

Intro to 3D Scanning*

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*as a tool for *Migrant World Making* and *Colonial Resistance*

Agenda

- **Introductions (20 mins):**
 - Artist Background
 - Technology, Format Overview
 - Examples / Applications
- **10 Min Break**
- **Hands-On Workshop (45 mins):**
 - Photogrammetry Tutorial
 - Publishing your 3D model in VR/AR
- **Discussion & Reflection (30 mins)**
- **Next Steps (15 mins)**

Introductions

Introductions

I'm a **3D Researcher + Artist** who creates interactive installations and mixed reality audience experiences for museums, entertainment companies and brands.

Currently...

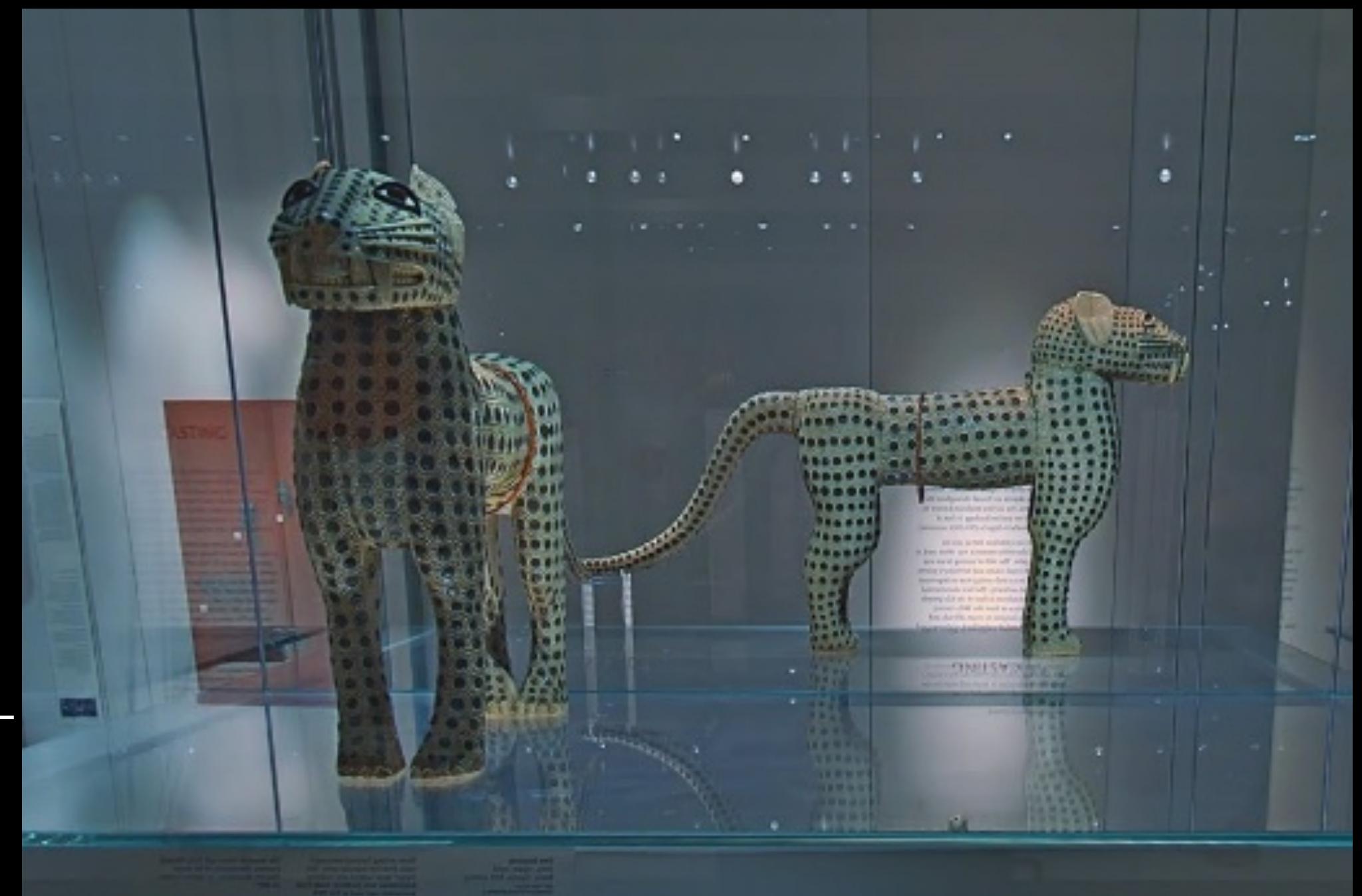
- *Decolonizing museums, archives with emerging tech with Loot Co.*

Previously...

- Many things at *Epic Games, Indiana University, Smithsonian Institution, Meow Wolf, Humboldt Forum (Berlin), Mozilla Foundation, Tribeca Interactive*



The Objects They Looted...



The Objects They Looted...

The British
Museum

Shop Search Donate
Visit Exhibitions and events Collection Learn Membership Support us

Collection search: 33 results

Person/organisation: William Ockelford Oldman Place: Benin City

Show filters

altar-tusk

Benin Ivory



AF1949.46.171 | Made by: Edo | 1750-1850 | Made in: Benin City | Found/Acquired: Benin City

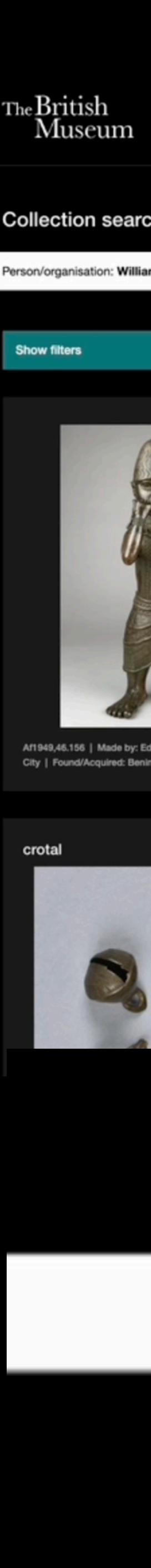
crotal



pendant-mask



AF1949.46.157 | Made by: Edo | 18thC(early) | Made in: Benin City | Found/Acquired: Benin City



figure

Benin Ivory



AF1949.46.156 | Made by: Edo | 17thC-18thC | Made in: Benin City | Found/Acquired: Benin City

armlet

Benin Ivory



AF1949.46.179 | Made by: Edo | 18thC | Made in: Benin City

ornament



Collection search: 33 results

Person/organisation: William Ockelford Oldman Place: Benin City



From the October 21, 1928 Brooklyn Daily Eagle:

Englishman Collects Skulls of 40 Kings

London, Oct. 20 (P)—The roof of house in Clapham Park which shelters W. O. Oldman, collector of African relics, also shelters the once-crowned skulls of 40 kings. Mr. Oldman is the greatest "head-hunter" in the British Empire.

In the Oldman household there are 15,000 relics of vanished races and tribes, mostly from Africa.

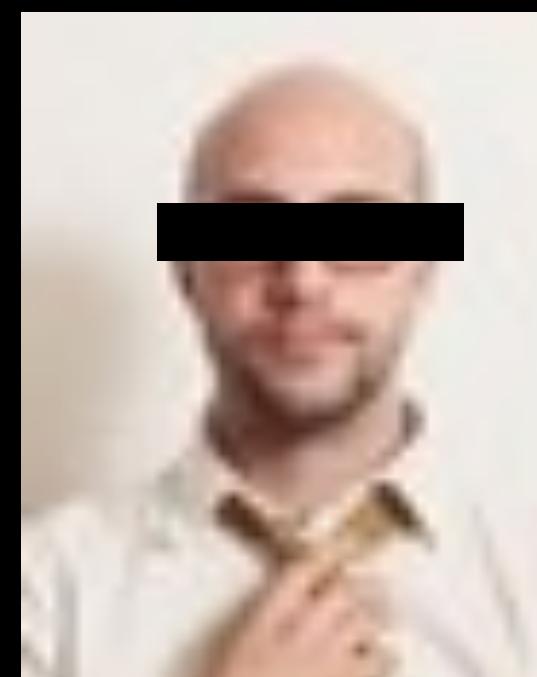
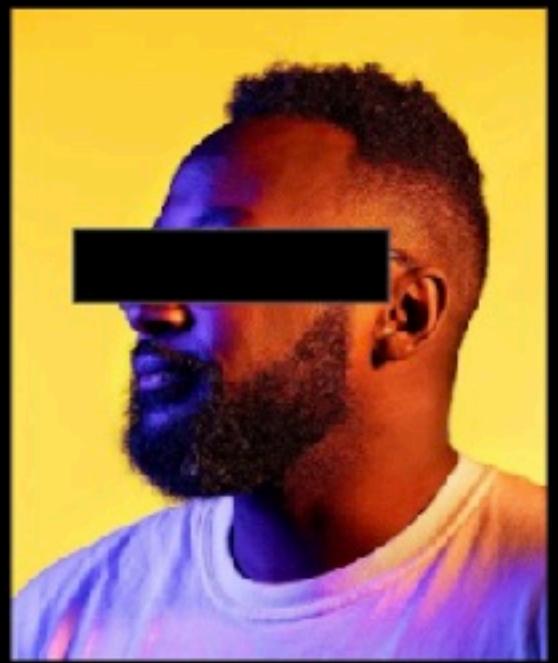
William Ockelford Oldman (24 August 1879 – 1942) was a collector and dealer of ethnographic art and artifacts. His business W.O. Oldman, Ethnographical Sales, was active between the late 1890s and 1913.

