Fulldome adventures in 2013: Personal domes, video capture and visualisation.

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Contents: Filming - Installations - Projects

Filming: Red Scarlet, Red Epic and fisheye lens

- APS-C sensor.
- Trick is matching fisheye image size to sensor size.
- Tested (most) circular fisheye lens with Canon mounts
  - Sigma 4.5mm
  - Sigma 8mm
  - Sunex 5.6mm
  - Canon 8-15mm
  - Coastal Optics 4.88mm
- Use lens offset for iKnife footage. see later.

Coastal Optics
2800 pixel fisheye, 30fps

Offset fisheye

Filming: LadyBug-3 and 5

- Full spherical capture.
- Can extract any fisheye - extremely powerful capability for repurposing for different orientated domes.
- Used the LadyBug-3 for Dark, 2700 pixel circle but high compression artefacts.
- LadyBug-5 is 8000x4000, creates 4000 pixel circle with much lower compression and higher dynamic range.
- See examples later.

Installations: John Curtin Gallery

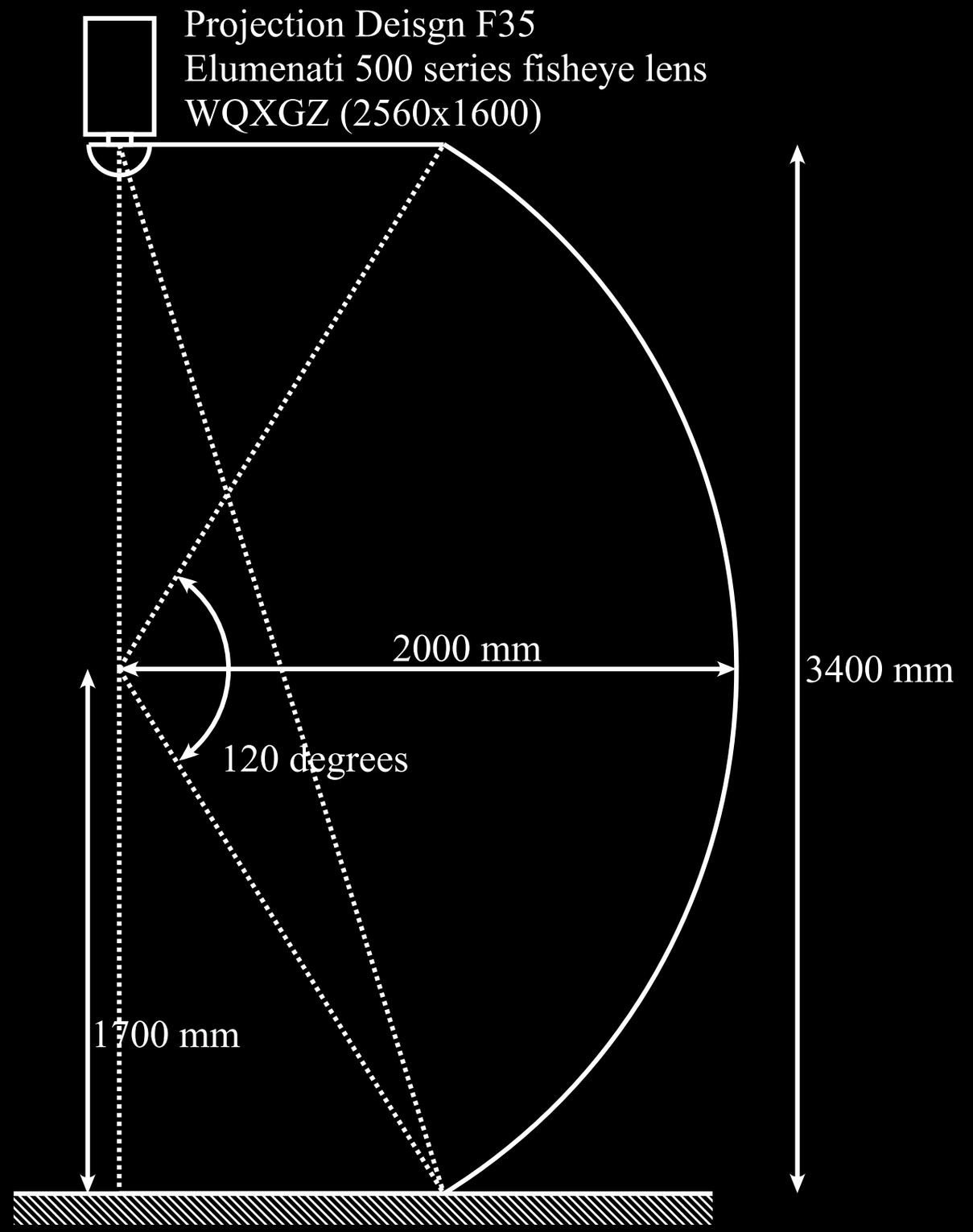
- Exciting visualisation laboratory at Curtin University.

