University of St Andrews

CINE see the past imagine the future

3D Digitisation

Alan Miller

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CINE see the past imagine the future

Northern Periphery and Arctic Programme 2014–2020

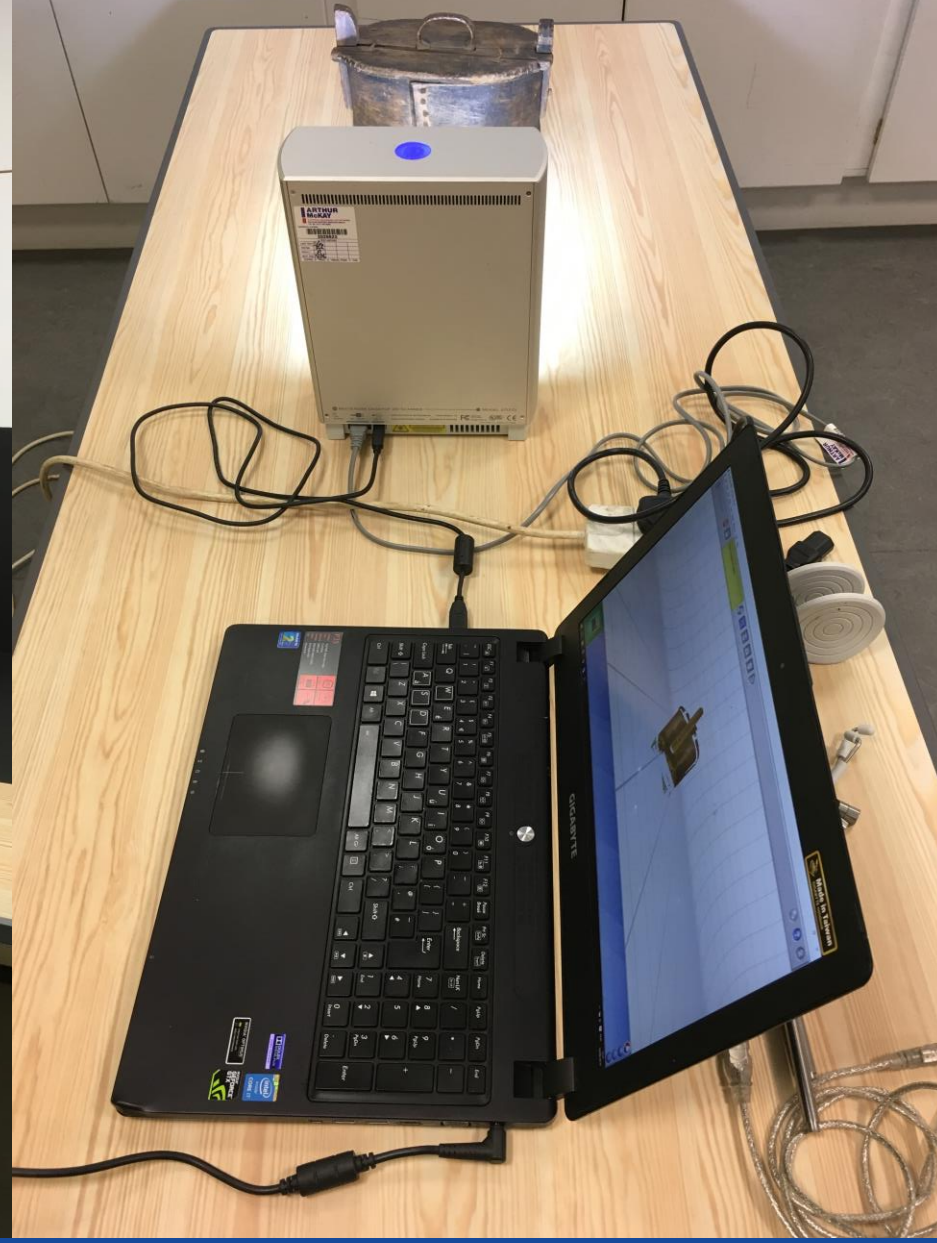
EUROPEAN UNION
Investing in your future
European Regional Development Fund

Artefacts and Scenes

- Subject selection
- Equipment and software
- Set up and shoot
- Processing
- Archiving
- Exhibits

Virtual Museum

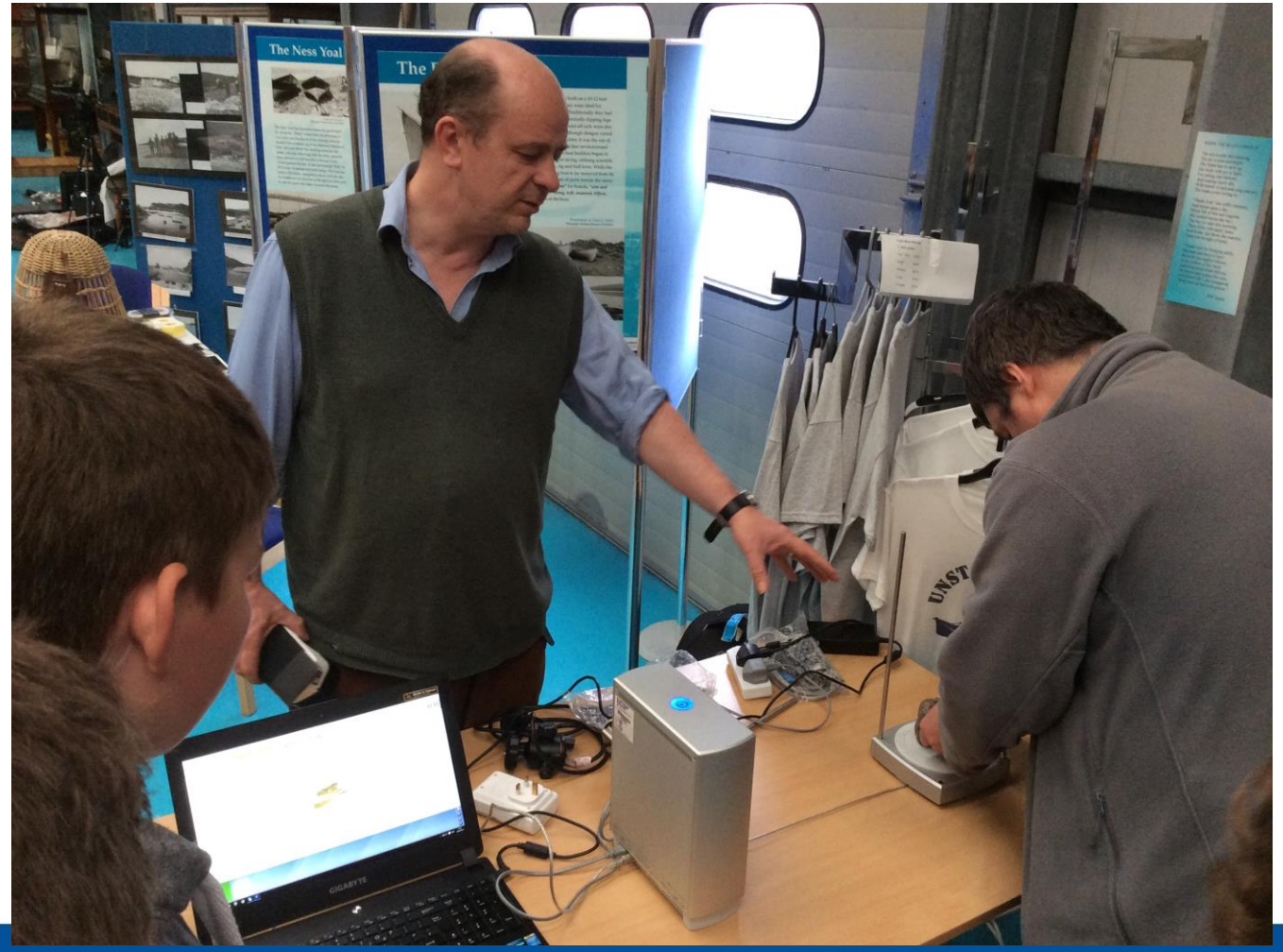
Artefacts and Scenes

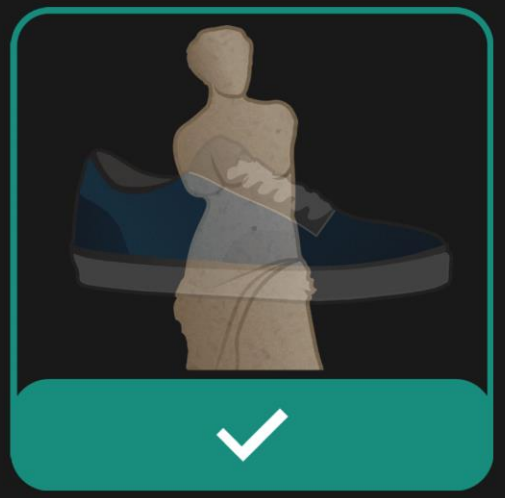


Artefact Selection

Artefact selection

- Gateway to lives and stories
- Digitises well
  - Matt surface
  - Fixed surface
  - Not occluded
  - Appropriate Size
  - Features
- Digitises poorly
  - Reflective, moving, extreme sizes, featureless
- Select objects for digitisation





Excellent Targets

Textured, vivid, and rough items make excellent models.

SKIP

Suboptimal Targets

Reflective, transparent, and untextured, homogenous objects do not make good models.