Tags: William Ockelford Oldman





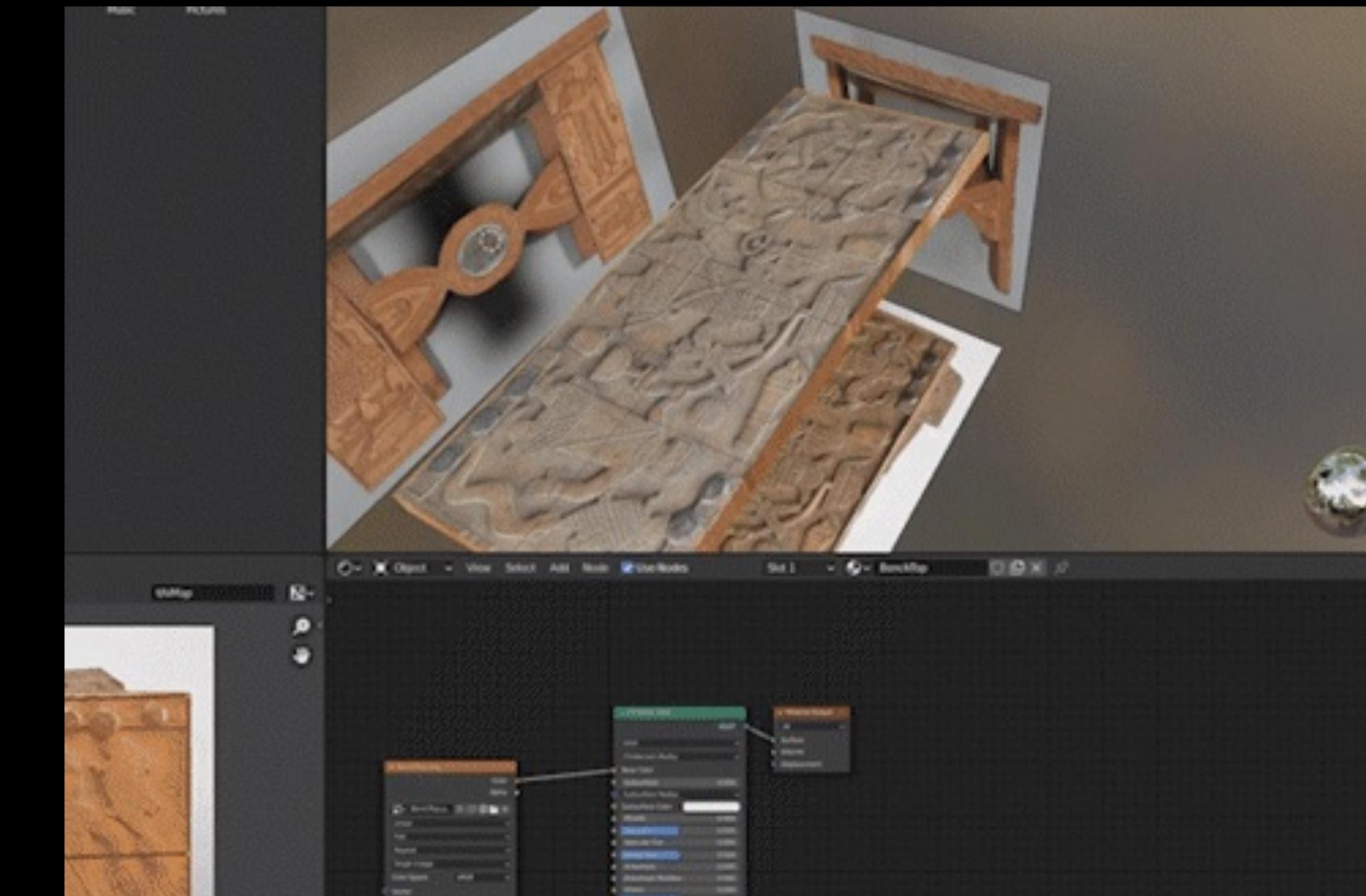
The Nigerian Job



3D Scanning



3D Modeling



The Objects We Looted...



The Objects We Looted...

The British Museum

≡ Menu

Major William Alexander Crawford Cockburn

Information Related objects

72 Related objects

arm-cuff

Benin Ivory

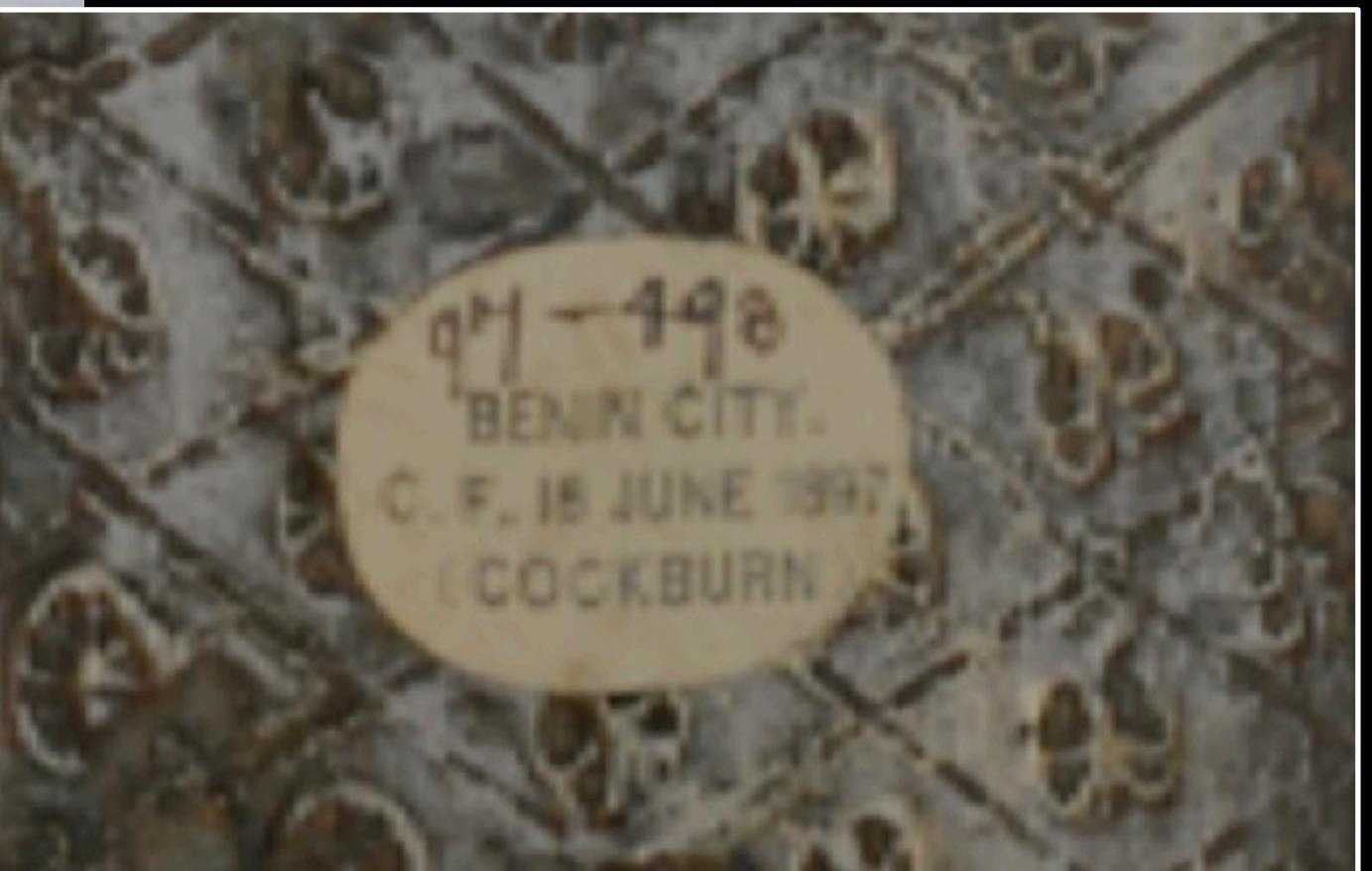
AM1897-501 | Made by Edo | 1800s | Made in Benin City | Found/Acquired Benin City

arm-cuff

Benin Ivory

AM1897-519 | Made by Edo | 1800s | Made in Benin City | Found/Acquired Benin City

AM1897-501 | Made by Edo | 1800s | Made in Benin City | Found/Acquired Benin City



The Objects We Looted...

The Battle of the Mask

A DIPLOMATIC row is likely between Nigeria and Britain over the British Museum's refusal to lend the Benin Mask to the second World Black and African Festival of Arts and Culture, which is staged in Lagos next month. The 16th century ivory mask is the British's emblem.

After the Nigerian Observer had reported that the British Museum had agreed to lend the mask to FESTAC, the museum issued a statement saying that due to the mask's physical condition, they had ruled out its loan to Nigeria or anywhere else.

The mask, which was worn by Benin kings at coronations, has emerged as one of the finest examples of African art. It was first worn by King Ovwamwen, who was deposed at the fall of the Benin Empire in 1897.

Nigerian historians say that the mask was removed in the same year by the British Consul-General of the Niger Protectorate, Sir Ralph Mase, and taken to Britain. The British Museum says that the mask was bought from Professor C. G. Seligman, a private collector, in 1910.

The Nigerian Government's request for certain Benin objects from Britain which are also in the museum is under consideration, says the museum.

The mask is exhibited in a glass case at a controlled temperature. The base formation at the neck of the mask is made of ten applied heads and symbolizes the king's divine supremacy and sovereignty. The two incisions on the back-head, which were originally filled with iron strips, are royal tattoo marks. Around the neck, the artist has carved the coral bead collar which is a common feature of the king's paraphernalia.

The ivory mask is one of a set of four. Two others are in private hands in the United

States and Britain, and the third is in the Museum of Primitive Art in New York.

Many European colonials have over the years taken away several hundred precious African art objects as souvenirs. Two years ago prices for African antiques soared in Europe and the United States, and many changed hands for hundreds of pounds.

African governments are committed to preserving and maintaining their precious heritage. While they have been negotiating for the return of some collections in museums in Europe and the US, some African governments have committed themselves to buying back valuable pieces when they come up for sale.

The Asante Traditional Council recently bought a gold embroidered cap which had belonged to King Kofi Kakkari for £1,250 at an auction at Christie's in London. The Nigerian Government, which purchased some Benin bronzes from the British Museum during the 1950s, has promised to buy similar pieces when they become available.

By contrast, in Uganda, Milton Obote ordered the destruction of all kings' regalia when he overthrew monachy in 1967. Regalia, which included crowns, thrones, drums and robes used by four kings — some dating back to the 15th century and worth millions of Uganda shillings — were burned in broad daylight.

Other important African statues exhibited at the British Museum include the Asante golden stool used by Asante Kings — which Ghana has asked to be returned but without any success; a bronze figure of a hunter from Benin; the 16th century bronze head of a Queen Mother from Benin; and a 15th century brass head representing an early Oni of Ife excavated at Ife in 1908.

Nigeria has been trying to recover from Britain the 16th century ivory mask (BELOW) which has been adopted as the FESTAC emblem. Britain says it cannot give it back. DRUM reports.



Loot Co.