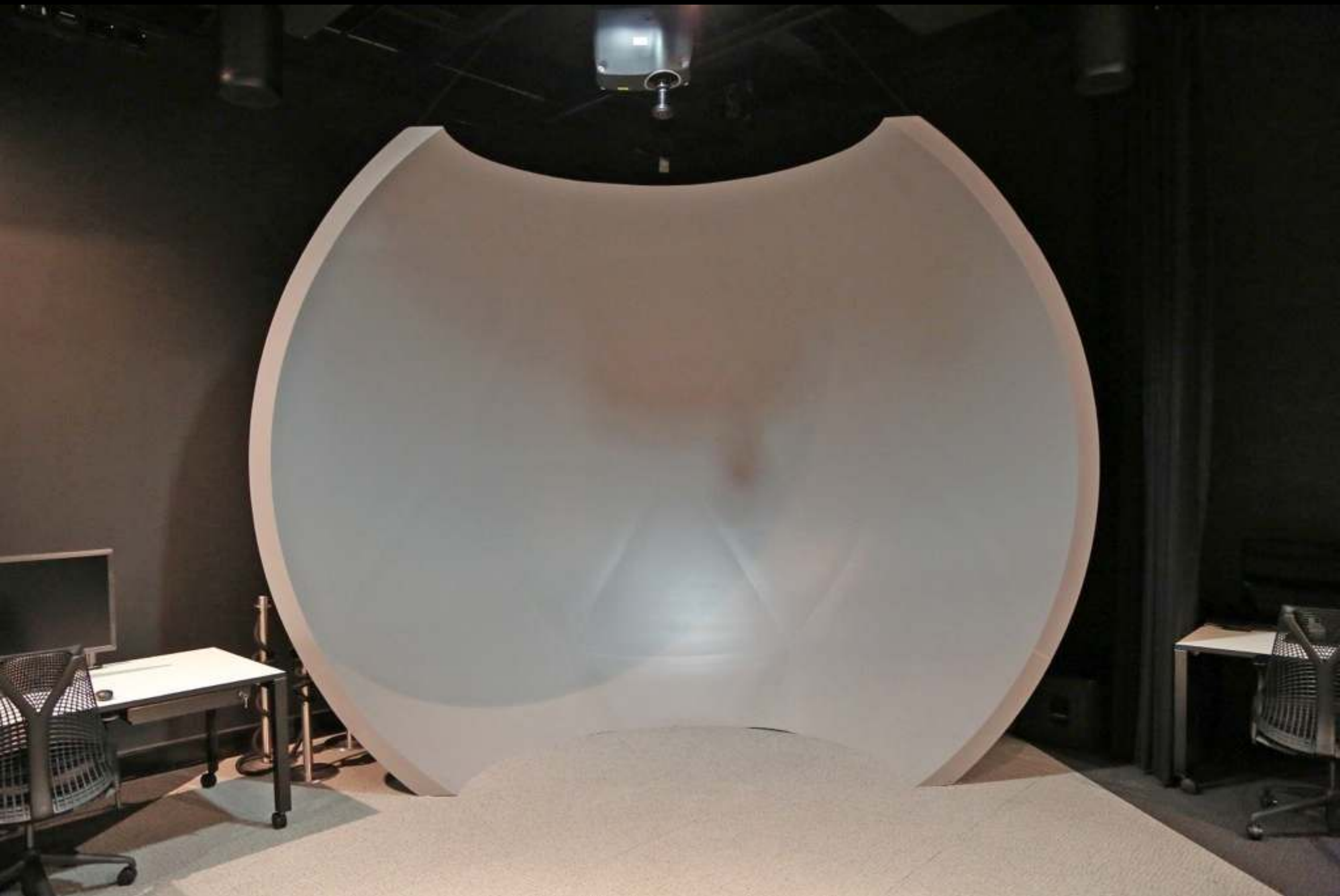
- Consists of
  - 2 wall immersive stereoscopic display.
  - 1/2 cylindrical stereoscopic display
  - 4x3 HD tiled panel display
  - 4m diameter dome, iDome orientation

- Dome powered by Projection Design 2560x1600 F35 projector and Elumentai lens. Provides a 2560 pixel fisheye.