SKIP

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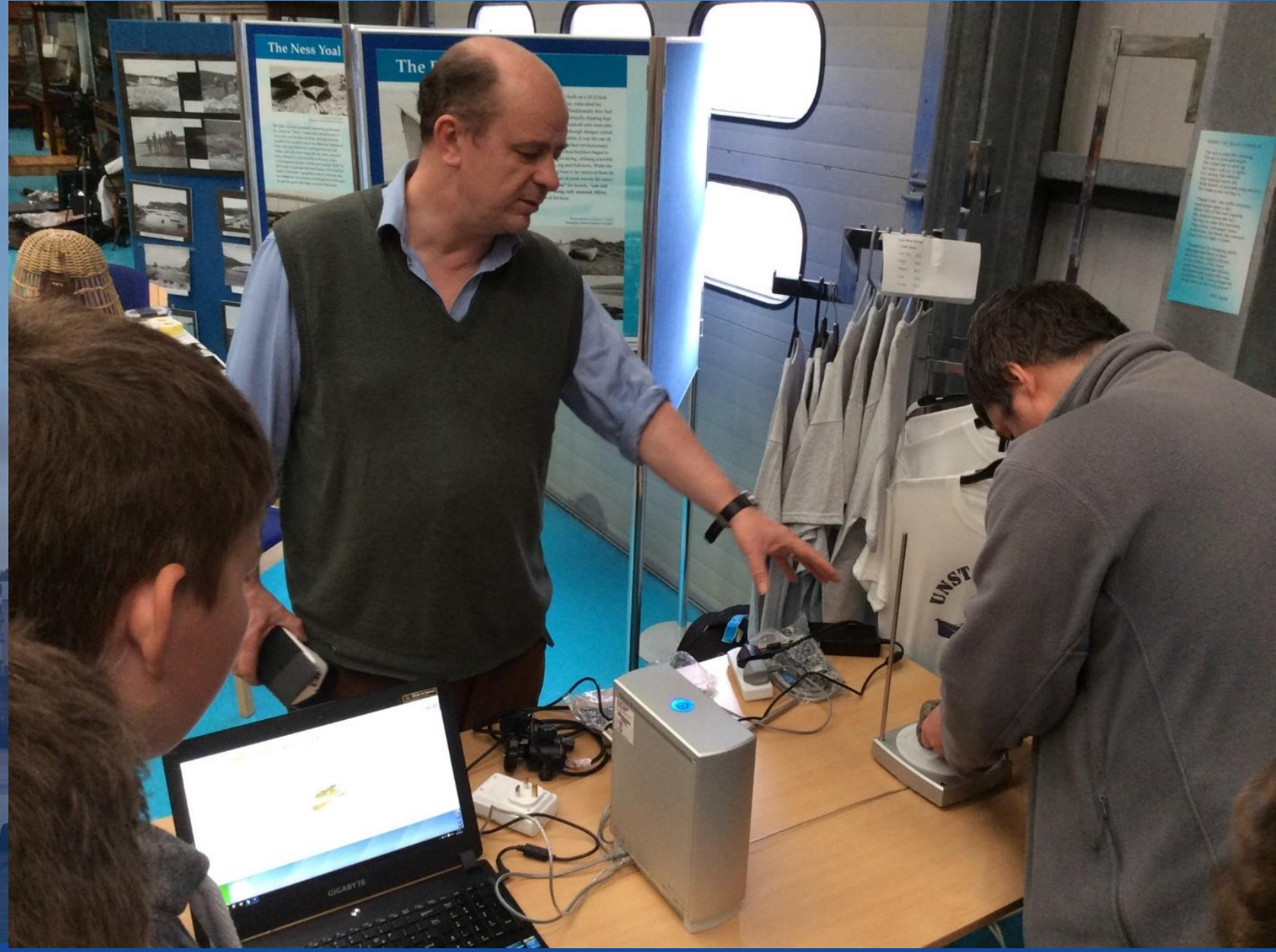
Laser Scan,
Structured Light,
Photogrammetry

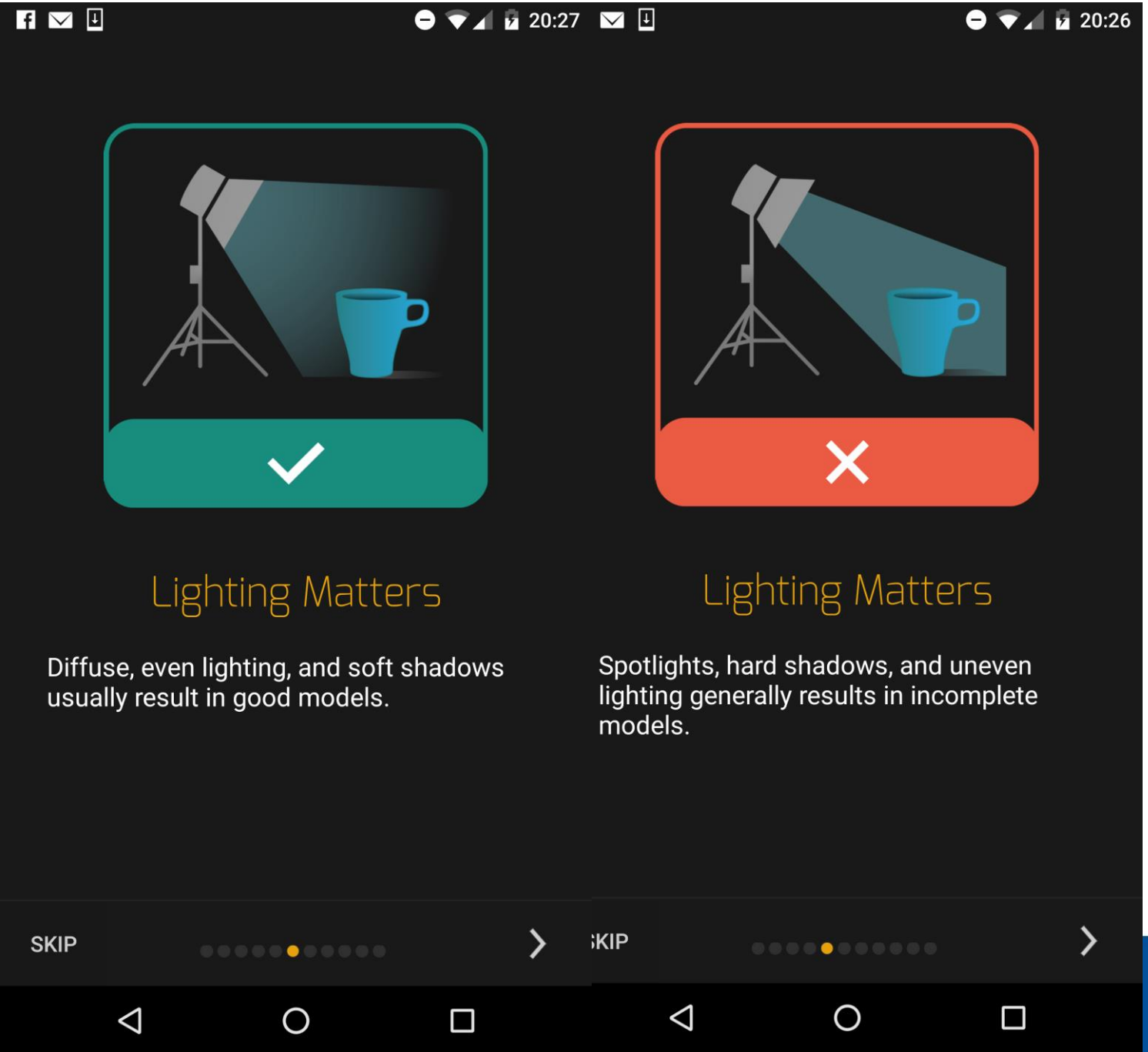
- Camera /phone
- Tripod
- Lazy Susan
- Softbox
- Lights
- Computer



Equipment

Set Up and Shoot: Artefacts

- Soft Lighting
- Camera on fixed manual settings
  - Narrow aperture
  - Low ISO
  - Long exposure
  - Fixed white balance
- Use a tripod for stability
- Fill the frame with the object
- Overlap the photographs 50%
- Shoot 360 degree circuits
- Shoot three circuits,
  - horizontal, above, below



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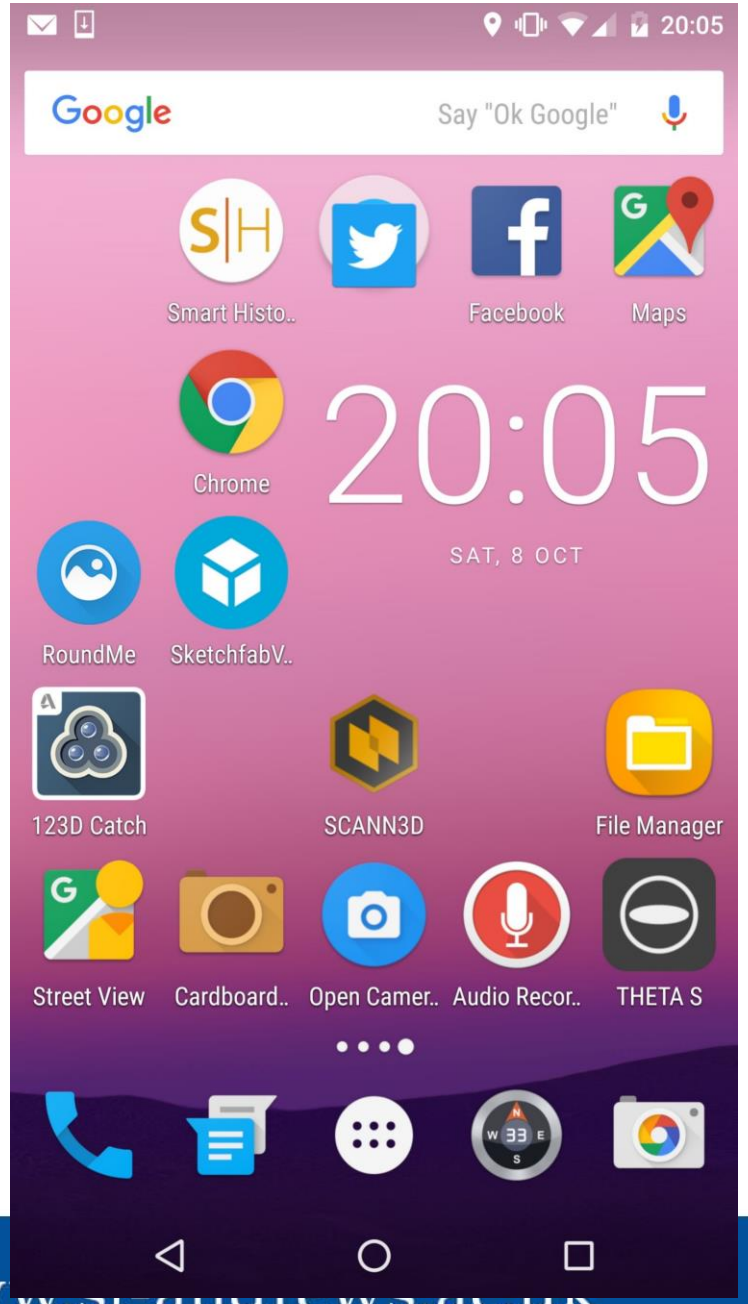
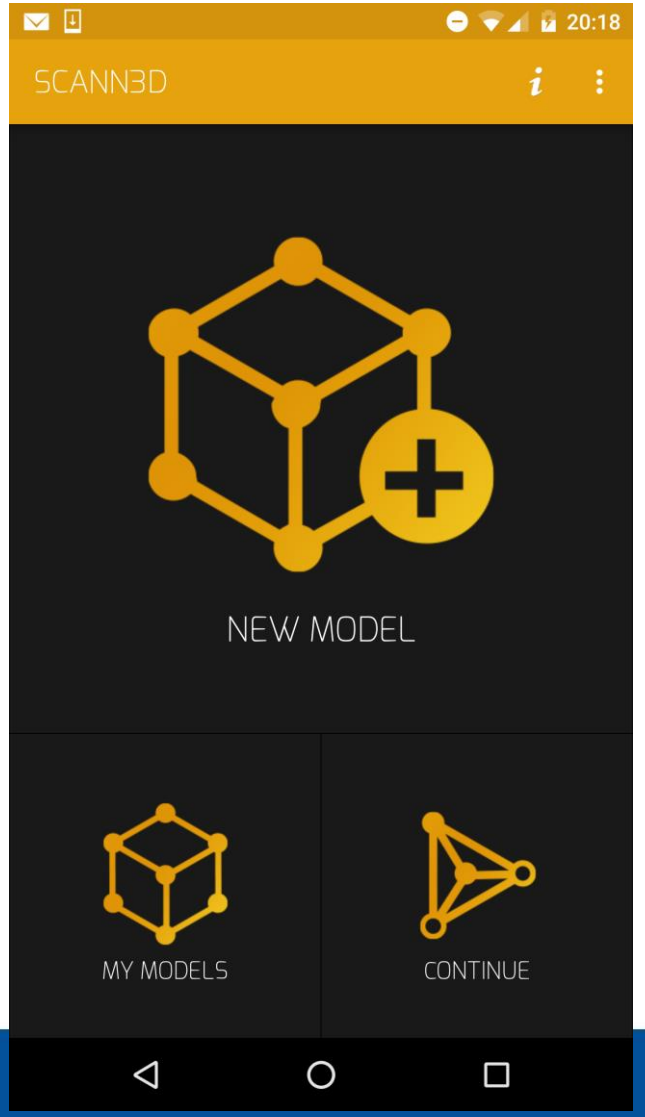