Looted
Object

Digital
Mirror

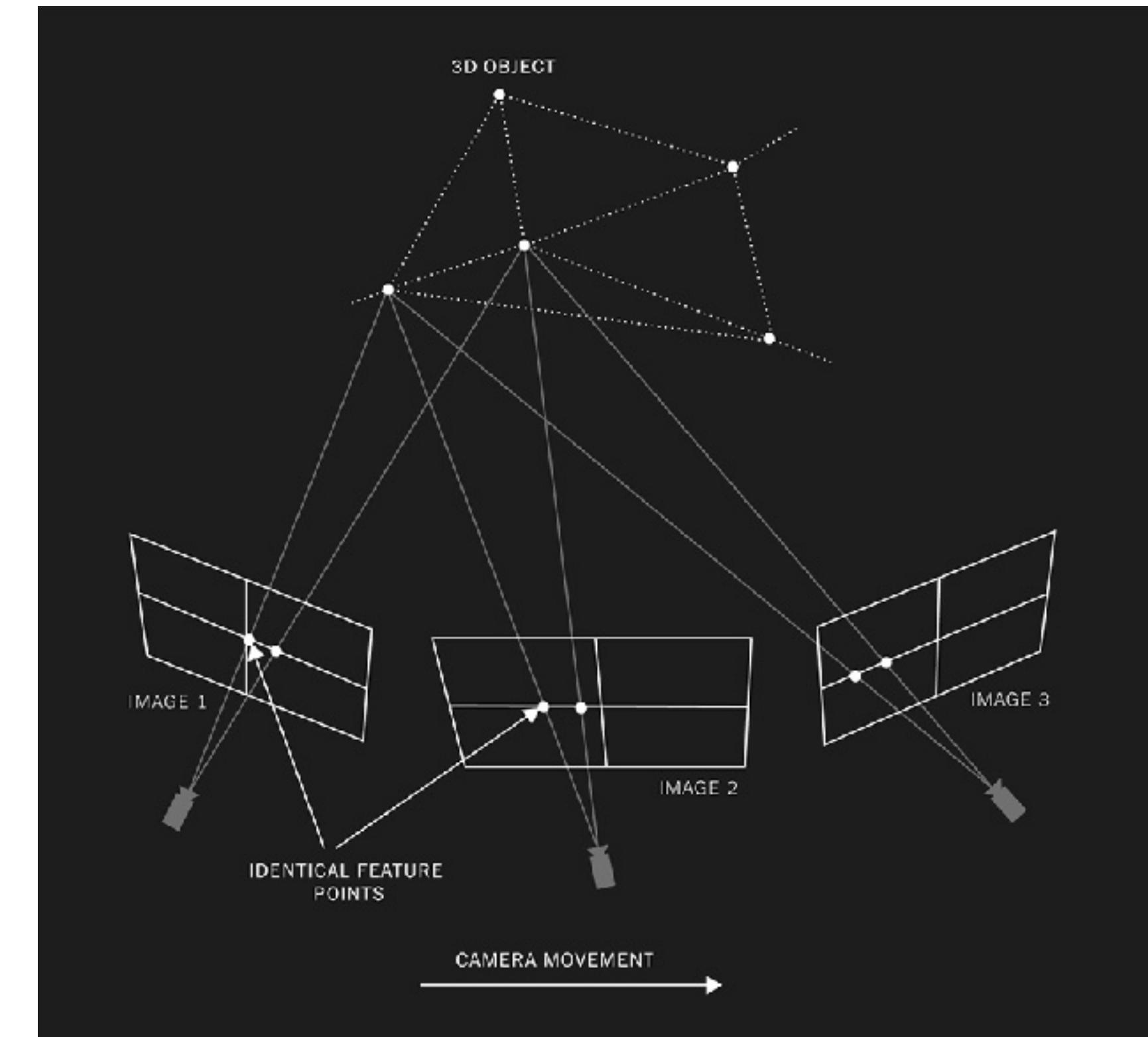


Technology

Images to Models

Structure from Motion (SfM)

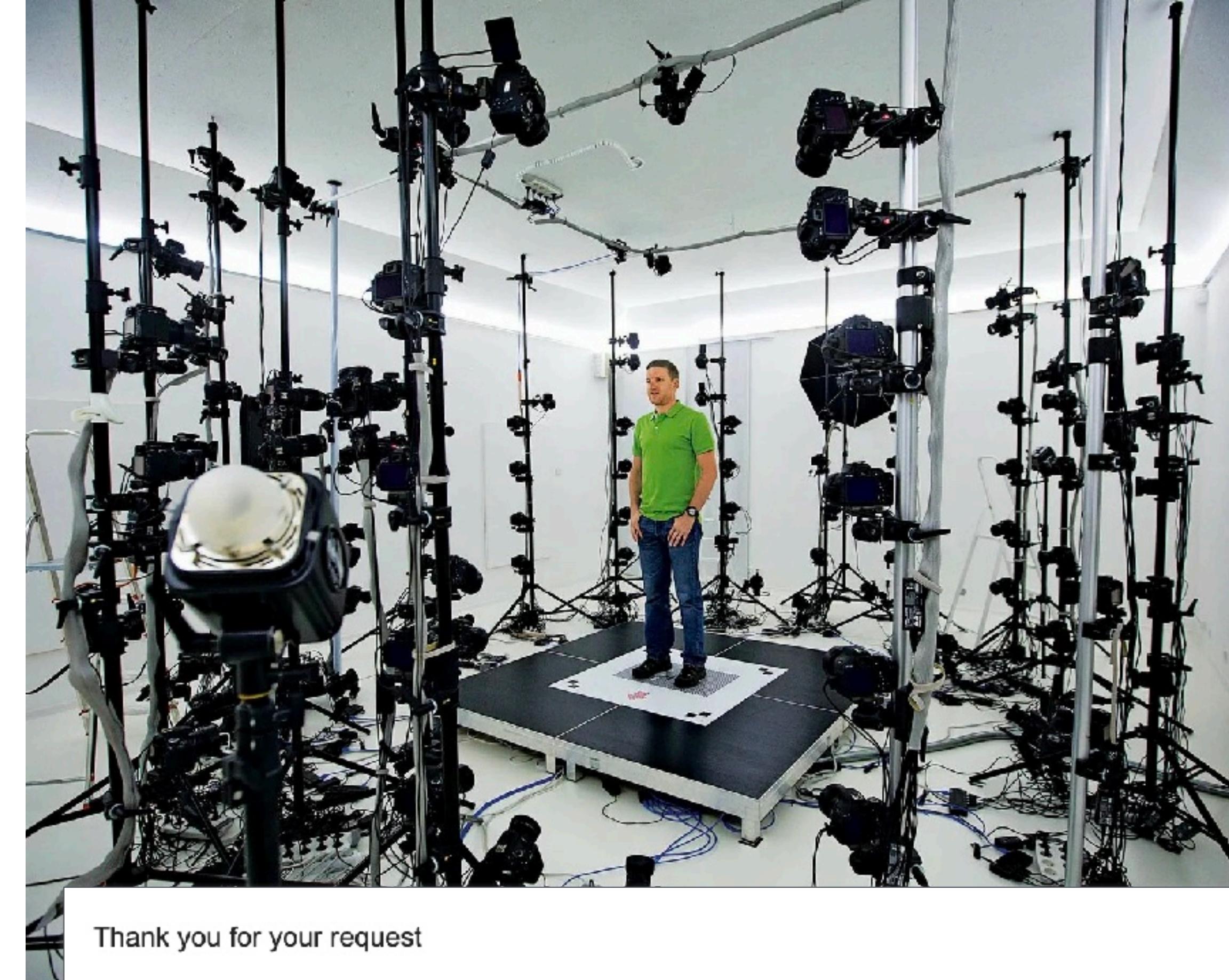
Photogrammetry technique that allows you to construct a realistic 3D model from a 2D images using computer vision / math.



Problem

Historically, 3D scanning 🎥

- requires special equipment, lighting, media storage, computing power
- requires technical knowledge of software, code, and formats
- inaccessible for independent artists, institutions w/o digitization teams
- expensive to outsource (~\$400/item)



Thank you for your request

I can offer you the following without obligation:

Option A)

Capture of object geometry

by high precision

optical 3D scanning, only from the outside

(as far as optically non-destructively detectable, data gaps may remain in undercut areas)

Creation of an STL data set:

2 pieces together: 360.00 euros

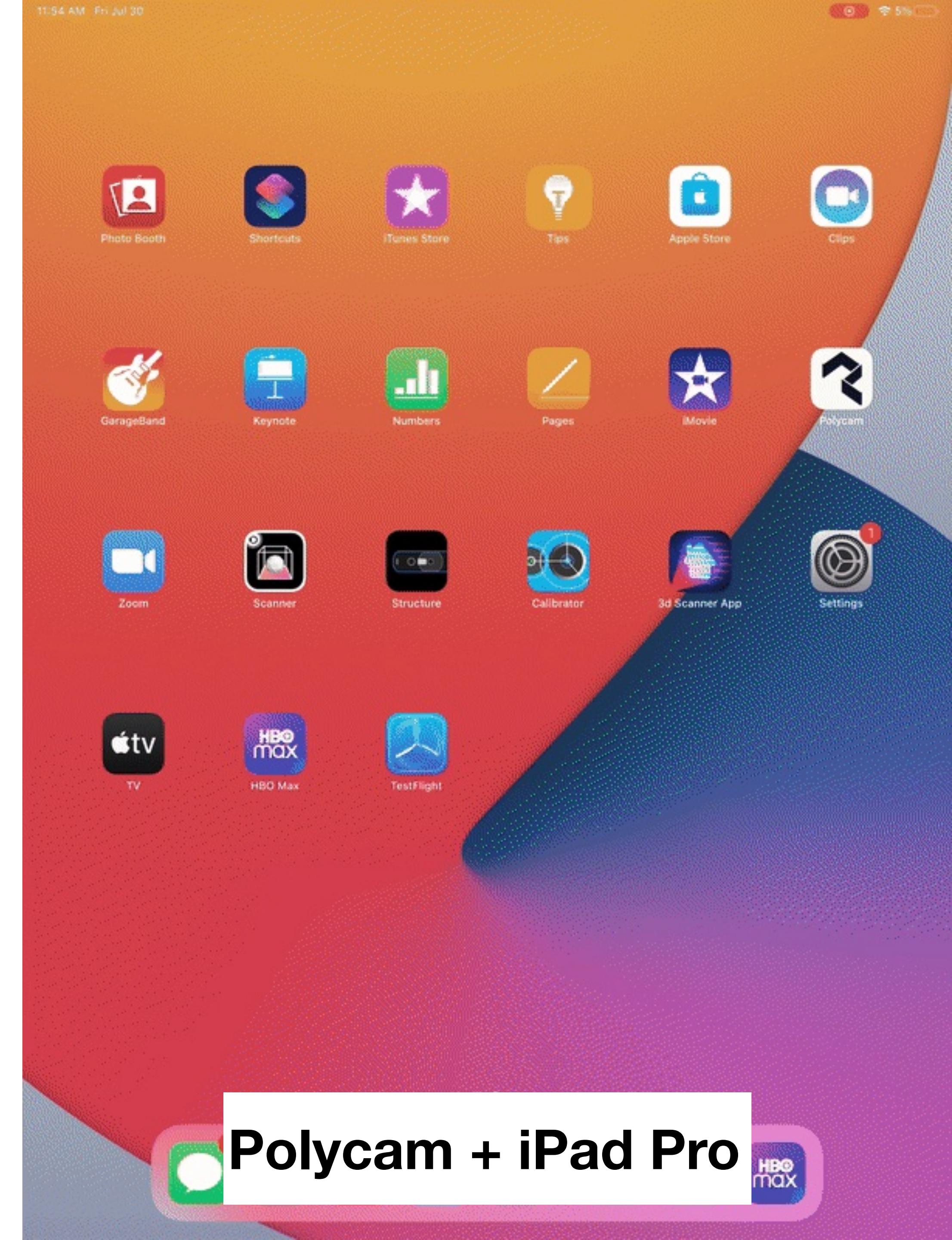
or

Emerging 3D Scan Tech Audit (2021+)

AMPL Labs worked with *Creative Technologist* [Olivia Cueva](#) to lead an audit to find the **most accessible 3D Scanning** tech, from commercially-available LIDAR / photogrammetry hardware and software.

