



Lighting a Legend

Art Pipelines in Sir David Attenborough's *Hold The World*

Laura Dodds

Head of Art at Dream Reality Interactive



XR DEVELOPERS CONFERENCE 2018 | October 29-30, 2018 #XRDC18



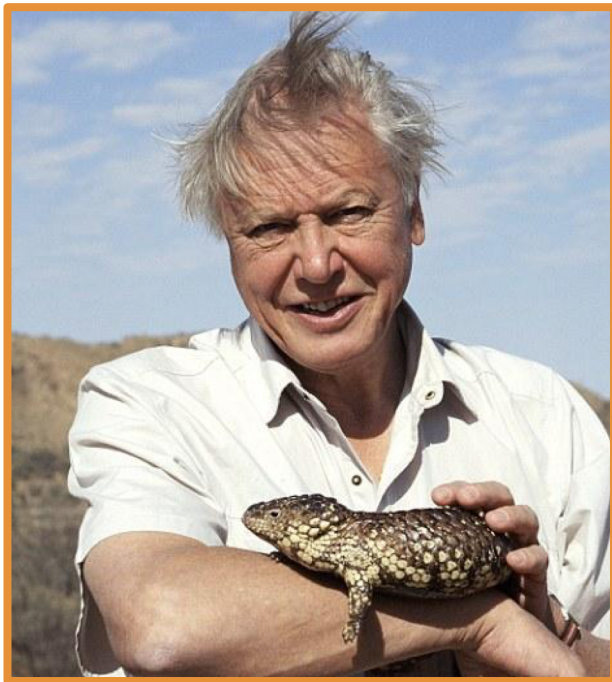
About



Art director with a background in 2D animation. Shortlisted for MCV's The Rising Star of The Year Award, member of BAFTA Crew Games and NFTS graduate.



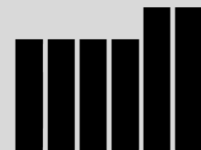
Immersive entertainment studio with a pedigree of making innovative games and experiences. Recent and upcoming releases include *Arca's Path*, *Orbu* and *Hold The World*.





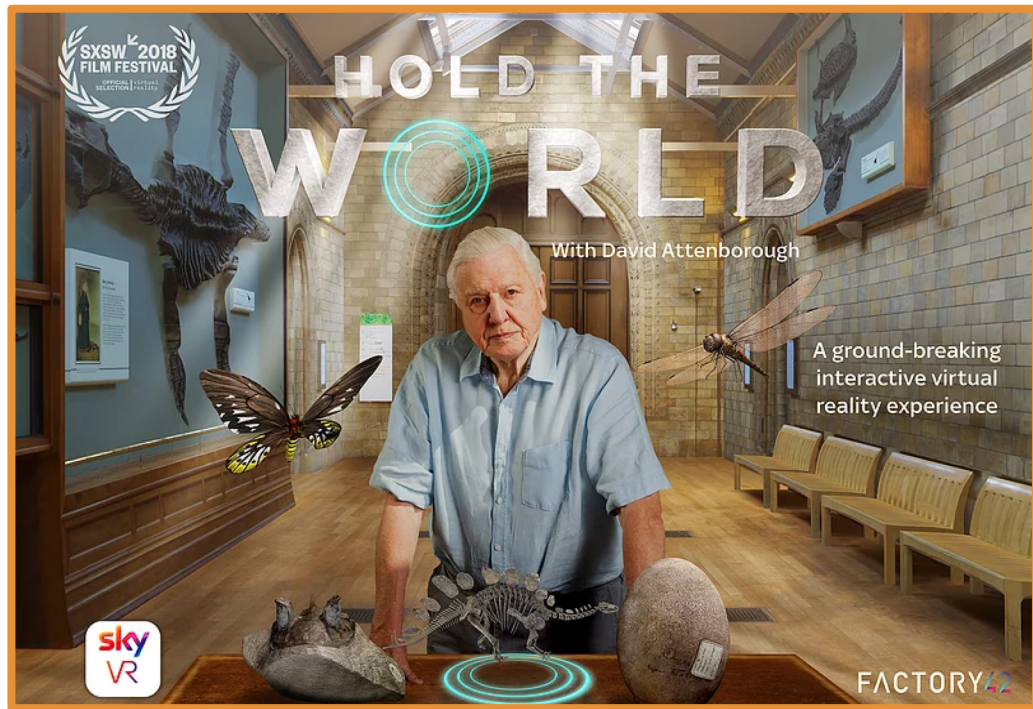
A personal tour of the Natural History Museum with the perfect guide: Sir David Attenborough. Handle his favorite museum pieces and learn their fascinating histories.

