

Hacking Immersive Digital Content for Museums

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What is Immersive Media?

Virtual Reality

Augmented Reality/Mixed Reality

360 Video

180 Stereoscopic Video



ASUS Mixed Reality Headset

Why Create Immersive Media?



MythBusters: Shark Shipwreck (360 Video)

High End vs. Hacker Approach

High End 360 Video

High resolution 360 cameras and multi-camera GoPro rigs cost thousands or even 10s of thousands

Editing and stitching software is expensive and has a learning curve

High initial outlay for unknown benefit

High obsolescence factor

Nokia OZO: 40,000 USD



Hacker Approach

Start with a low cost version

Experiment with media and delivery options

Track responses

Improve

Iterate



Insta360 Air: 129 USD

3D Object Capture

Laser Scanners (you can build your own for less than \$300)

Structured Light Scanner (DYI versions are experimental)

Photogrammetry

[Meshlab](#) (Open Source)

[Autodesk ReMake](#)

[Scann3d](#) (Android)

[Trnio](#) (iOS)



3D Objects

3D models can be shared from website

Sharing sites: e.g. [Sketchfab](#)

3D printing for handling sensitive objects, accessibility

AR applications



Hands-on Activity: 3D Scan

3D Object Scan (photogrammetry)

Work in groups of 3-4

Recent smartphone(s) (Android preferred)

Android – Install Scann3d from Google Play

iOS – Install Trnio from App Store

Watch the in app tutorials for key hints on getting a good scan



Hands-on 3D Scan

Select an object to scan and a place to scan it
(lighting is critical!):

Capture a tabletop object, person, outdoor object,
building feature, or whatever you like

Try to scan at least one object per person

Bonus

Upload to Sketchfab and share on social media
(note auto upload from Scann3d is bugged – export
and use a browser to upload)



360 Video/VR

High end capture – Google, Nokia, Facebook, Microsoft, GoPro rigs

High end consumer viewer – Oculus, HTC Vive, Sony PlayStation (needs fairly serious PC or console)



Facebook Surround 360 (Open Source)

360 Video/VR

Consumer 360 Capture

[Samsung Gear360](#)

[Ricoh Theta V](#) (Spatial Audio!)

[Nikon KeyMission 360](#)

[Google VR180](#) – consumer models coming soon



360 Video/VR

Viewers

[Samsung Gear VR](#) (Requires Samsung smartphone)

[Google Cardboard](#) (Most smartphones)

Deliver over YouTube, livestream to Facebook, etc.



360 Video



VR Tours

Free online VR tour creation tools

[GuriVR](#)

[Fader](#)

[IdeaspaceVR](#) (Open Source)



Hands-on Activity: VR

Create a Three Element VR Tour Using a Smartphone:

Groups of 5 -6

You will need a recent smartphone with photosphere camera app

Android - use Android Camera (hopefully it's built-in, if not, enable unofficial sources in settings and install this [APK](#))

iOS - use [Google Street View](#) from App Store

Create account at getfader.com



Hands-on VR

Link photospheres with gaze-activated hot spots

Add descriptive text

View using phone browser – Chrome is best

Bonus level – include 180/360 Video hotspot



More Stuff:

Developing VR environments: [Unity](#), [Unreal Engine](#), [Blender 3D](#)

[DIY Planetarium](#) for group experiences

[A-Frame](#) – develop VR apps with HTML

[DigitalOcean](#) – easy, inexpensive application hosting



Apps and Resources

Android

[VR Center](#)

[Android Camera](#)

[Scann3d](#)

Sites

[getfader.com](#)

[gurivr.com](#)

[aframe.io](#)

[culturalthinkers.ca/interactive](#)

iOS

[Homido 360 VR Player](#)

[Google Street View](#)

[Trnio](#)