20:05
Google
Say "Ok Google"
Smart Histo..
Facebook
Maps
Chrome
20:05
SAT, 8 OCT
RoundMe
SketchfabV..
123D Catch
SCANN3D
File Manager
Street View
Cardboard..
Open Camer..
Audio Recor..
THETA S


20:18
SCANN3D
NEW MODEL
MY MODELS
CONTINUE

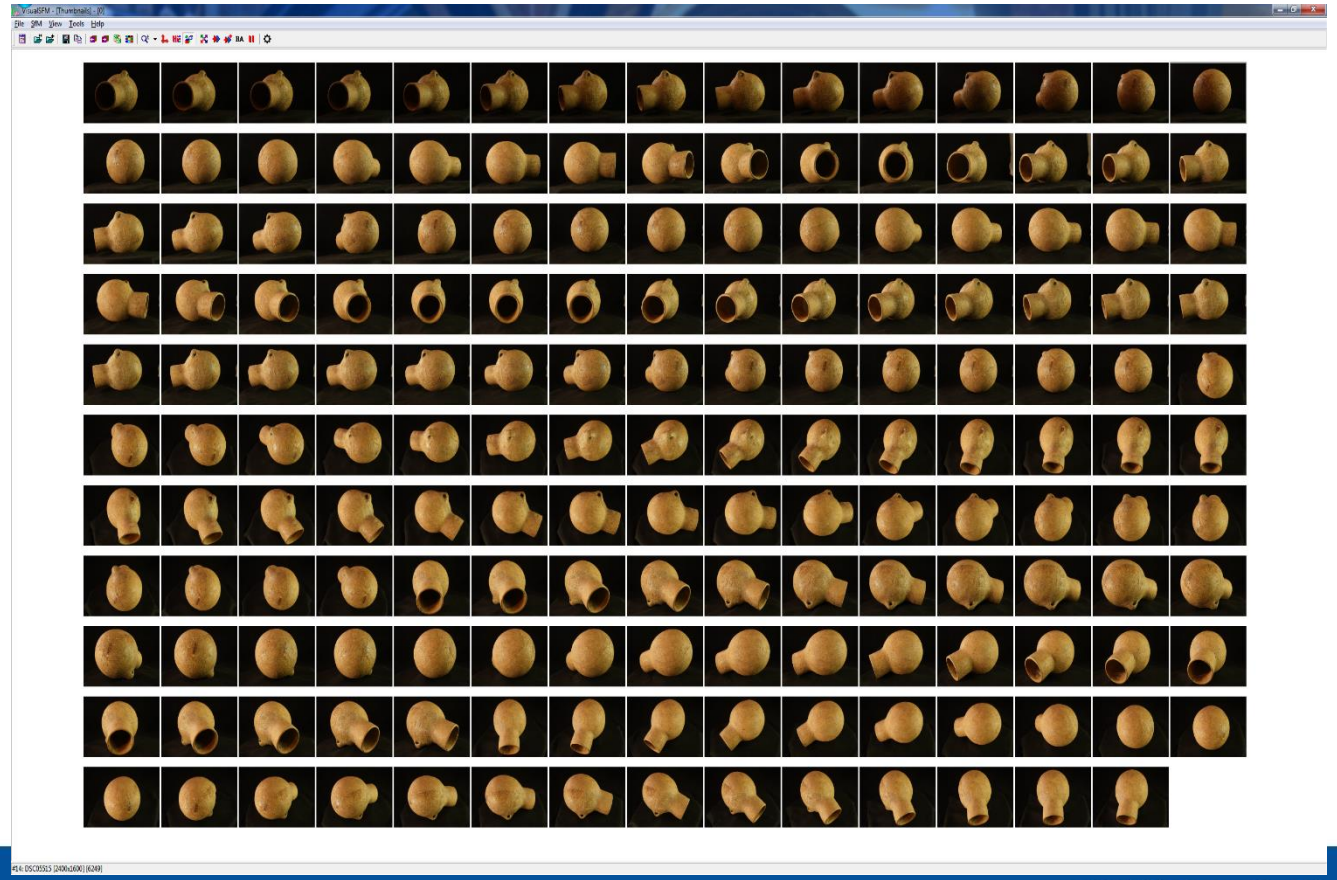
Processing artefacts

- Select and sort images
- Sift and match
- Create a sparse points cloud
- Create a dense points cloud
- Export to mesh lab
- Trim dense point cloud
- Create a mesh
- Apply texture

Photogrammetry Using Visual SFM & Meshlab

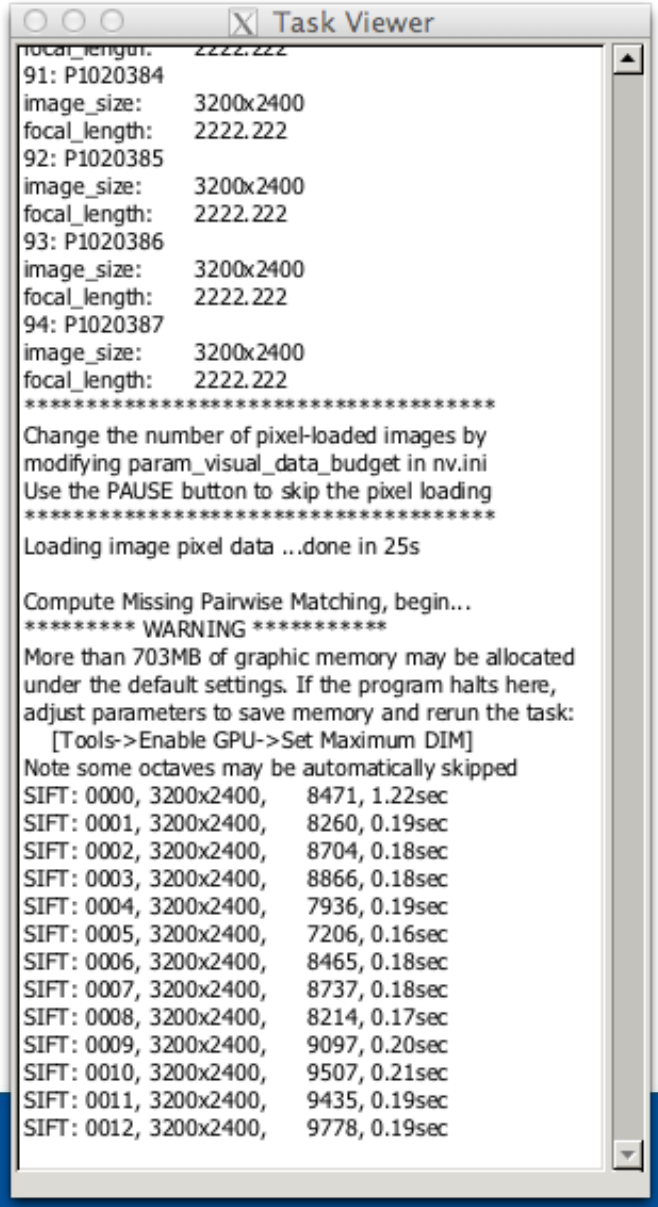
Processing: artefacts with Visual FSM and Meshlab

- Download Select and import pictures
- Remove bad pictures
- Ensure complete coverage and overlap
- 20-60 should be plenty
- Lower resolution images (1280*980) may work better



Processing: artefacts with Visual FSM and Meshlab

- Sift and match
- Create a Sparse points cloud
  - Check and remove bad camera locations
- Create a Dense points cloud.