Hold the World is a world-leading Virtual Reality experience which combines the talents of legendary broadcaster, Sir David Attenborough, with the expertise and unique exhibits of London's Natural History Museum.



Commissioned by the Sky VR Studio, *Hold the World* was produced by immersive content studio Factory 42 and developed by Dream Reality Interactive.

The experience was directed by Dan Smith (Factory 42), and executive produced by John Cassy (Factory 42) and Neil Graham (Sky).



EARTH SCIENCES LIBRARY

HOLD THE WORLD



Outline

- The goal
- Challenges
- Pipelines
- Key learnings
- Questions



Elegant



Intimate



Educational





Locations

The Conservation
Centre

The Cryptogamic
Herbarium

The Earth Sciences
Library

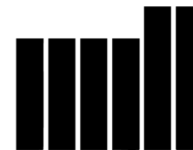
The Fossil Marine
Reptiles Gallery





What from where?

- Photogrammetry environments from **Alter Equals**
- Volumetric video capture from **Microsoft**
- Scanned objects from **The Natural History Museum**
- Animated specimen assets from **The Mill**



Challenges

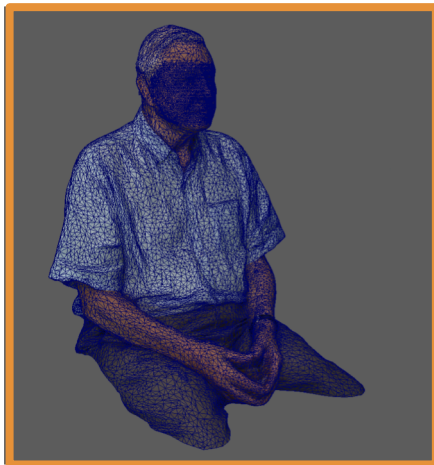
- Multiple partners and timelines
- Working with new and unfamiliar technologies
- Creating a coherent space
- High degree of accuracy and fidelity required
- Delivering on mobile and tethered platforms
- One art director and one technical artist

Pipelines



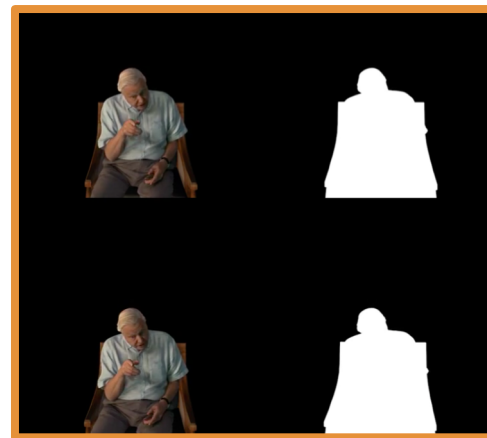
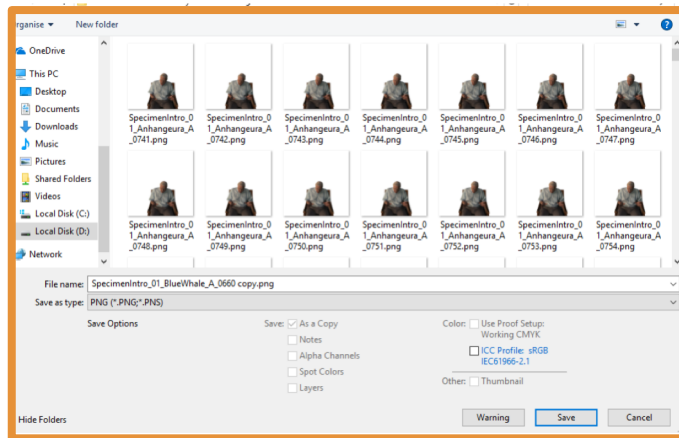