Solution ✨

We found that **Polycam Pro**, along with an IOS device was ideal for scanning small objects at museums. ([Source](#))



New Apps (2021+)

There are several new apps that have been recently released that may be worth exploring:

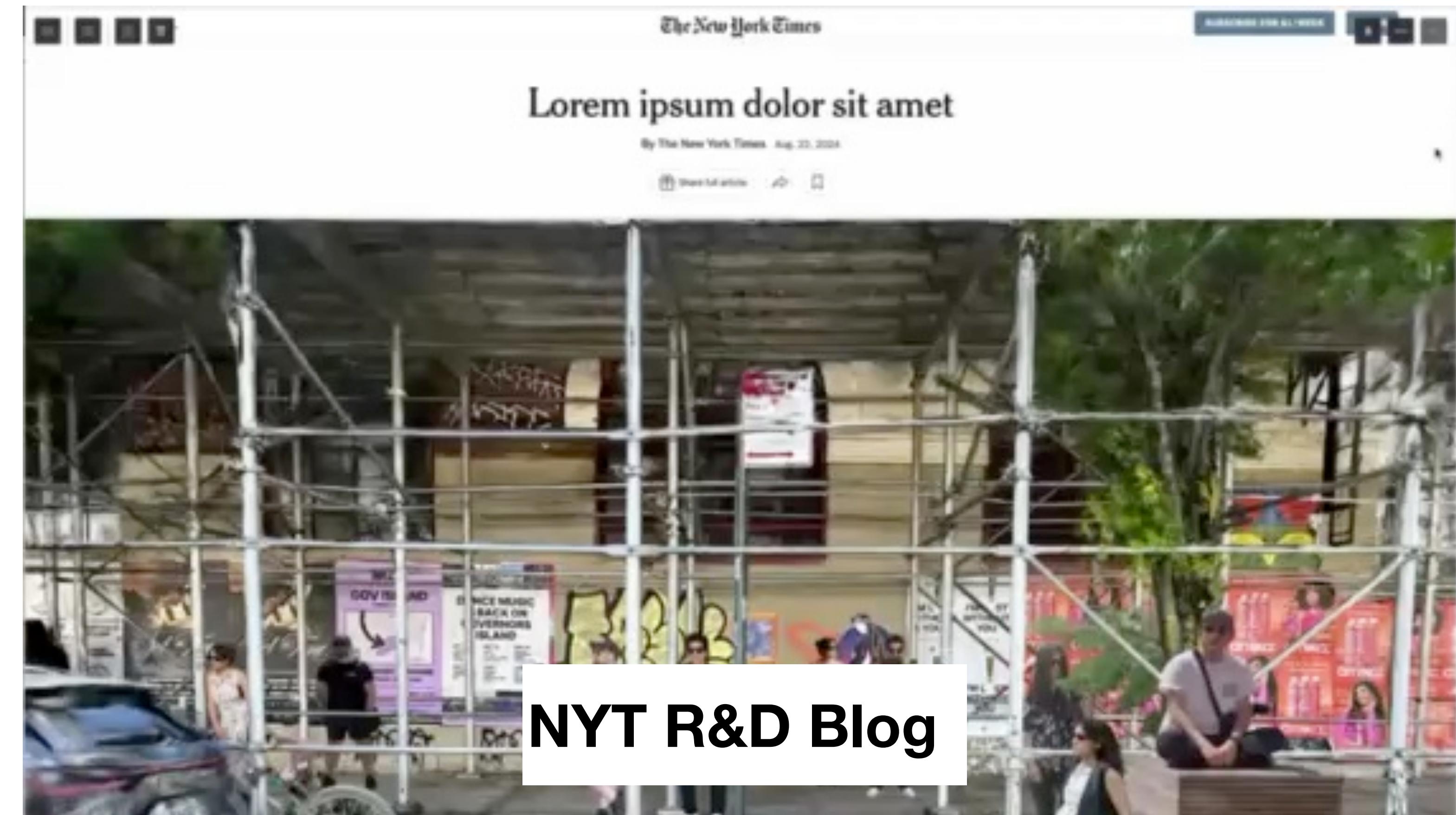
- [RealityScan](#) (IOS only)
- [Luma AI](#) (good for shiny objects, uses Neural Radiance fields (NeRF)



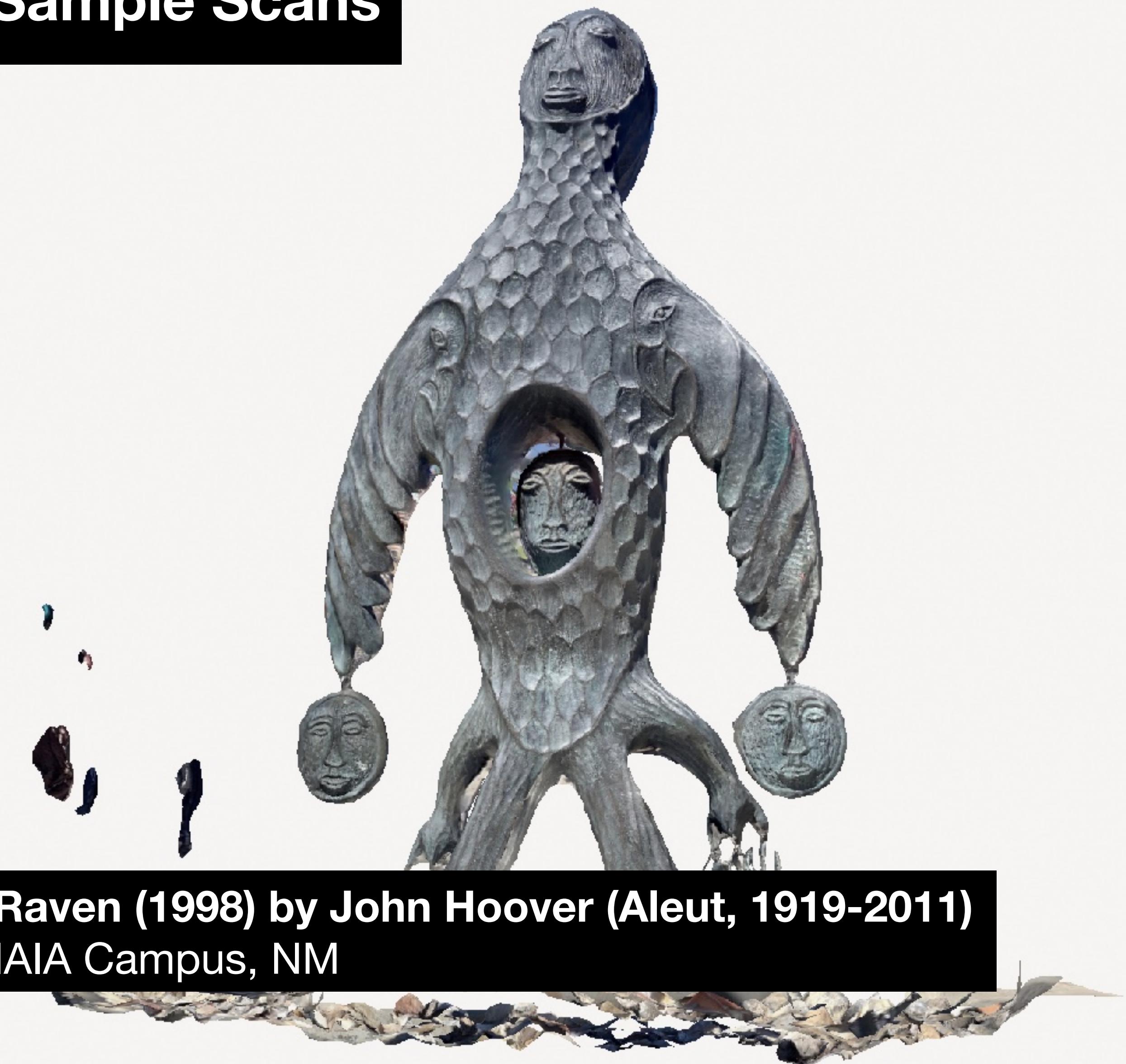
RealityCapture

Emerging Tech (2023)

Gaussian Splatting: Even better than NeRF, more math / processing. Allows you to capture, render more details.



Sample Scans



Raven (1998) by John Hoover (Aleut, 1919-2011)
IAIA Campus, NM



Sample Scans



'Joot'