- Viewer stands flush with the front face of dome.

- Requires fisheye warping, as does any off axis fisheye installation.





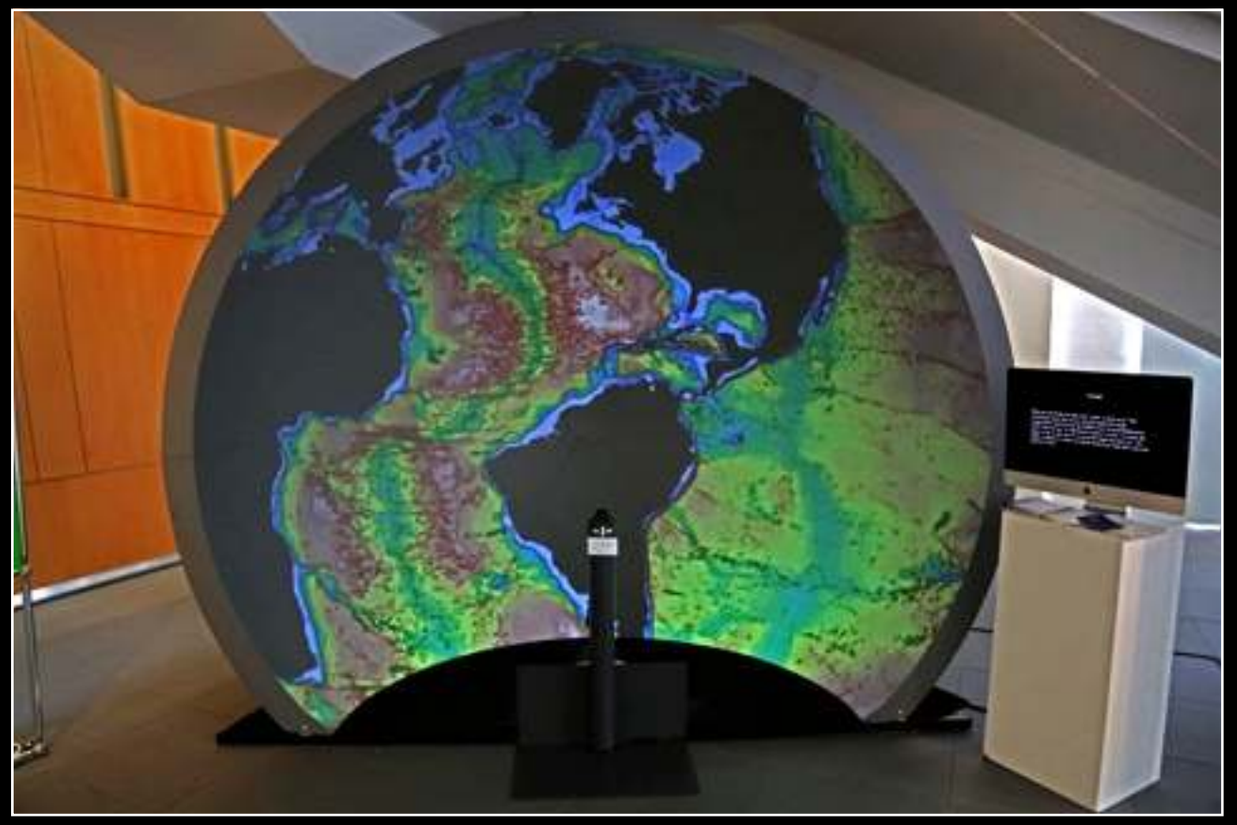
Installations: CityU

- Innovation campus, City University Hong Kong.