Holo video



Capture → Mesh & Audio → Encoding → MP4 → Unity

Stereoscopic video



Mesh & textures → 2D images → Colour grading → Video

Lighting Summaries

Photogrammetry Environment

- Lighting from day captured in textures
- Additional lighting baked in Maya
- Textures colour graded
- Textures retouched in photoshop
- Unlit shader in Unity

Holo videos

- Lit in studio, cleaned in post, colour graded textures

SQUEEZE
O SELECT





Diffuse, normal, metallic, AO maps



Lit in Unity, cast realtime shadows

Lighting Summaries

Stereoscopic videos

- Textures with lighting information from shoot
- Models lit in Maya
- Image per eye colour graded and sharpened in photoshop
- Videos generated in Premiere
- Additional colour grading in Unity shader

Additional lighting

- Light rays added in Unity
- Lightmap bakes in Unity for static objects
- Ambient light and colour per scene

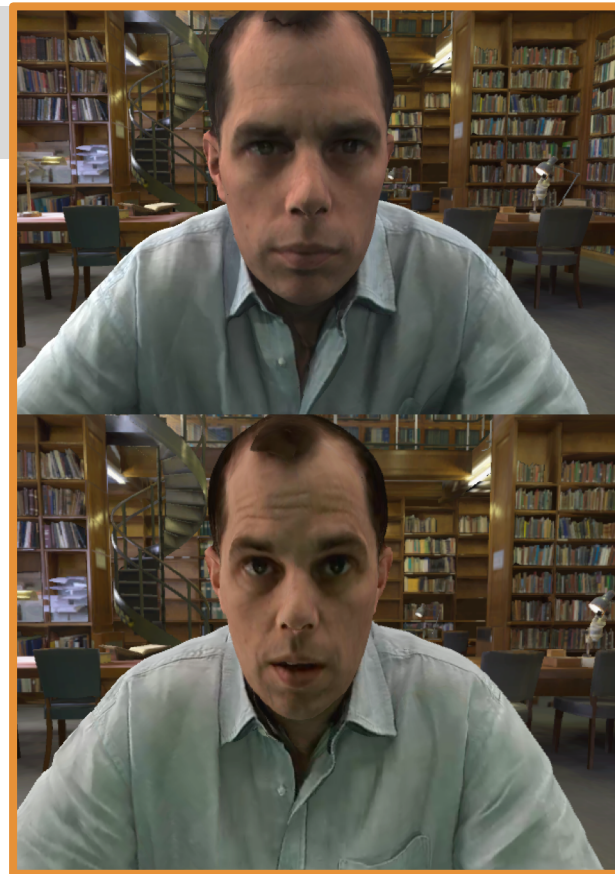
The best laid plans...