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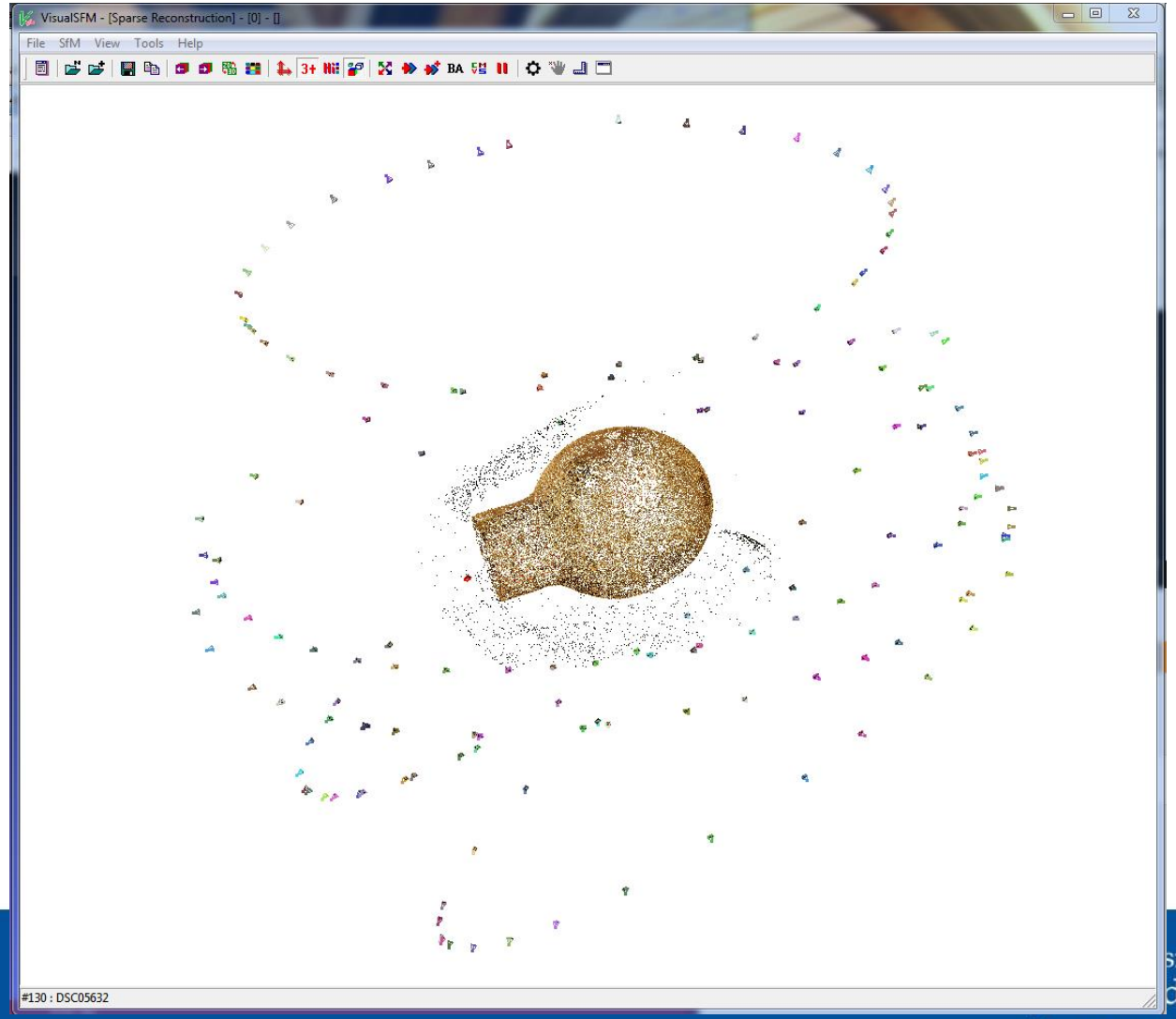

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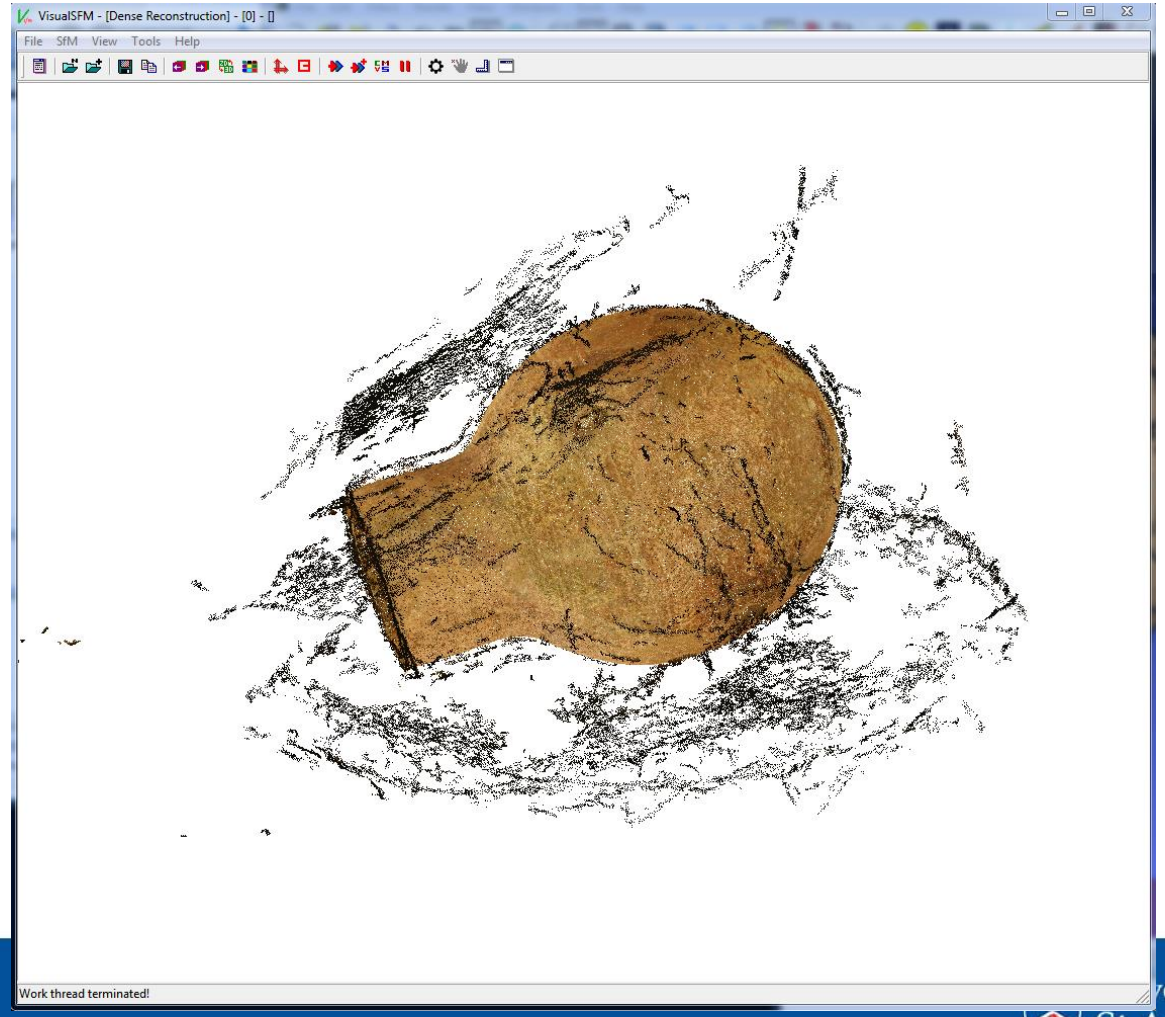
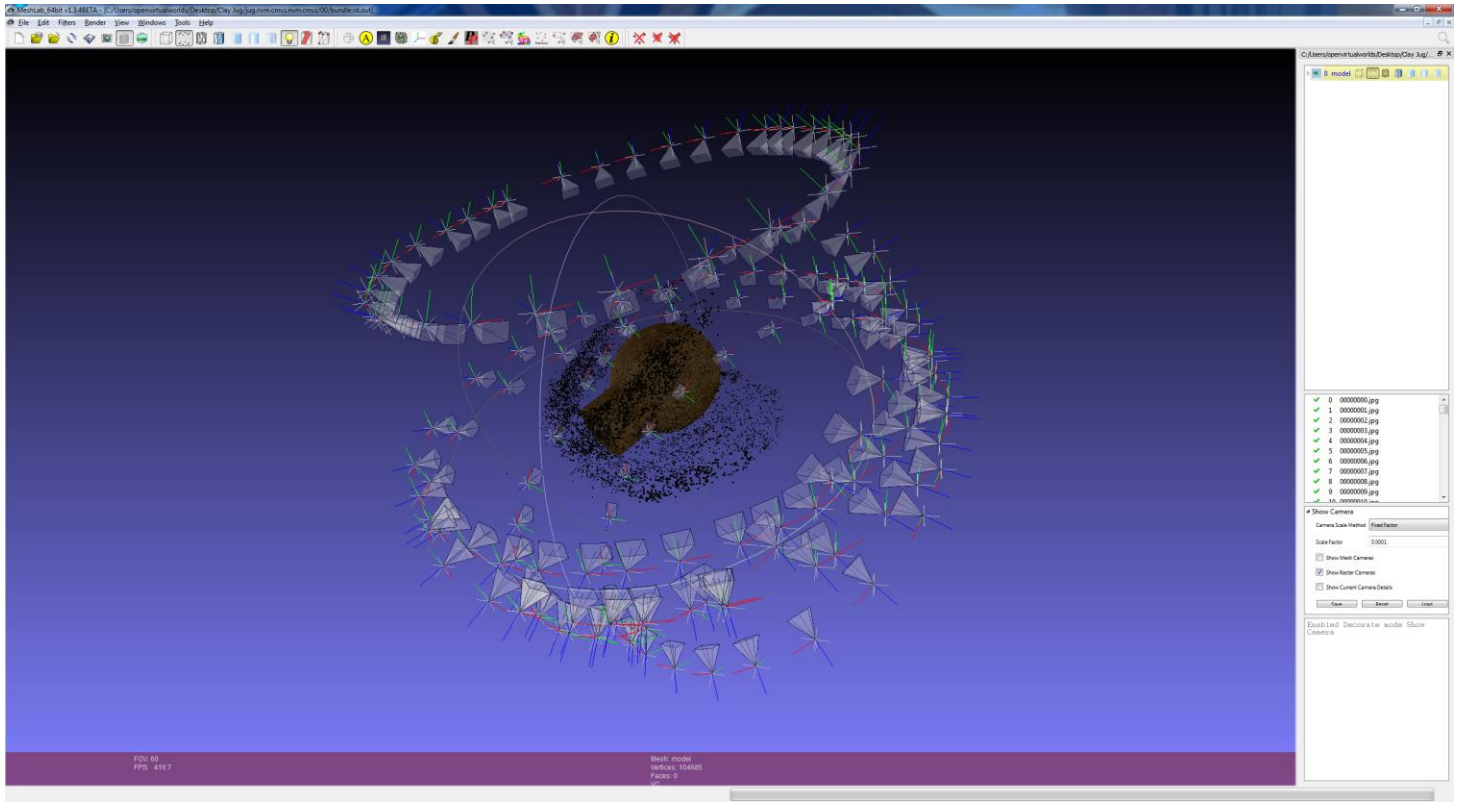


