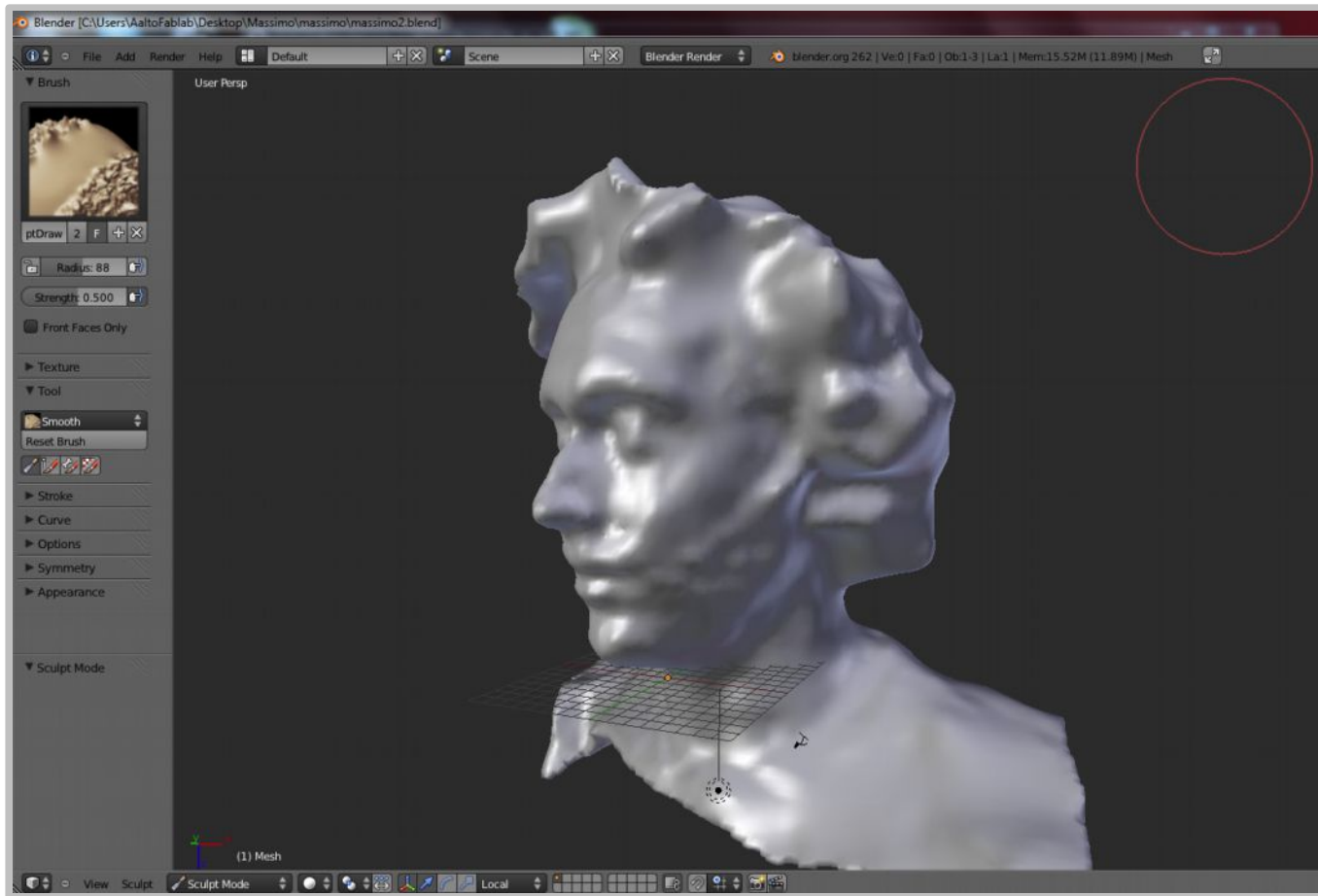# 123D Catch: workflow
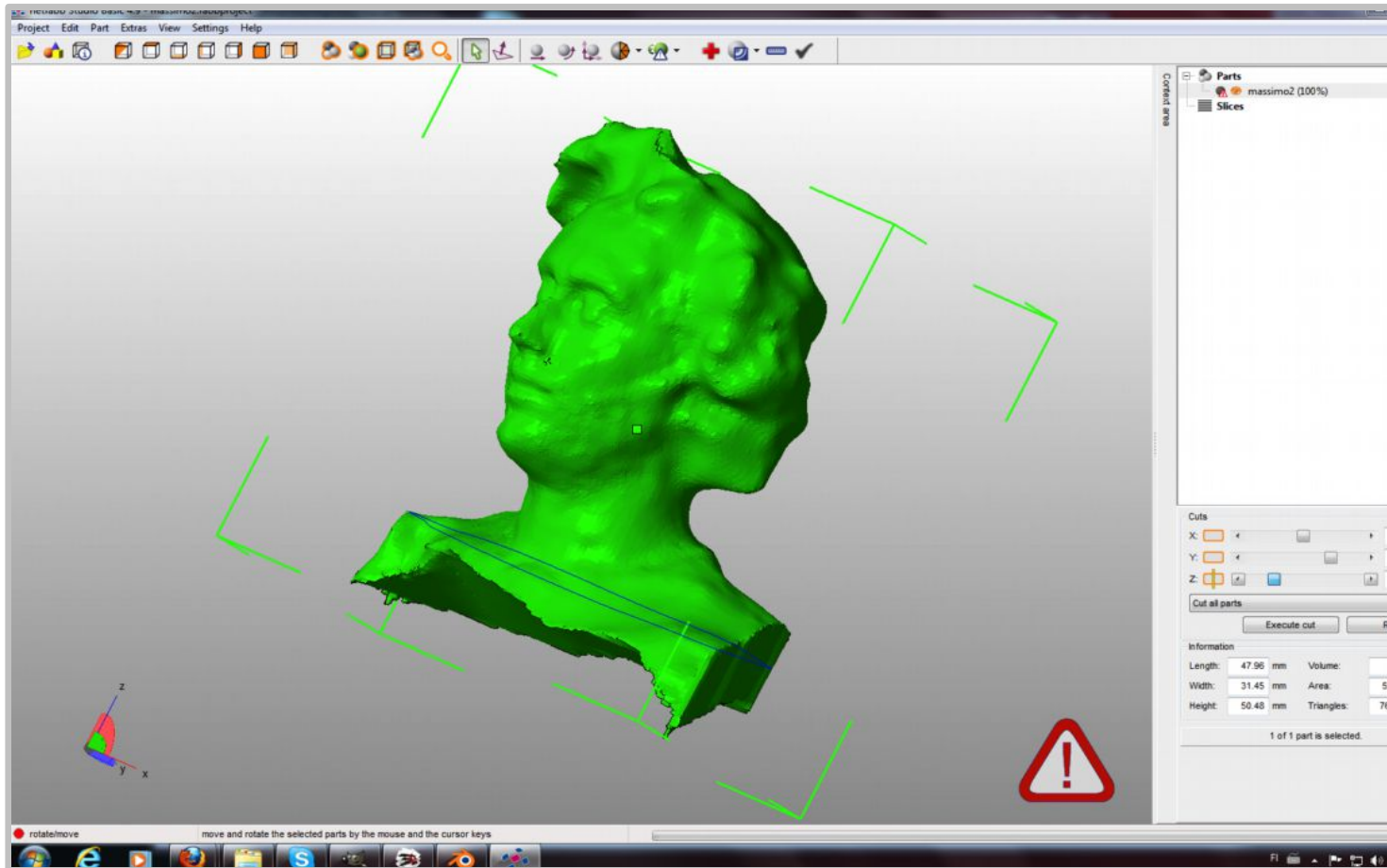