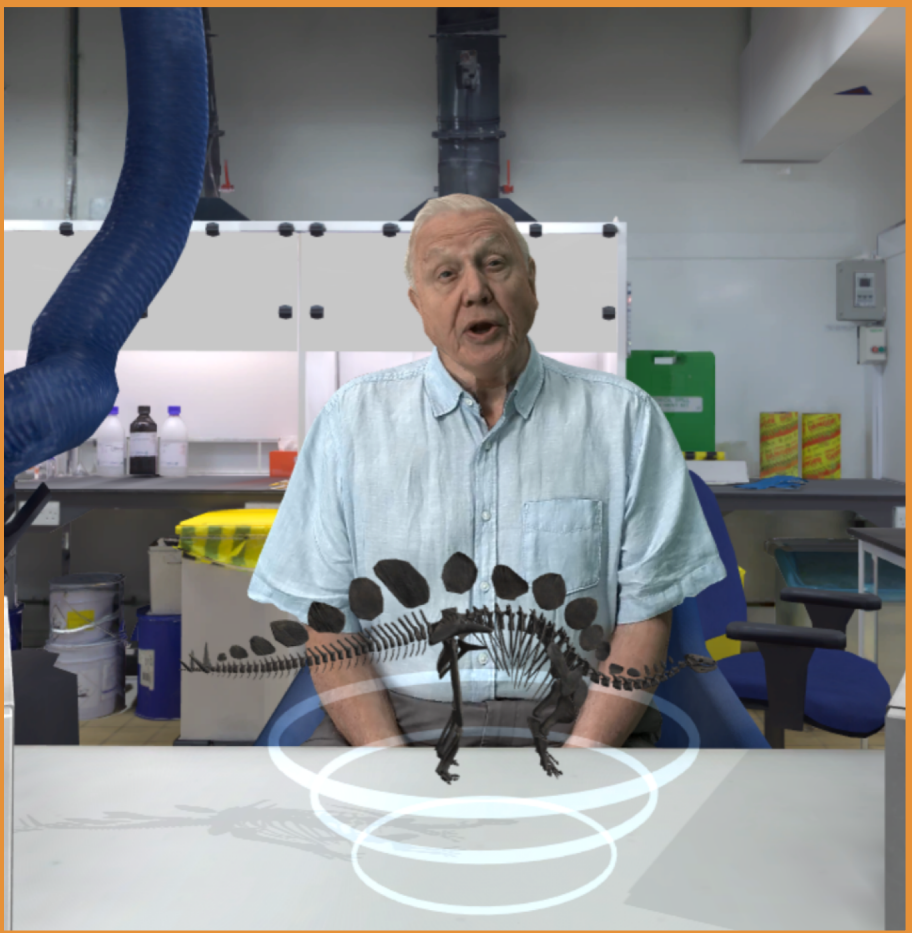
Preparations

- Relighting tests with Microsoft
- Flat lit with post vs directional studio lighting
- Supporting materials, HDR cubemaps, environment blockouts, Unity lighting rig, location photos
- Holo video taken through entire pipeline BUT...

We need to move David!

- Post production and colour grading to the rescue





Key Learnings

Holo video

- People move!
- Choose your lighting
- Colour is your friend

Unity

- Discover your constraints and work backwards

Stereo video

- Every mistake is costly
- Document your iterations

Scanned objects

- Manage expectations
- Prepare for alterations



	Lighting	Gamma	Color Grading	Zero Parallax	Toe In	Interaxial Separation	Offset
.Default	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.000	sRGB	254	0.000	6.350	0.000
.ColorCorrect	dir01 - 0.2; dir02 - 1.0; amb - 0.4	0.455	2.2	254	0.000	6.350	0.000
.ColorCorrect	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.000	6.350	0.000
.Lighting	dir01 - 0.22; dir02 - 1.5; amb - 0.1	1.220	Raw	254	0.000	6.350	0.000
.Lighting	dir01 - 0.22; dir02 - 1.5; amb - 0.3	1.220	Raw	254	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	130	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	100	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	160	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	190	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	220	0.000	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.500	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.333	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.166	6.350	0.000
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.000	6.350	0.050
.Convergence	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.000	6.350	0.025
.Separation	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.000	7.000	0.000
.Separation	dir01 - 0.2; dir02 - 1.0; amb - 0.4	1.220	Raw	254	0.000	6.475	0.000

Future opportunities

- Looping and transitions
- Lighting in real time
- Reducing artifacts
- Encoding in batches
- Increasing field of capture
- Opportunities for interactivity
- Accessibility to capture facilities



Questions?