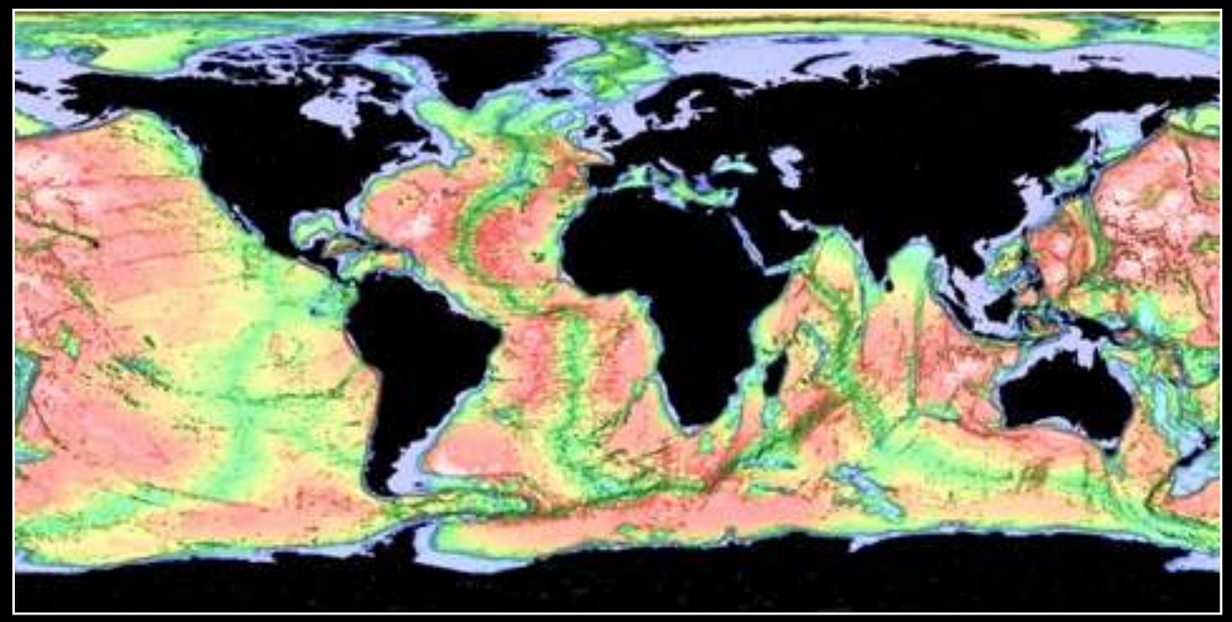
- Standard installation: information screen (right) and 6DOF Space Mouse for navigation (in front of dome).

- Viewer stands flush with the front face of the dome.

- Mostly interactive spherical panorama movies. One can look around while the movie plays.