Use Cases

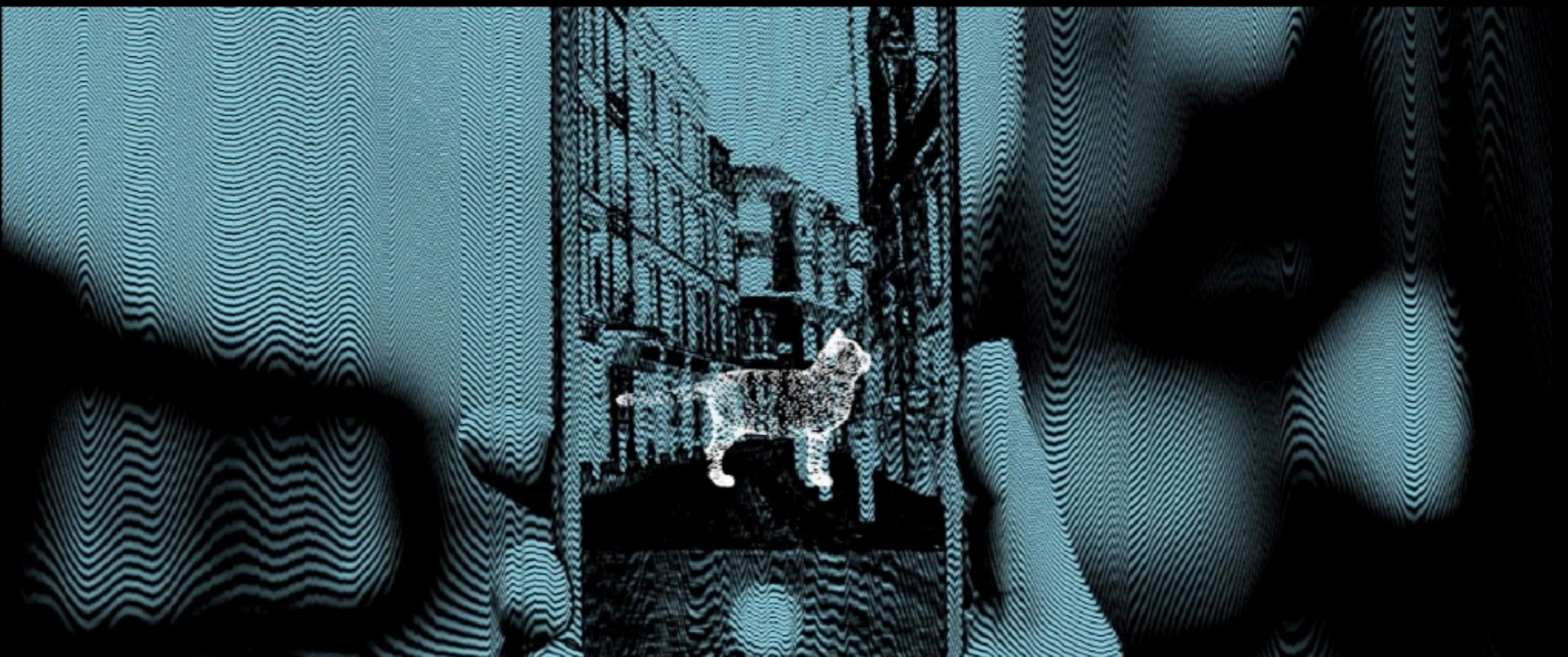
Journalism

<https://rd.nytimes.com/research/spatial-journalism/>

NYT R&D

Our Vision

Some Stories Are Best Told in Your Own Space



The image shows a small white dog standing on a dark surface. The background is filled with a dense, wavy, blue-toned pattern that creates a sense of depth and space, illustrating the concept of spatial journalism.

Related Projects



Spatial Journalism
Building The Times's First AR Game

Spatial Journalism
Developing Animated Sequences for Augmented Reality

Spatial Journalism
Working with Universities to Experiment with Spatial Computing

Extended / Virtual Realities



Sample AR Experience



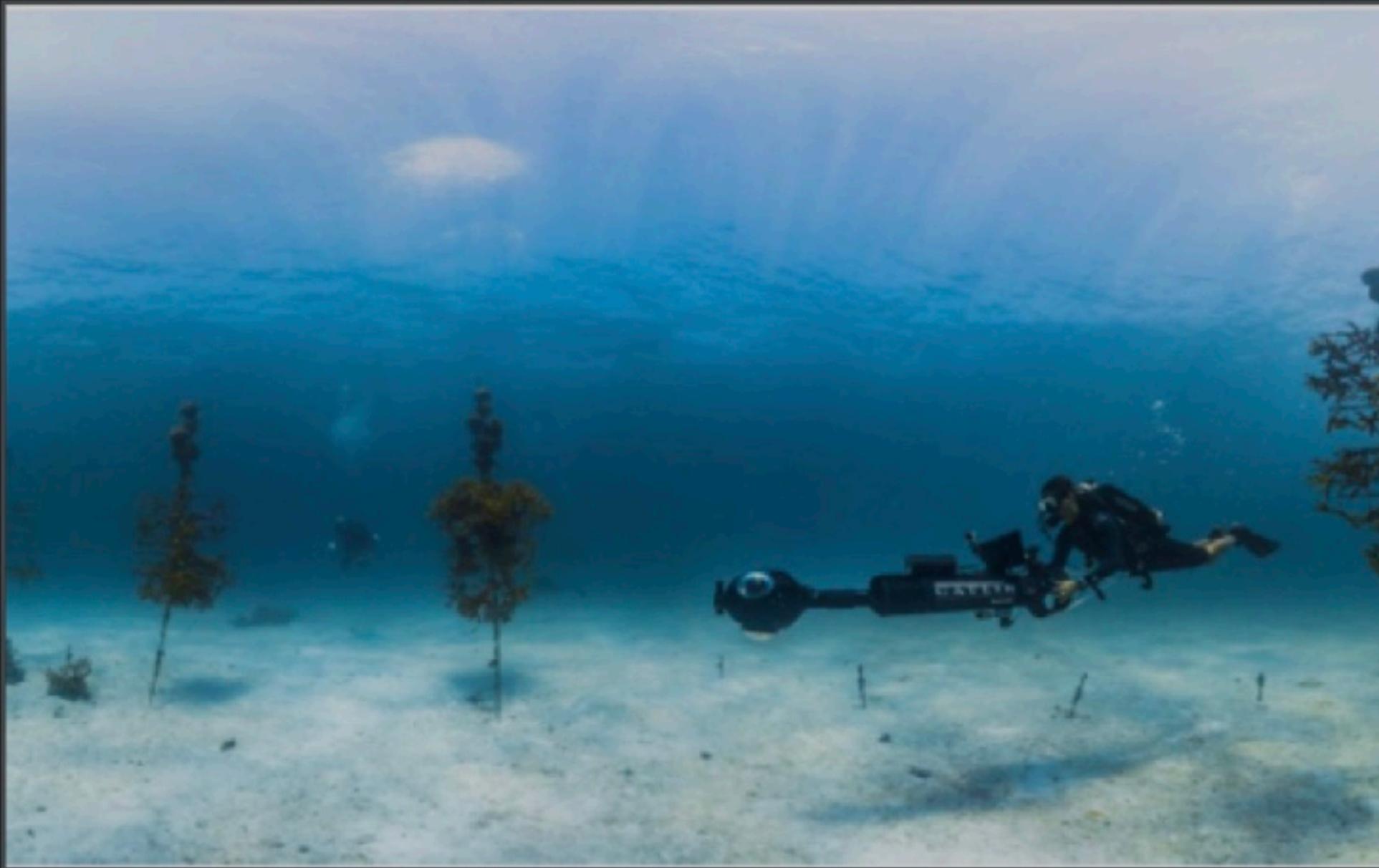
Conservation

Underwater Photogrammetry Application for Coral Reef Mapping and Monitoring

Agung Budi Cahyono^{#1}, Andreas Catur Wibisono^{#2}, Dian Saptarini^{*}, Rizki Indra Permadi⁺, Yanto Budisusanto^{#3}, Husnul Hidayat^{#4}

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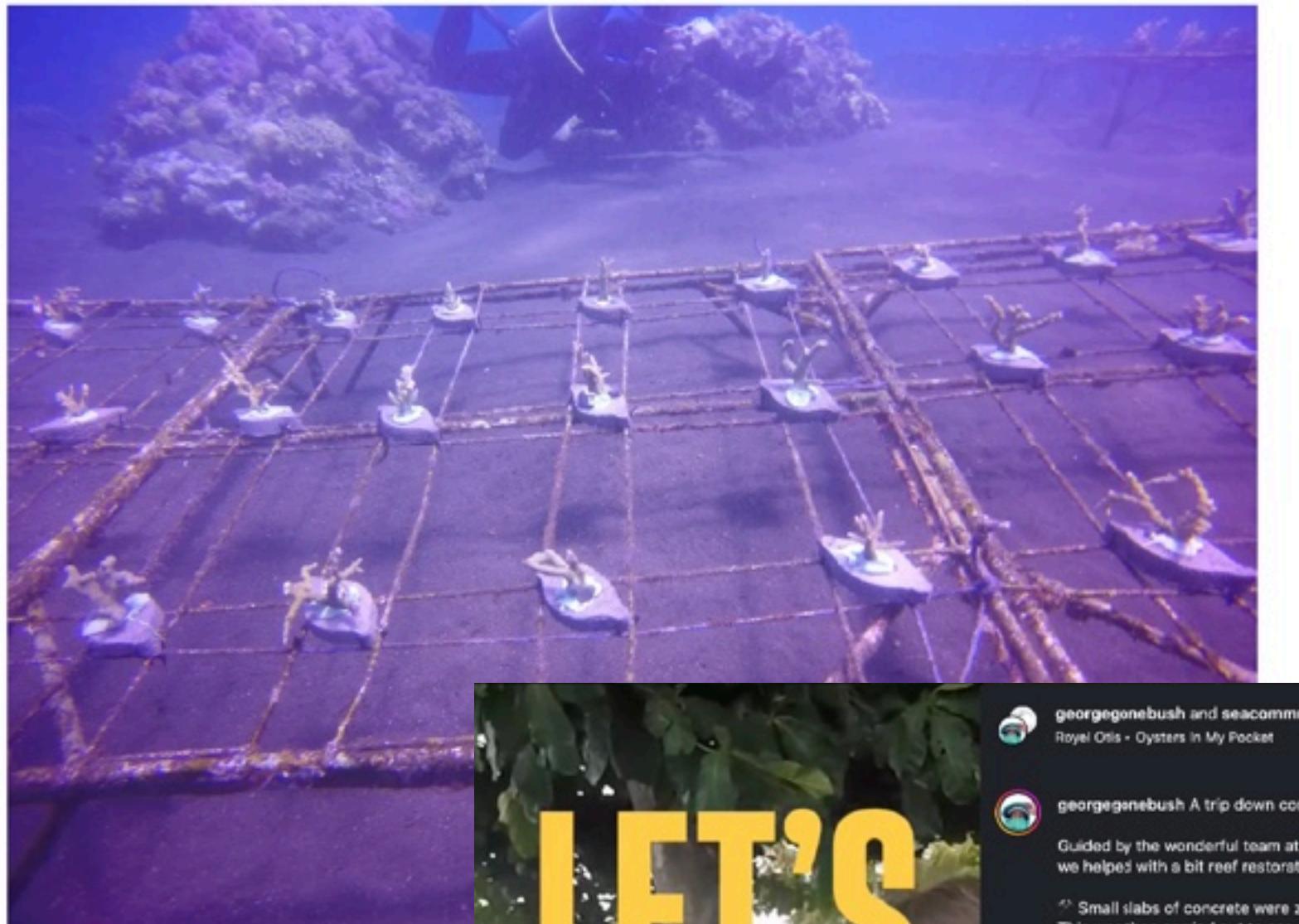


Scuba diver filming a coral reef nursery at Florida Keys National Marine Sanctuary.



Conservation

The Coral Reef Rehabilitation Project



Coral Reef N...

georgegenebush and seacommunities
Royal Otis - Oysters in My Pocket

georgegenebush A trip down coral reef rehab lane...
Guided by the wonderful team at @seacommunities, here's how we help with a bit reef restoration:

- Small slabs of concrete were zip tied to rope trays on a table. This was then carried out to sea and placed amongst the other tables of coral microfragments.
- The divers harvested small pieces of coral (microfragments) from the existing reef. You can see the little shopping baskets being carried down aisle coral!
- One tray was left on land for the snorkelers. 'Eka' glue, a locally made concoction similar to a waterproof concrete created by Pak Eka from @seacommunities, is used to stick the coral pieces onto the slabs. This glue is also used during the transplantation of coral microfragments back onto the coral reef.
- Learned that Drupella spp. (a species of snail) is eating the coral at an alarming rate. But we had to be careful which ones we plucked off the reef as the crabs like to make their homes too!