Processing artefacts: Meshlab

- Import points clouds into meshlab
- Delete unwanted points
- Create mesh from points
- Clean up mesh
- Apply textures
- Export model



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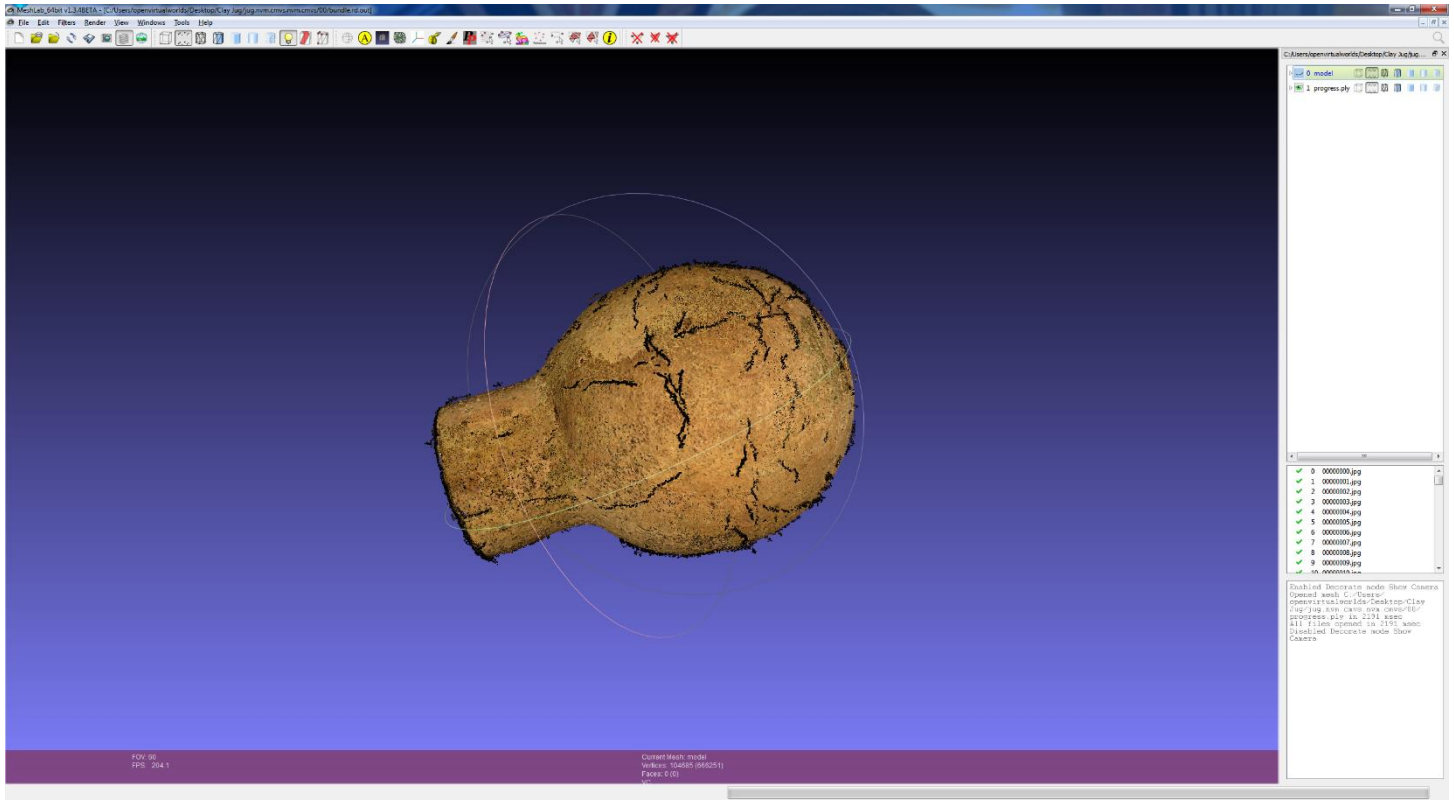

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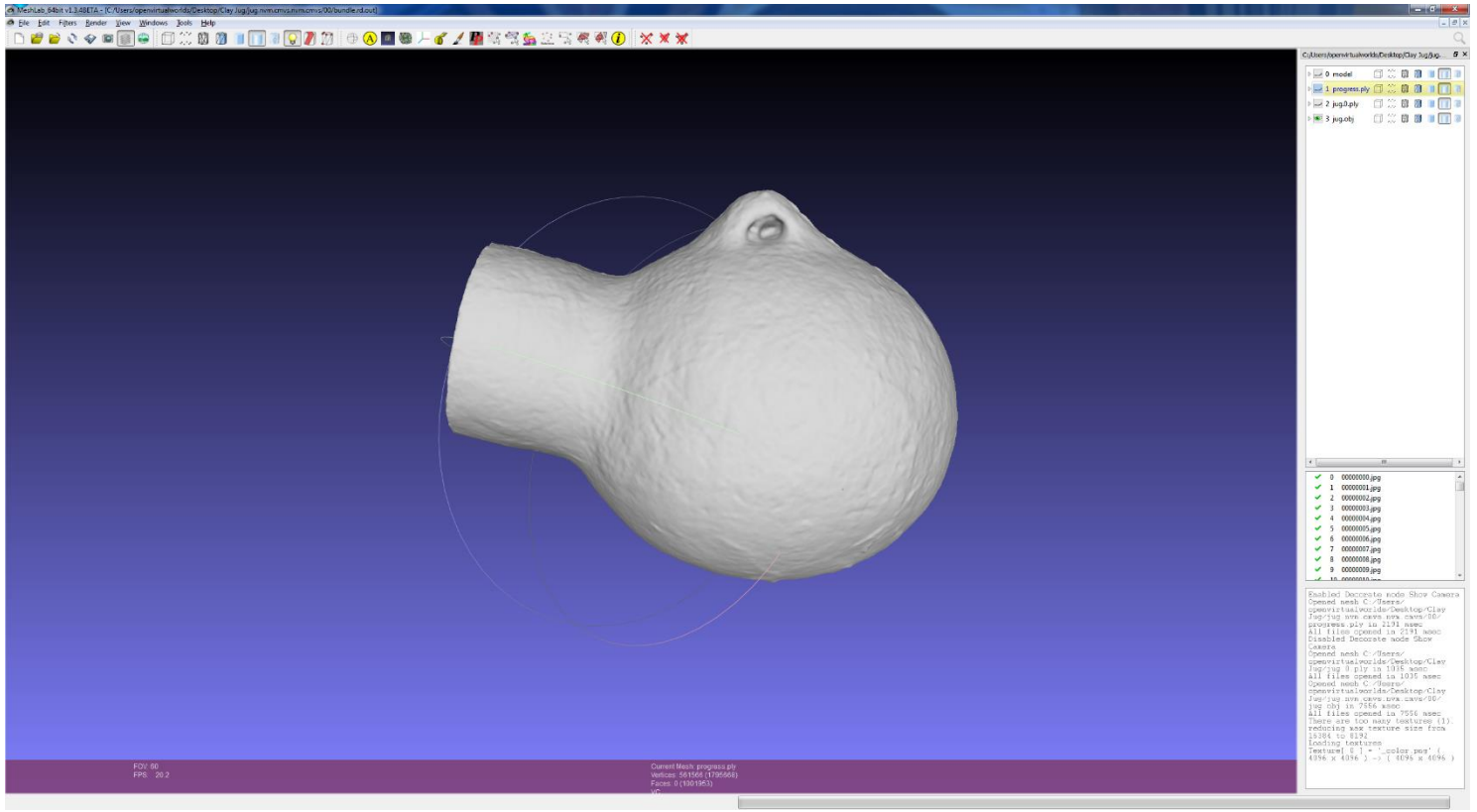

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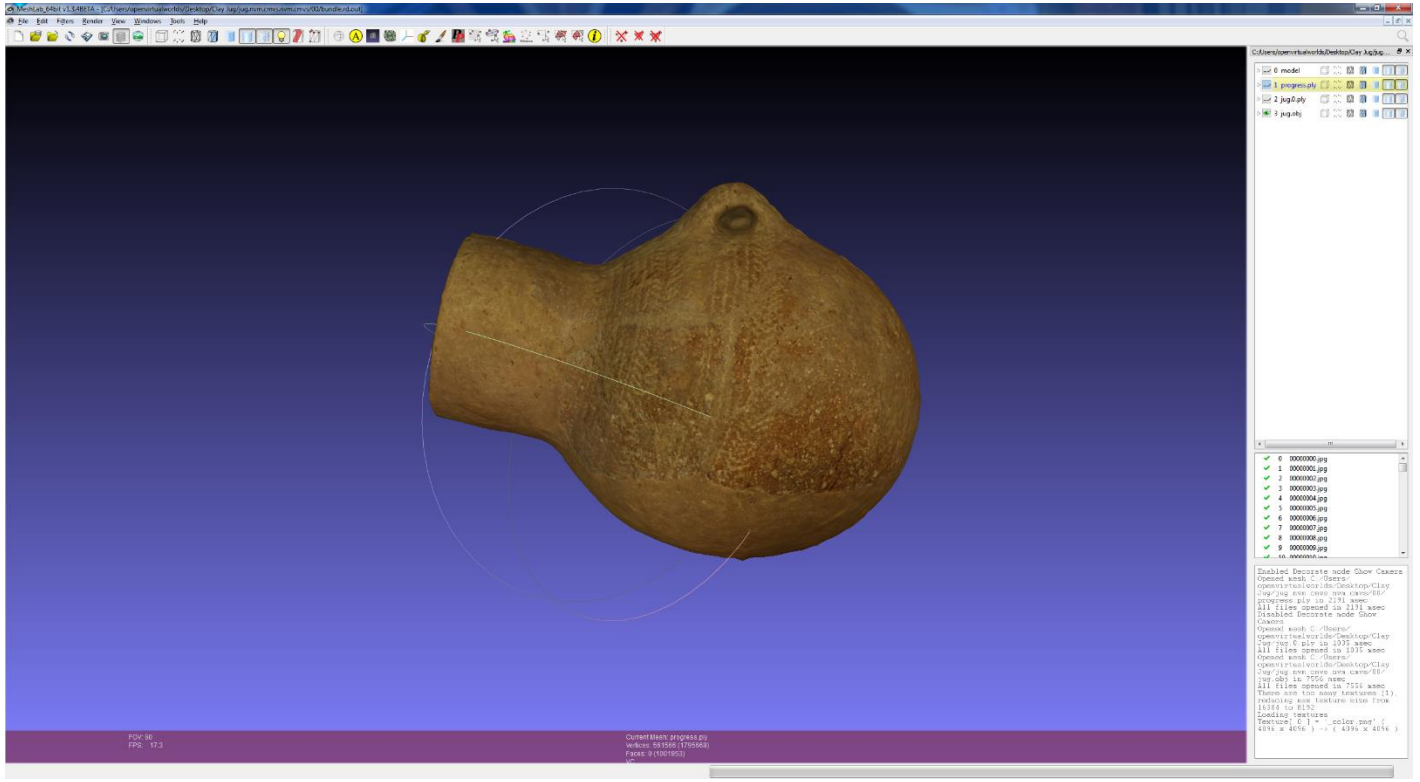