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123D Catch: workflow

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123D Catch: workflow

"…and I will probably design and make my
own tools" [metadesign]

123D Catch: workflow

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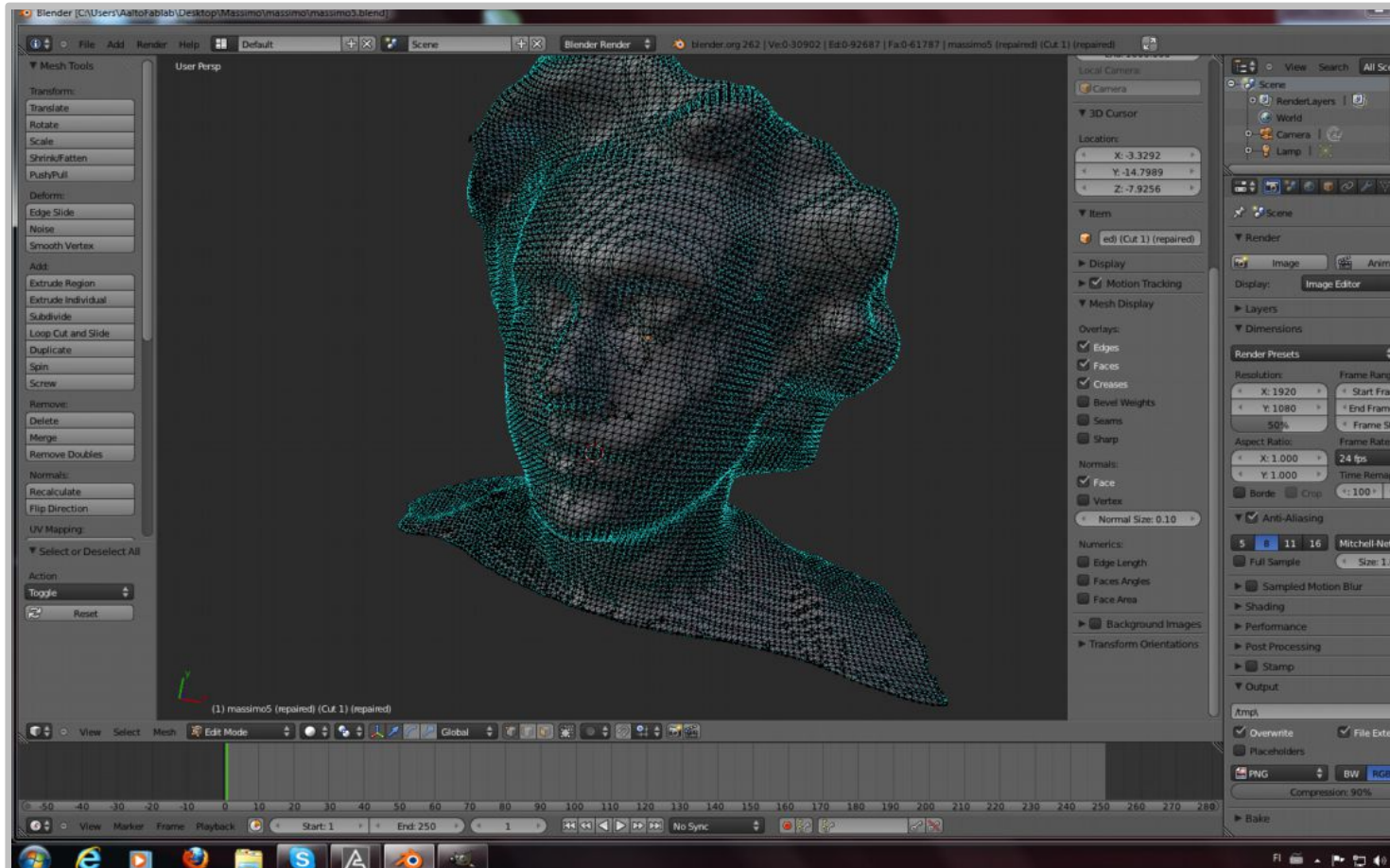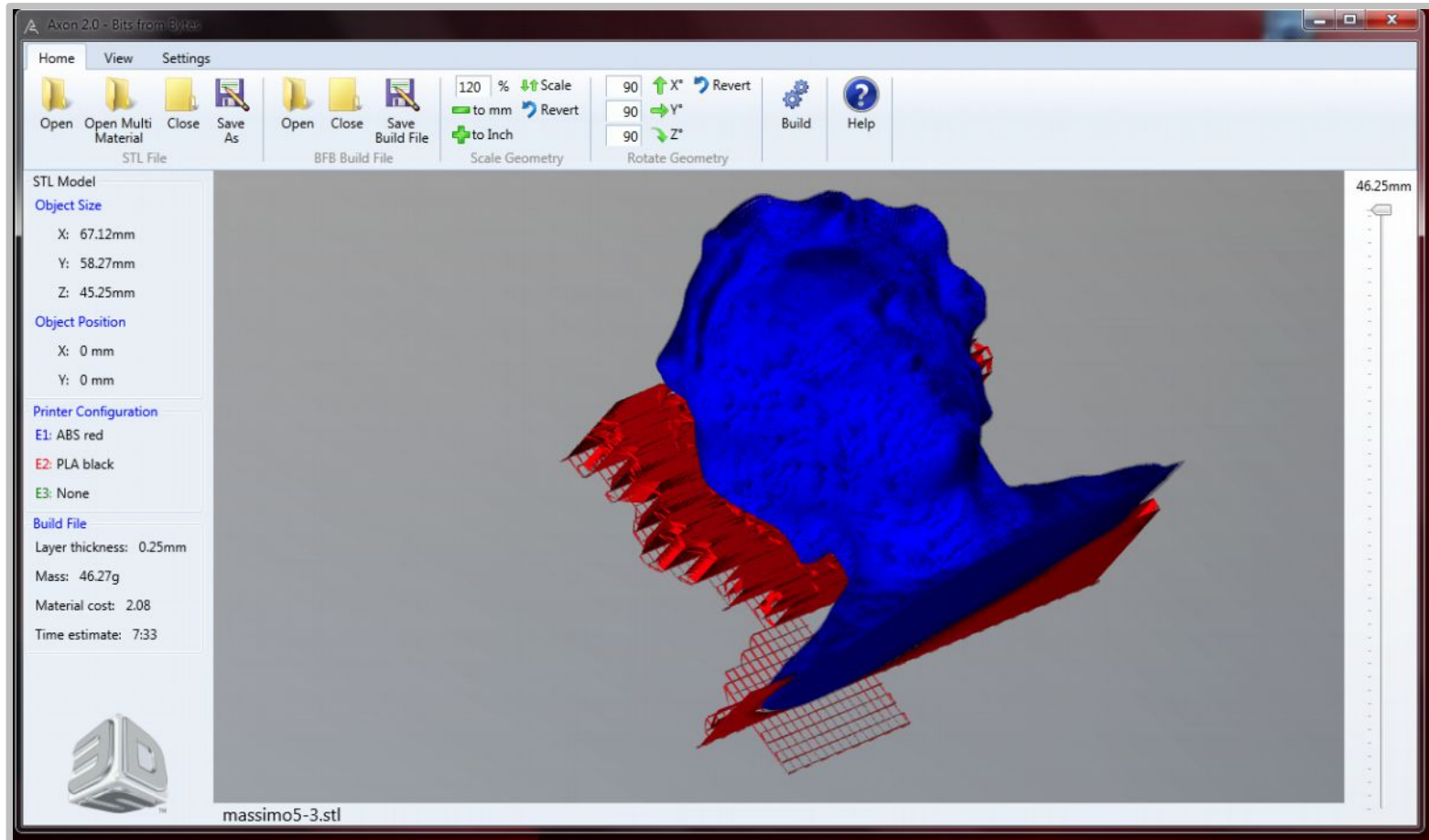

Read the whole workflow here (exercise 10):

123D Catch: art projects!

The Open Crowd Project is a collaborative project using 3D scanning and printing technology to create a "crowd" of people printed with 3D printers.

Thank you!!

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