A lot of insightful information in just a couple of days, suksma guys!

#newcolumbiaplan #seacommunitiesbali #murdochuniversity #murdochoutbound

Liked by losi.silo and others
January 17

Add a comment... Post



Preservation



Abigail Gancz imaging the White Raven Hat. Nick Partridge, Smithsonian



The White Raven Hat and its caretaker clan leader Ray Dennis. Nick Partridge, Smithsonian

Reimagination?



Sculpture, Rose B.
Simpson

Revised plaque, "To
the Rebels"



Live Augmented Reality
Projection on Plaza

Break

Workshop

Getting Started....

- **Prepare Mobile Devices**

- Charged
- At least 500mb of Space
- Review specs

- **Sign Up / Register:**

-  Polycam 3D Scanning App
- Optional:
 - Sketchfab (3D Hosting Platform)
 - Luma AI (Scanning App)
 - Vectary (AR Platform)

What devices is Polycam available on?

Polycam is available on iOS, Android, and the web.

iOS

Starting in September 2022, Polycam will officially support all iOS devices which can run iOS16, which does not include the 6S, 7, or first-gen SE.

Polycam's LiDAR capture mode requires a LiDAR sensor, which is available on the following devices: iPhone 12 Pro / Pro Max, iPhone 13 Pro / Pro Max, iPad Pro 2020 / 2021

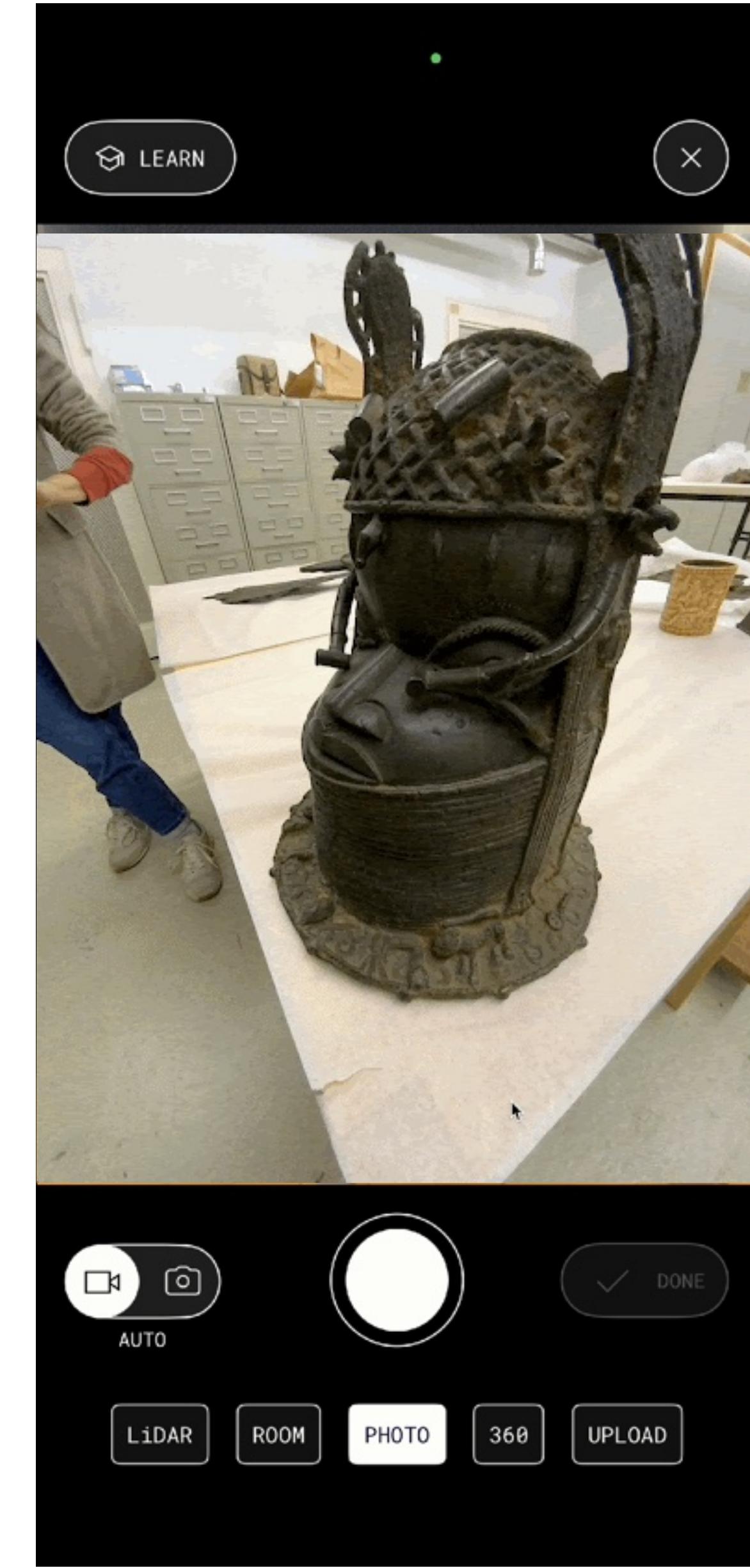
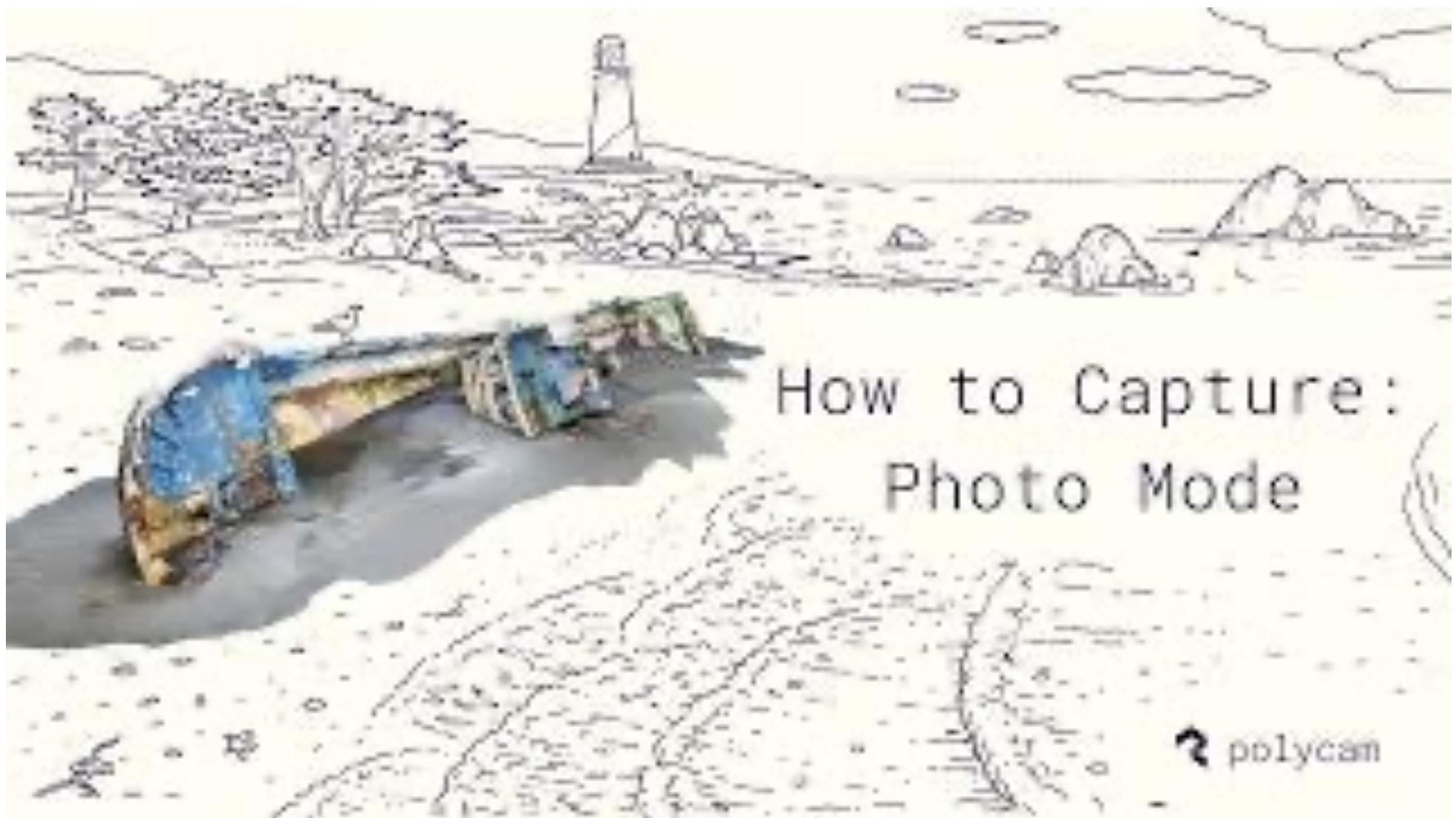
Android

To run Polycam's Android app, an Android device must meet the following requirements:

1. At least 3.5GB RAM
2. 64-bit architecture
3. does not have an Imagination Tech PowerVR GE8320 GPU

Polycam

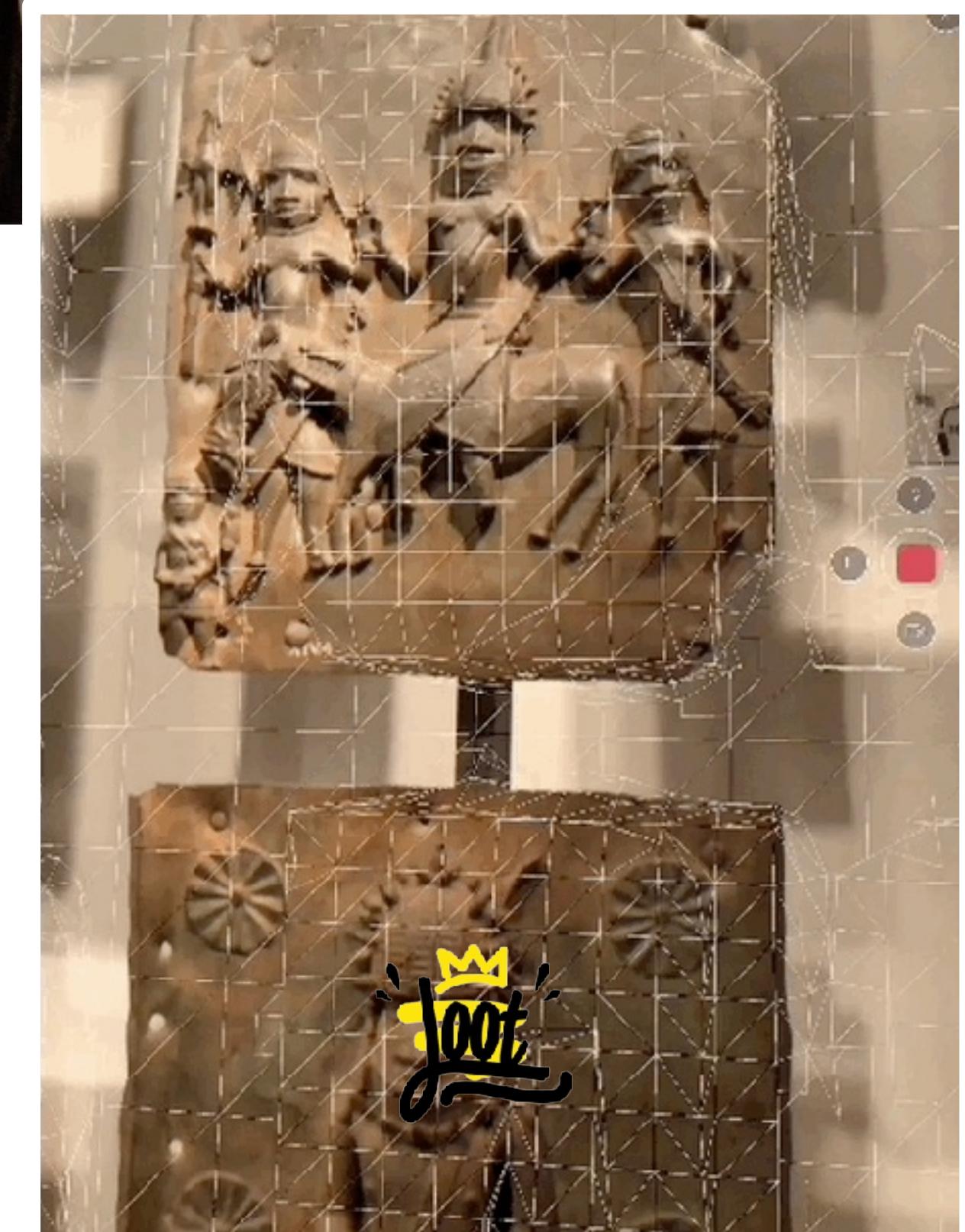
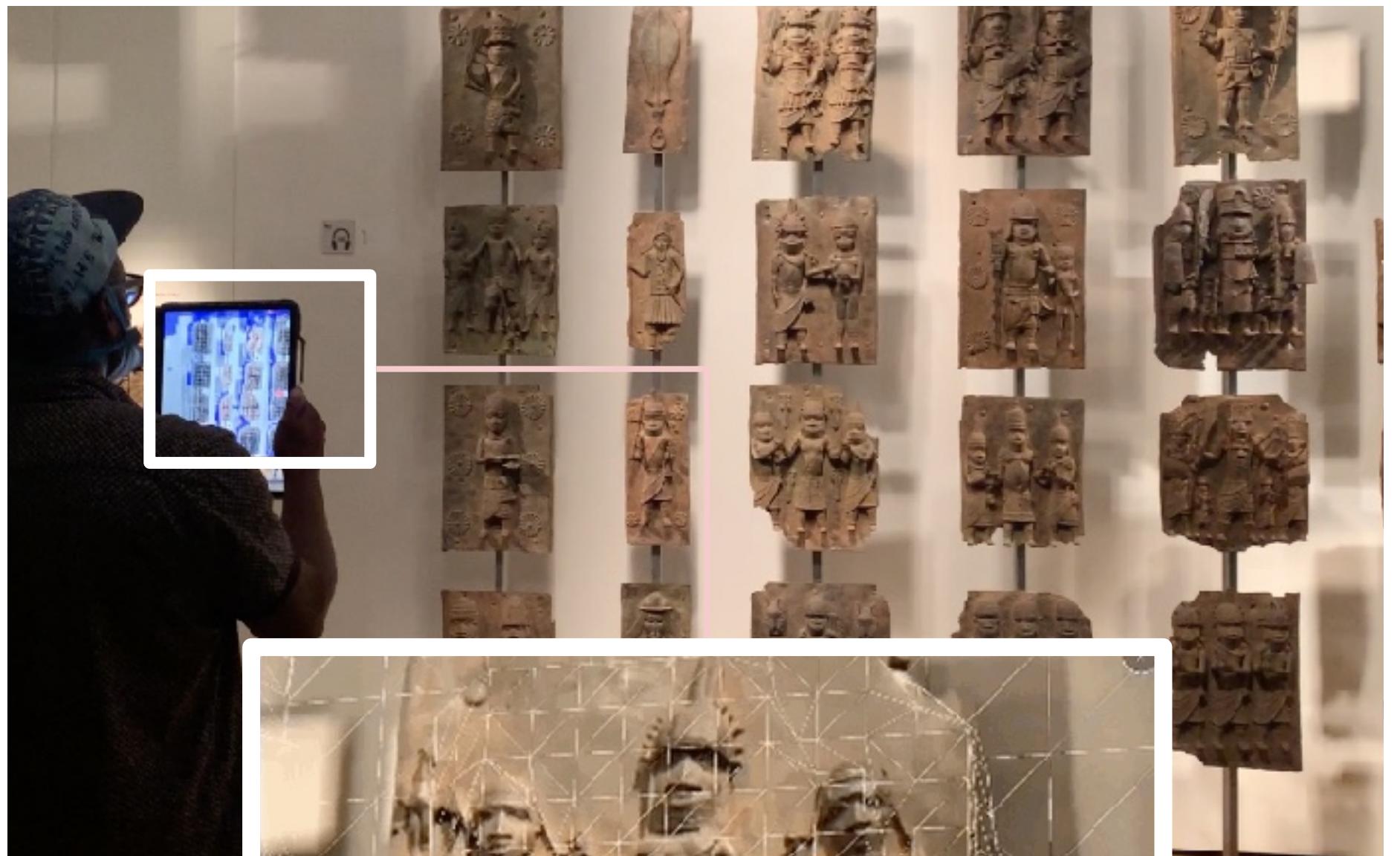
Photo Mode



Polycam

Tips:

- Go slow, and get a variety of close-up photos to capture details
- Make sure photos are in focus
- Make sure lighting is neutral, with no harsh shadows, minimal reflections



Polycam

DETAIL

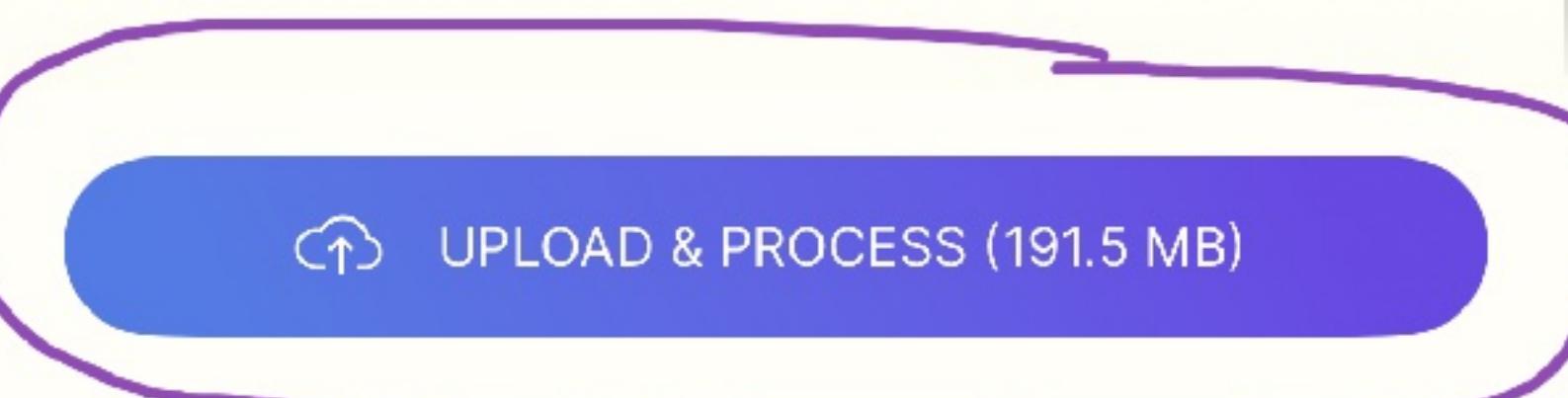
OPTIMIZED MEDIUM FULL RAW

ⓘ Which detail setting should I use?

OBJECT MASKING

Use Object Masking

Object Masking can be helpful when processing detailed, small objects. [Learn more](#)

  UPLOAD & PROCESS (191.5 MB)

UPLOAD LATER



Polycam

Photo Mode (advanced):

You can upload photos taken with another camera through the website (i.e. DSLR, GoPro)



X create new capture

DRAG IMAGES HERE

OR

CHOOSE FROM FILESYSTEM

MINIMUM 20 REQUIRED FOR PROCESSING

MAXIMUM 1000 ALLOWED

A screenshot of a web-based interface titled "create new capture". It features a large rectangular area with a thin black border labeled "DRAG IMAGES HERE" in the center. Below this area is the word "OR" in a smaller font. Underneath "OR" is a blue rectangular button with rounded corners containing a white camera icon and the text "CHOOSE FROM FILESYSTEM". At the bottom of the interface, there are two lines of text: "MINIMUM 20 REQUIRED FOR PROCESSING" and "MAXIMUM 1000 ALLOWED". A large, solid purple rectangle is positioned at the bottom of the page, partially obscuring the bottom edge of the interface.