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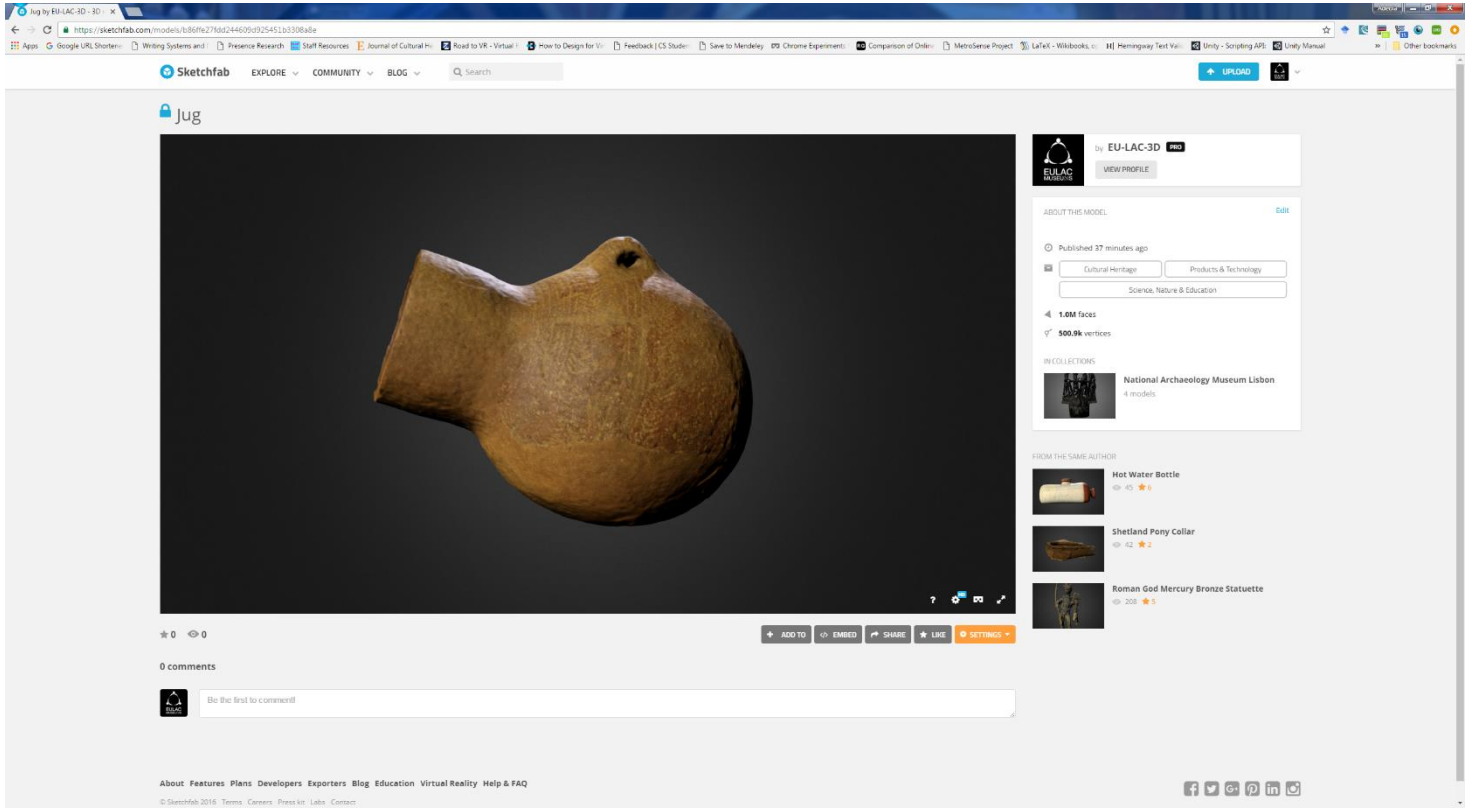
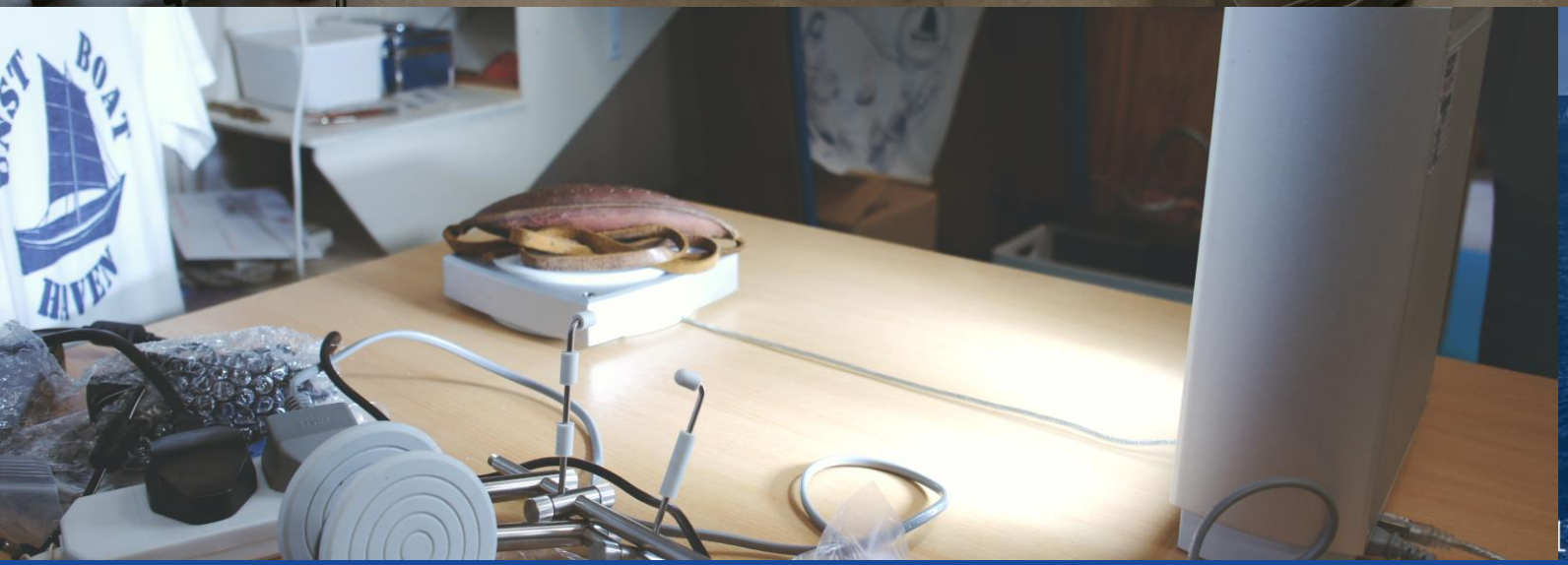


Exhibits

- Virtual
  - Artefact Galleries
  - Virtual Reality
  - Museum without walls
  - Wiki
- Physical
  - 3D Printing

Interpretation



Description

EU-LAC-3D PRO

EU-LAC-MUSEUMS 3D Workshops

EDIT PROFILE 4 Followers 4 Followings

SUMMARY 18 MODELS COLLECTIONS 18 LIKES UPLOADS

Shetland Museum and Archive

0 subscribers

EMBED SHARE

Fisherman's hat
by EU-LAC-3D

Byre lantern
by EU-LAC-3D

Emigrant's doll
by EU-LAC-3D

Prehistoric cup
by EU-LAC-3D

Corncrake bird
by EU-LAC-3D

Box for a voy
by EU-LAC-3D

A cure for jaundice: ...
by EU-LAC-3D

Wireless battery
by EU-LAC-3D

Archiving

- Archive high definition model
- Where possible include original photographs
  - This will future proof the artefact and enable it to be used in future platforms
- Make accessible through upload:
  - Artefacts: sketchfab
  - Spheres: roundme, google maps
- Include meta data in particular location.

Title:

Title

Description:

Description

Author:

eulac3d

Location:

Make | Model | Date & Time | 56.2676 | -2.857799999999975

X = Pixel | Y = Pixel

Browse ...

Dashboard
Items
Collections
Item Types
Tags
Exhibits
Simple Pages
Dropbox
BagIt
Bulk Editor
Comments
CSV Import
Embedded Items
Fedora Connector
Map
OAI-PMH Harvester

Add an Item

Press F11 to exit full screen

Dublin Core | Item Type Metadata | Scripto | Files | Zoom | Tags | Fedora | Map | ImageMap

Dublin Core

The Dublin Core metadata element set is common to all Omeka records, including items, files, and collections. For more information see, http://dublincore.org/documents/dces/.