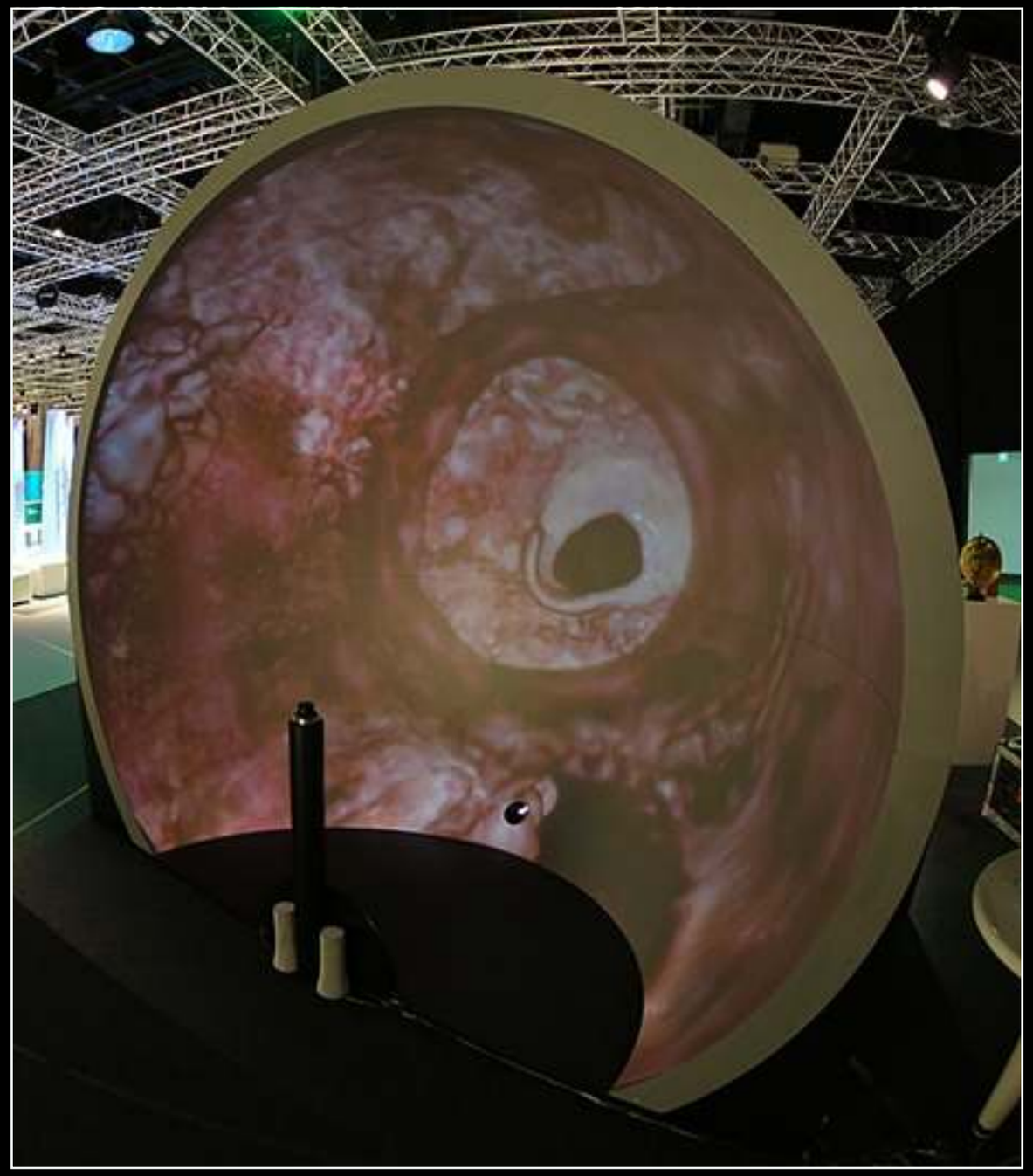


Earth Oceans



Installations:WISH

- WISH: World Innovation Summit on Health
- Hosted in Doha, Qatar.
- Funded by the Qatar Foundation.
- http://www.wish-qatar.org
- iKnife and immersive remote surgery.



Installations: Edith Cowan University

- Teacher evaluation / training.
- Record from the centre of a classroom using the LadyBug-3 camera.
- Nothing is hidden.
- Report real sense of “being there”.
- More nature to spin around vs flip between externally located cameras.
- Analyse, annotate and study footage in the iDome.

Occulus rift viewing

Projects: Ngintaka

- Telling story of Ngintaka.
- Occurs across the landscape, 5 hours drive from Ulara.
- Captured high definition spherical panoramas.
- Captured gigapixel images.