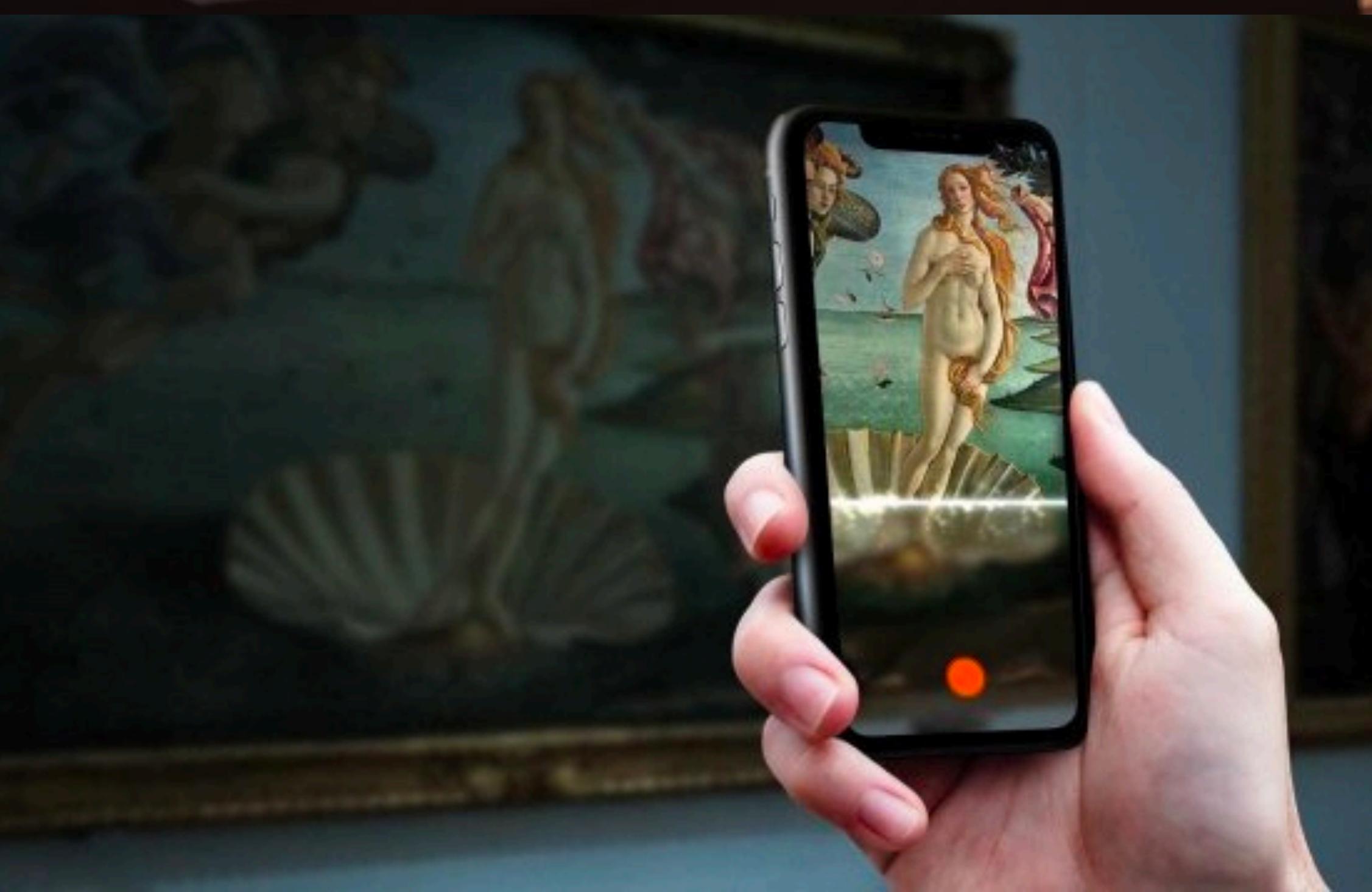
Developing AR Experiences

AR Authoring Apps

AR authoring apps allow you to combine and overlay digital content (video, 3D files, images, audio) to make your augmented reality content more engaging and accessible.

Popular authoring apps include:

- **Social Apps:** [Lens Studio](#) (Snapchat), [Effect House](#) (TikTok) let you publish AR experiences on social media
- **Web Apps:** [8thWall](#), [Artvive](#)
- **Standalone Apps:** [Black Terminus AR](#), [Adobe Aero](#), [Unity](#), [Unreal Engine](#)



Exporting / Hosting

USDZ & GLB (also called GLTF) are some of the most widely supported AR/3D files for augmented reality experiences.

USDZ works natively (without any extra apps) on iOS devices and can be embedded on most web pages using **<a> tags** (bottom right).

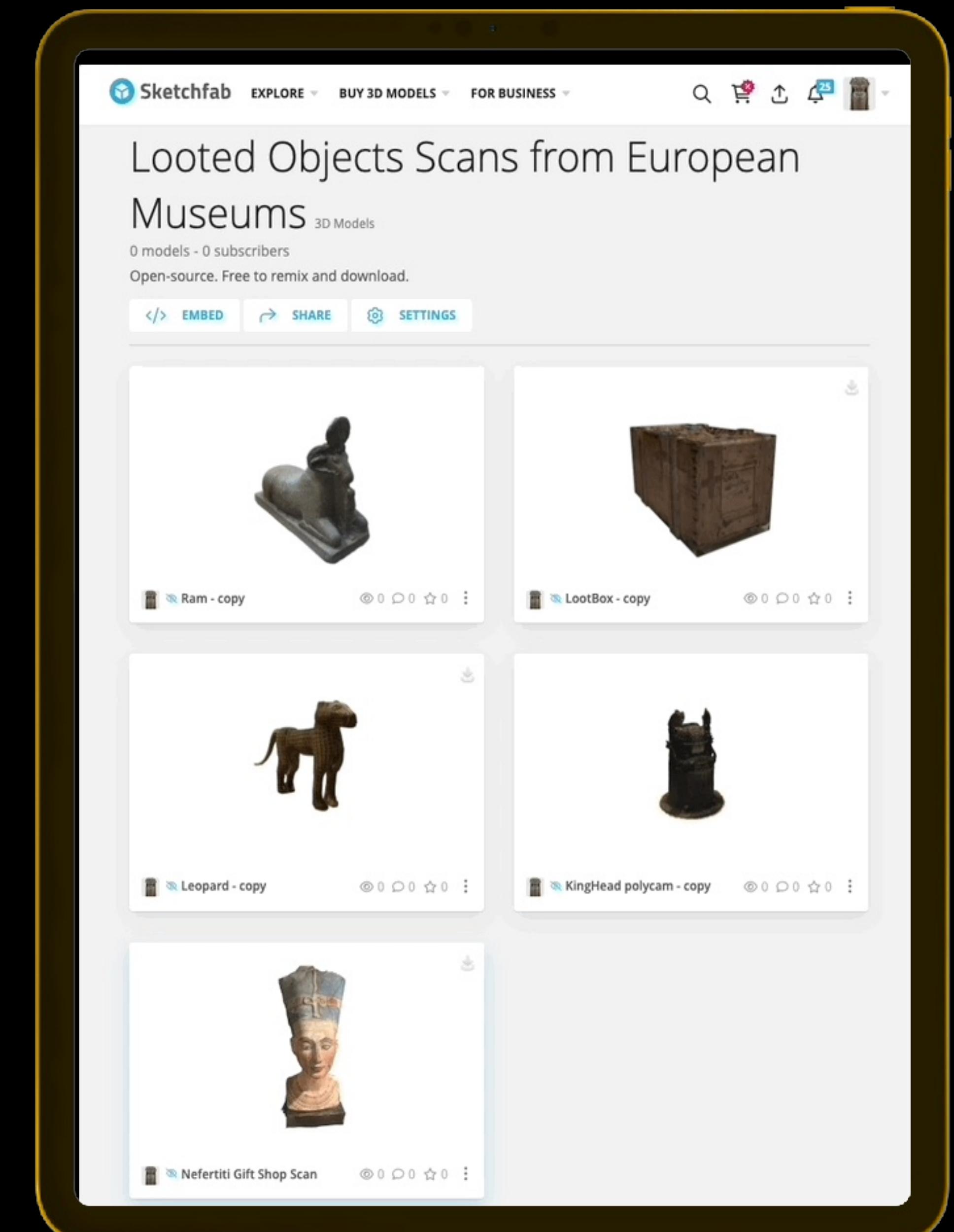


```
<a href="http://example.com/file.usdz" rel="ar">  
  
  
  
</a>
```

Sketchfab Etc

You can also export USDZ or host simple AR / 3D web experiences using the tools below:

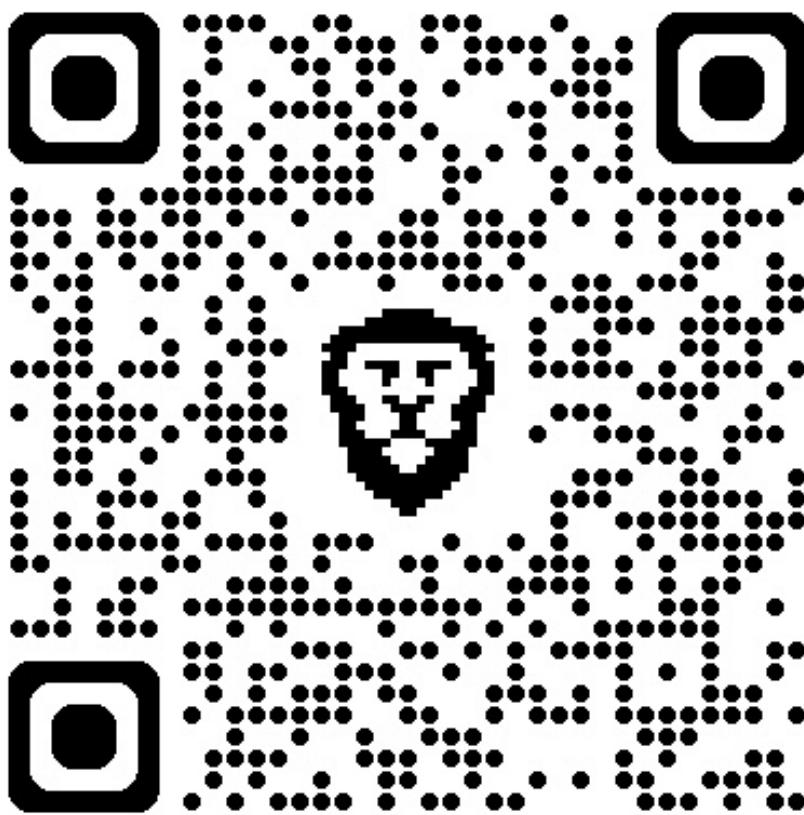
- **Vectary**: Free USDZ conversion, \$15/month, includes WebAR Viewer (top-right)
- **Sketchfab**: Pro accounts include USDZ export, WebAR viewer



ModelViewer

ModelViewer is a lightweight library for hosting 3D / AR content on the web.

There's a handy-dandy [editor](#) that lets you upload GLBs and generates HTML.



⑧ <model-viewer>

Easily display interactive 3D models on the web & in AR

Quick Start

```
<!-- Import the component -->
<script type="module"
src="https://ajax.googleapis.com/ajax/libs/model-
viewer/4.0.0/model-viewer.min.js"></script>

<!-- Use it like any other HTML element -->
<model-viewer alt="Neil Armstrong's Spacesuit" from="the
Smithsonian Digitization Program, Office and National Air and
Space Museum" src="shared-assets/models/NeilArmstrong.gltf" ar
environment-image="shared-assets/environments/moon_1k.hdr"
poster="shared-assets/models/NeilArmstrong.webp" shadow-
intensity="1" camera-controls touch-action="pan-y"></model-
viewer>
```

bundlephobia 500 release v4.1.0 npm v4.1.0
Follow @modelviewer ⚡ Star 7.5k

Getting Started

[FAQ: Introduction & much more](#)

[Editor: Test your 3D models and download a starter
website](#)



Other AR Examples

Some popular types of experiences are:

- Living Wall / Animated Photo: video / animation on a target image
- Face Filters: animation/3d assets anchored to face
- ✨ **Immersive 3D**: Allow users to view virtual 3D content in the real world