Add Item

Public: Featured:

Collection

Select Below

Title — A name given to the resource

Add Input

Use HTML

Subject — The topic of the resource

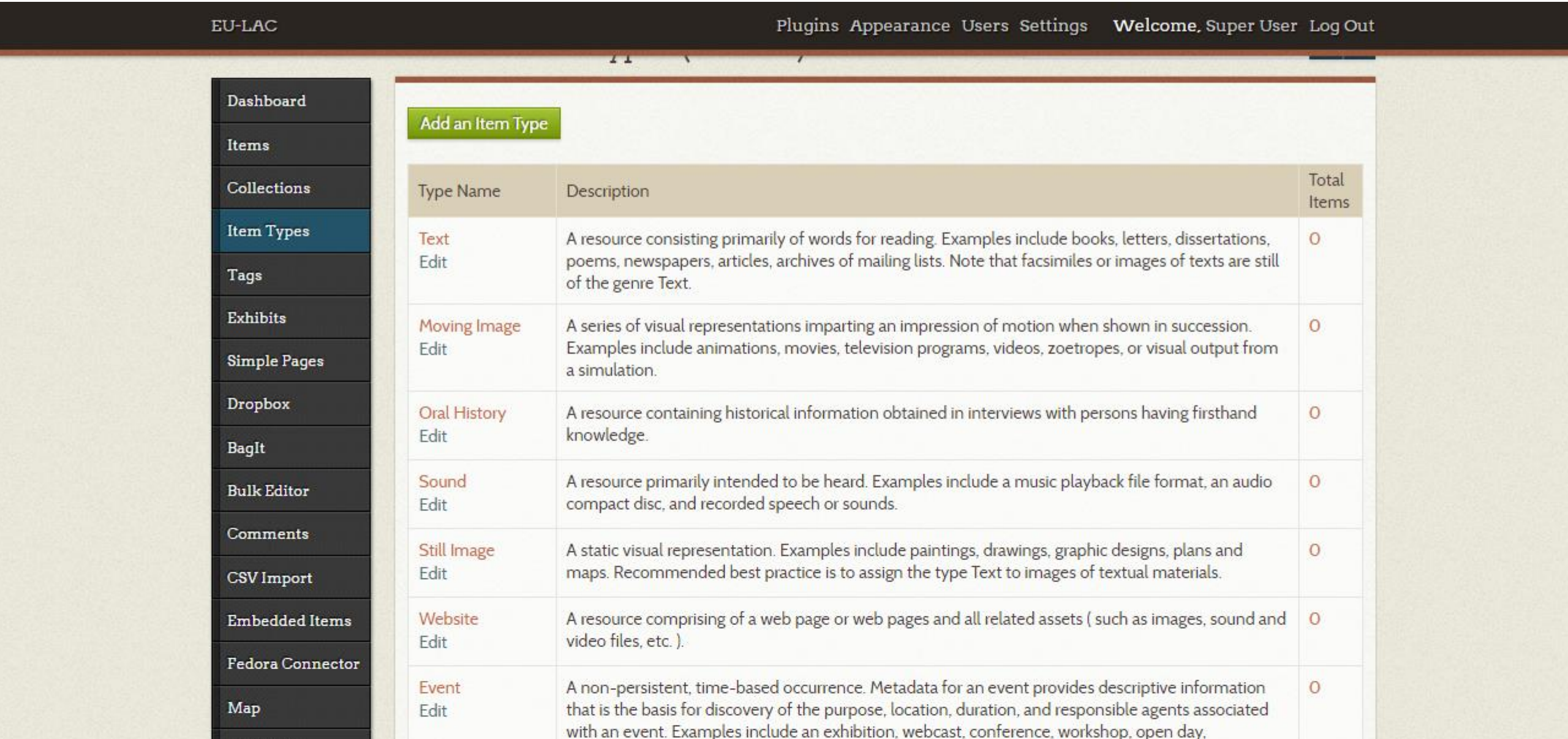
Add Input

Use HTML

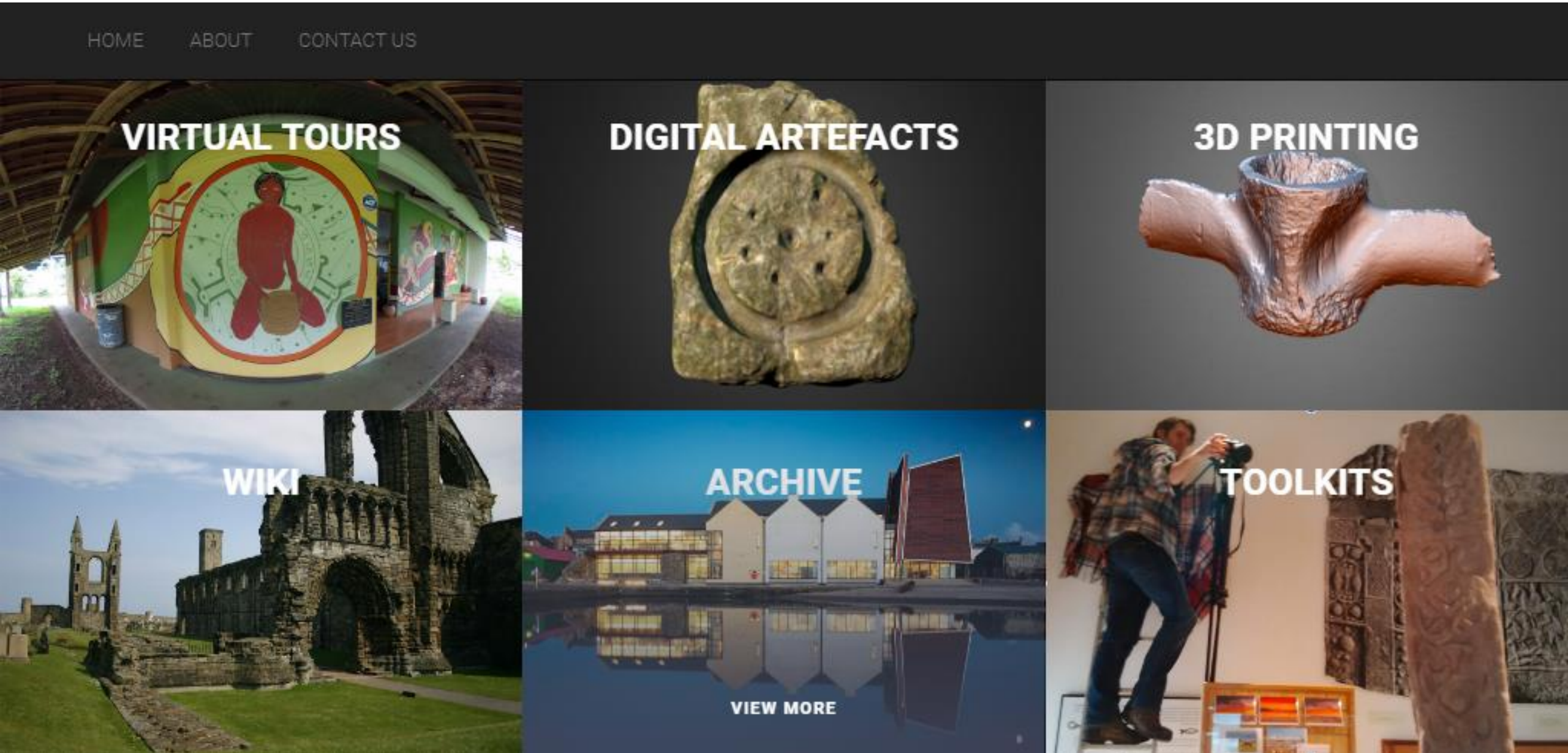
Description — An account of the resource

Add Input

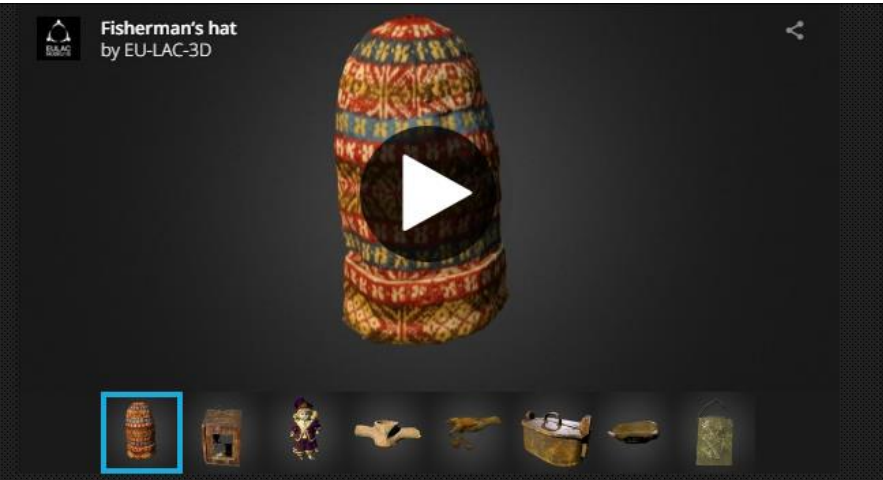
Item Types

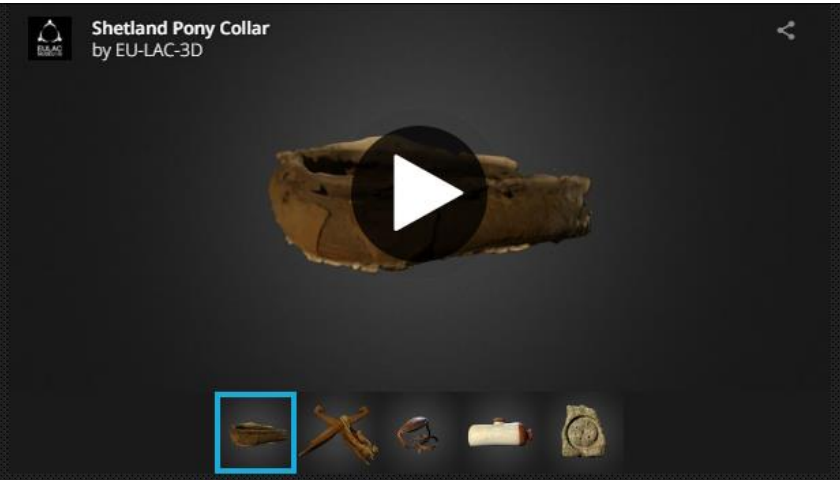

EU-LAC
Plugins Appearance Users Settings Welcome, Super User Log Out
Dashboard
Items
Collections
Item Types
Tags
Exhibits
Simple Pages
Dropbox
BagIt
Bulk Editor
Comments
CSV Import
Embedded Items
Fedora Connector
Map
Add an Item Type
Type Name
Description
Total Items
Text
Edit
A resource consisting primarily of words for reading. Examples include books, letters, dissertations, poems, newspapers, articles, archives of mailing lists. Note that facsimiles or images of texts are still of the genre Text.
0
Moving Image
Edit
A series of visual representations imparting an impression of motion when shown in succession. Examples include animations, movies, television programs, videos, zoetropes, or visual output from a simulation.
0
Oral History
Edit
A resource containing historical information obtained in interviews with persons having firsthand knowledge.
0
Sound
Edit
A resource primarily intended to be heard. Examples include a music playback file format, an audio compact disc, and recorded speech or sounds.
0
Still Image
Edit
A static visual representation. Examples include paintings, drawings, graphic designs, plans and maps. Recommended best practice is to assign the type Text to images of textual materials.
0
Website
Edit
A resource comprising of a web page or web pages and all related assets (such as images, sound and video files, etc.).
0
Event
Edit
A non-persistent, time-based occurrence. Metadata for an event provides descriptive information that is the basis for discovery of the purpose, location, duration, and responsible agents associated with an event. Examples include an exhibition, webcast, conference, workshop, open day,
0