- Captured 360 video from cave: the belly of Ngintaka.

The cave

Projects: Beacon Island

- Site of the Batavia shipwreck 1629.
- ~50km off the coast of Geraldton, WA.
- Due in some part to mutineers sailing further south.
- 322 washed upon the Island.
- Bad stuff happened ….

- Creating virtual environment of the Island.
- In collaboration with WA Maritime Museum.
- Will experience in multiple displays technologies: stereo3D, HMD, multiple walls and dome.
- Based upon Unity3D game engine.

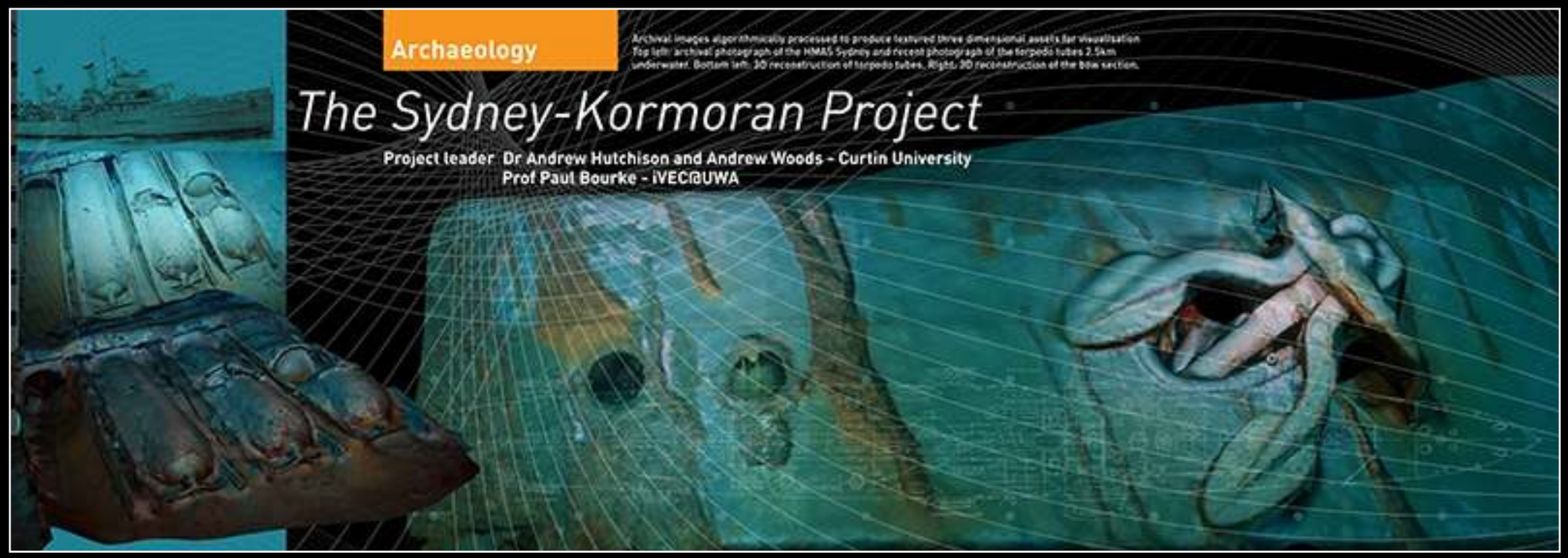
- Captured 100+ 360x180 bubbles from across the Island.
- Have a full digital elevation map.
- Measured all buildings … have been modelled.
- Captured 360x180 bubbles from the interior of every room in every building.