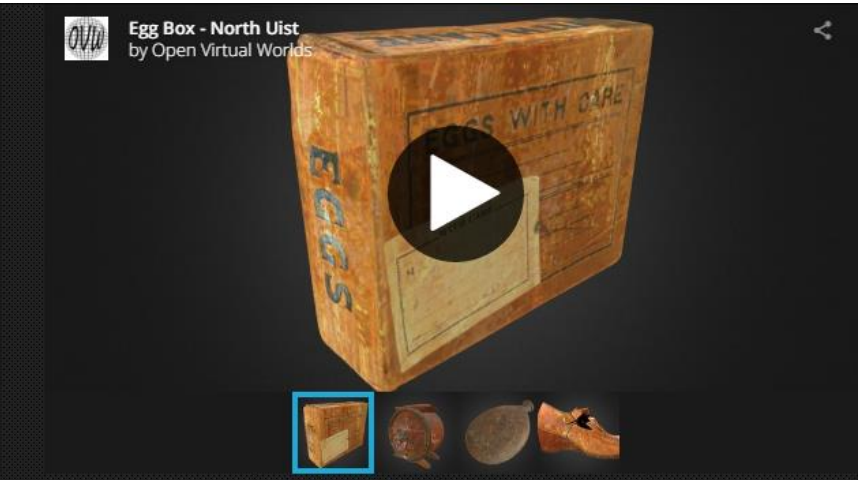
Virtual Museum

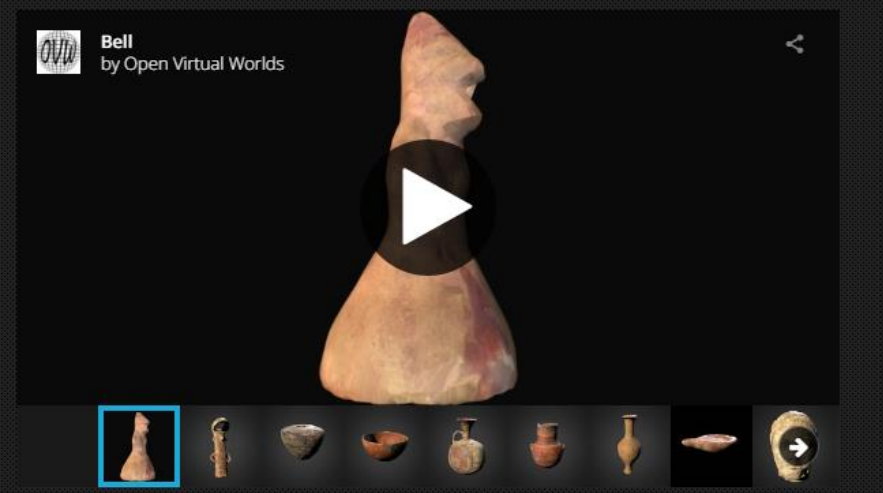


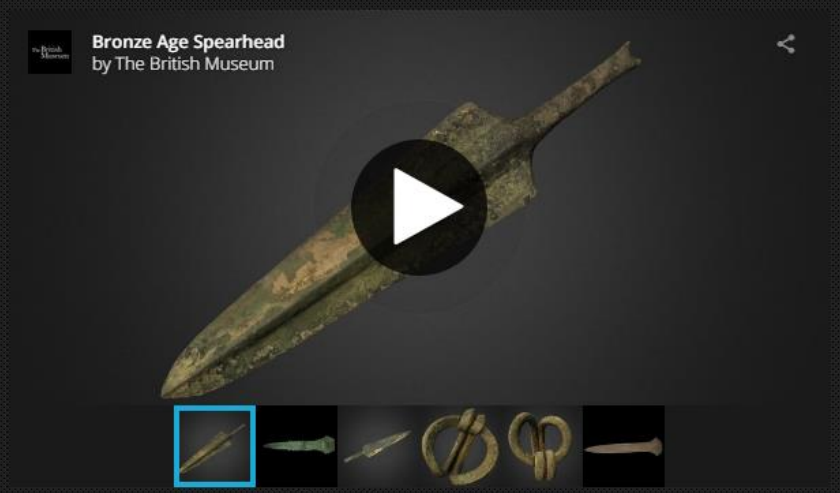
Artefact Galleries

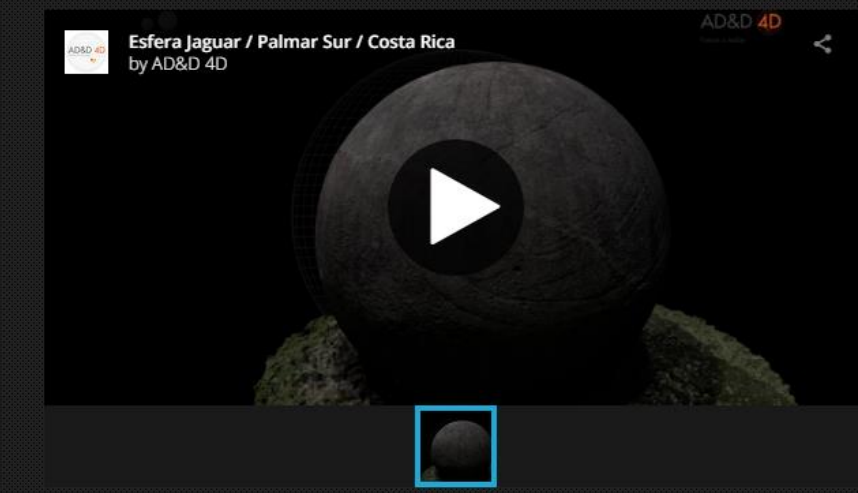












Wiki

EULAC MUSEUMS

Main page | Discussion

Main Page

Wiki for the EU-LAC Museums Virtual Museum.

Here you will find models of artefacts and have the opportunity to contribute to their interpretation.

A Fisherman's hat Fisherman's hat held in the Shetland Museum and Archive in Lerwick.

Consult the User's Guide for information on using the wiki software.

Getting started [edit]

- Getting started

(Article title)

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Page information
Cite this page

This page was last modified on 29 October 2016, at 08:05.

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eu-lac.org/vmwiki/index.php/Fishermans_hat

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EULAC MUSEUMS

Page Discussion Read Edit View history More Search

Fishermans hat

Title: Fisherman's hat [edit]

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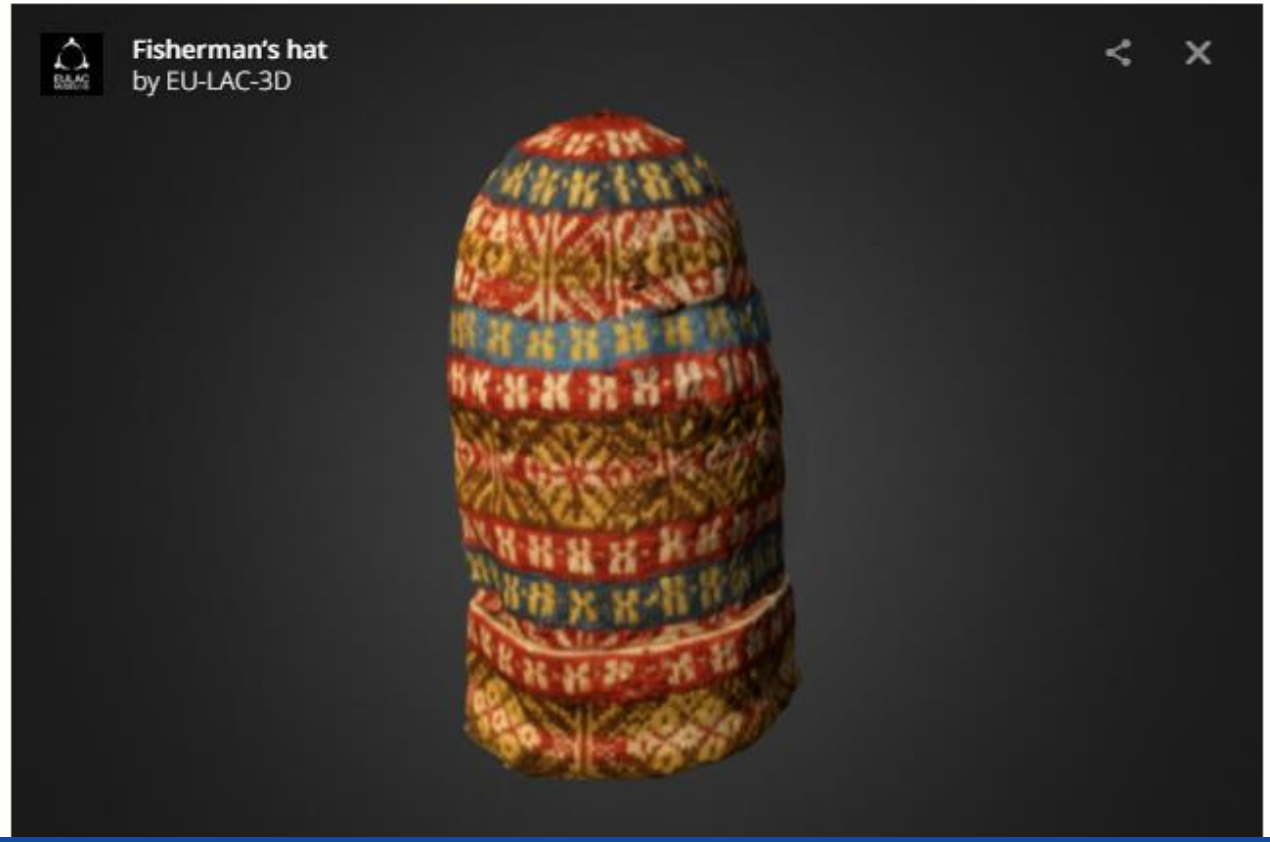

Artefact Wiki

3D ARTEFACTS WORKSHOP

P. Thomson | September 16, 2016 | Community, Intergenerational, News, Tradition, Trending | No Comments

Today saw our S3 and S4 students collaborate with the Unst Heritage Trust and the University of St Andrews; learning how to use technology to make 3D representations of objects and how to make 3D photospheres of places of interest.

BALTASOUND JHS

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Head Teacher: Mr Paul Thomson

Visit Fetlar Primary School Site

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- Basketweaving
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- Inspired By Team Paralympic GB
- Harvest 2016

Blog