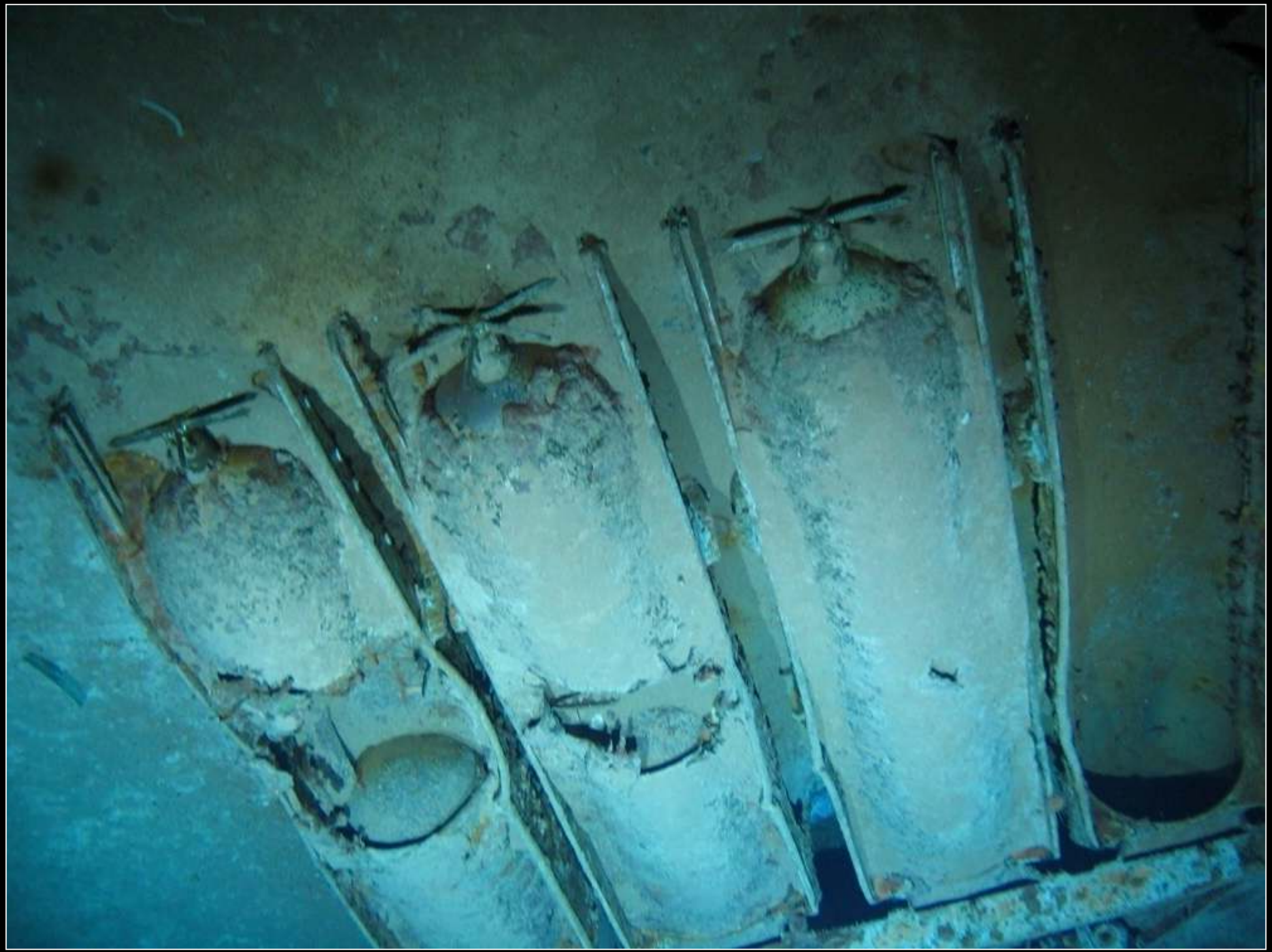
In progress …

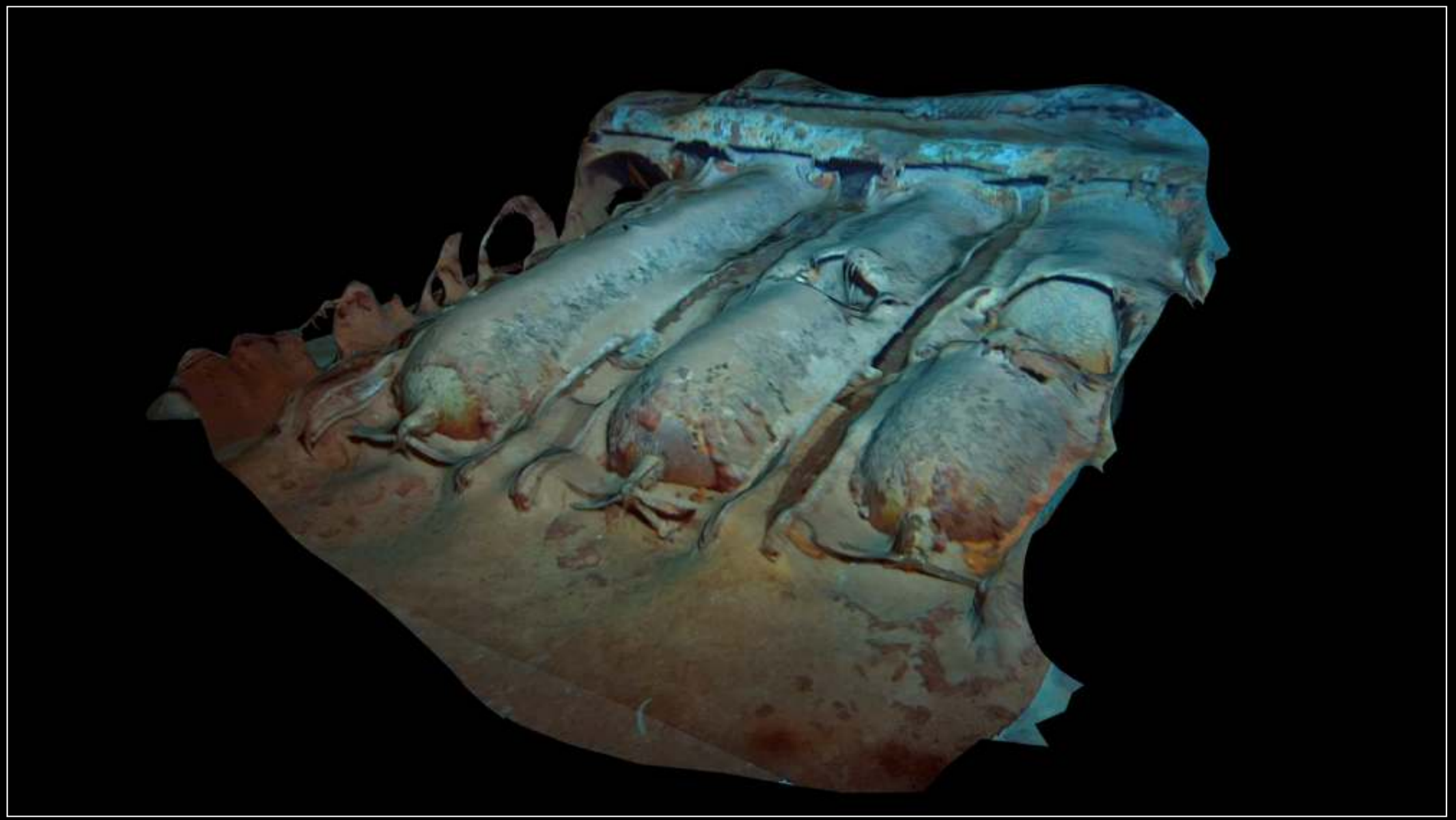
- All buildings and bubbles in Unity3D.
- Interact on screen, web, OculusRift, and iDome.

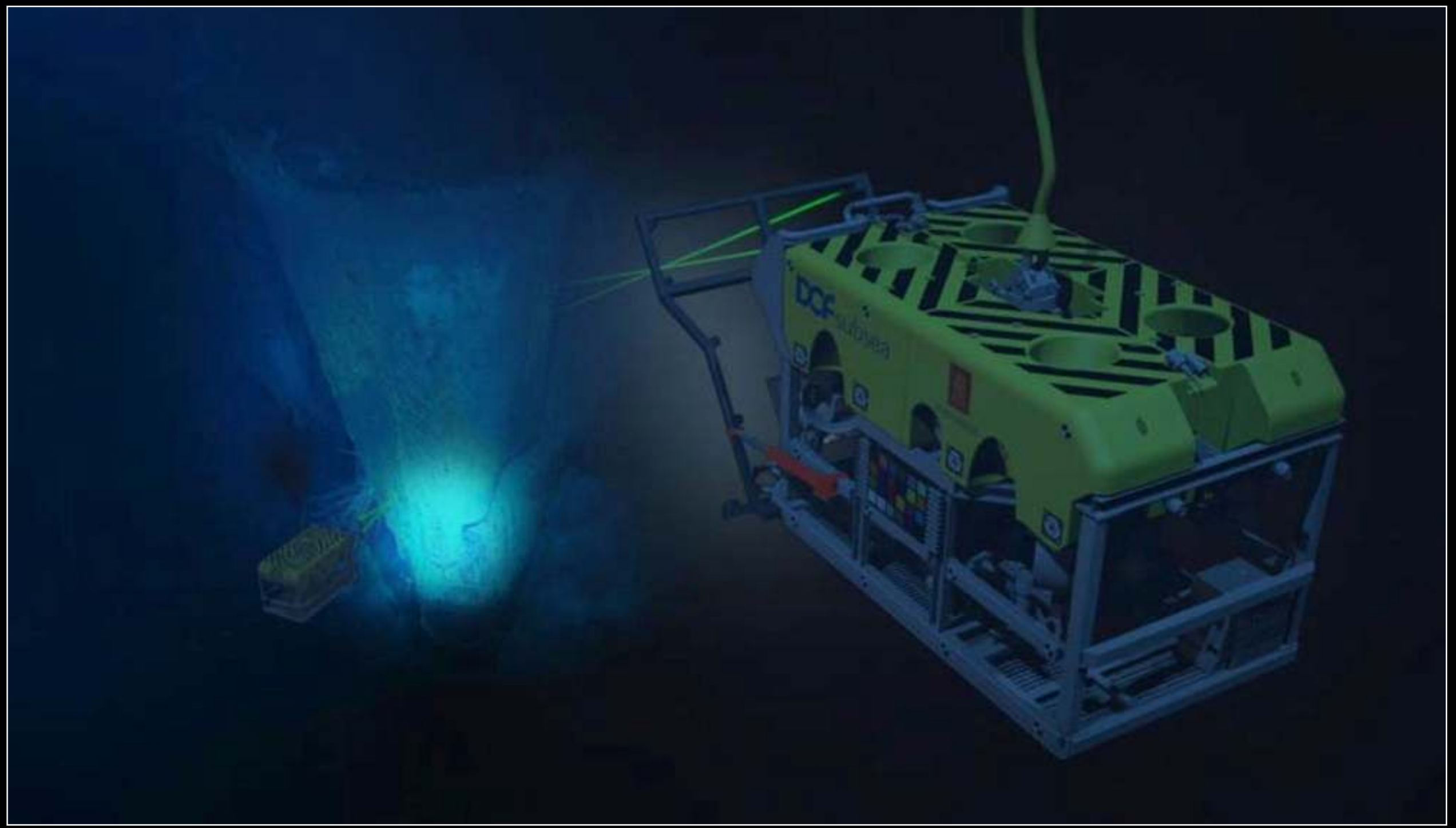
Project: Sydney - Kormoran

- Encounter between HMAS Sydney and German raider.
- All lives (645) from the Sydney were lost.
- Ships currently under 2.5km of water off the coast of Geraldton, WA.
- Wrecks found in 2008 … the plan is to return and reconstruct ship using photogrammetry.









Projects: Mah Meri

- In collaboration with the University of Malaya.
- Remote tribe in West Malaysia.
- Capture 360 video of a particular healing ritual.
- Wise women dreams the spirit form
  - Carver produces the mask
  - Ceremony performed
  - Mask disposed of in river
  - ….
- Exhibition in Kuala Lumpur at the end of 2013.

Questions?