Photographs to models and everything in between

Paul Bourke

iVEC @UWA

iVEC's Visualisation Capability

Paul Bourke

iVEC @UWA

Why - Who - Where - What - How

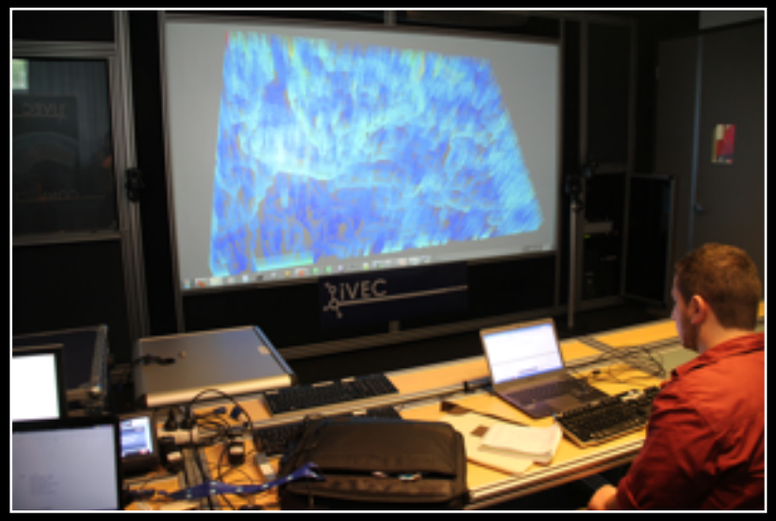
Visualisation is the process of applying advanced computing techniques to data in order to provide insight into the underlying structures, relationships and processes.

Why - Who - Where - What - How

Andrew Squelch
iVEC@CSIRO
iVEC@Curtin

Paul Bourke
iVEC@UWA

Why - Who - Where - What - How



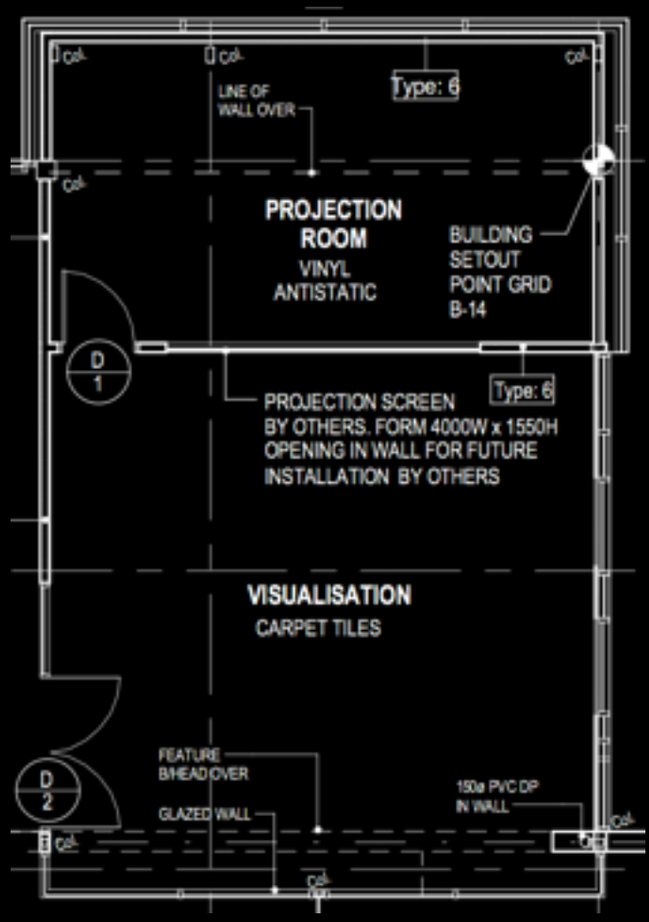
ARRC

ECU

Murdoch

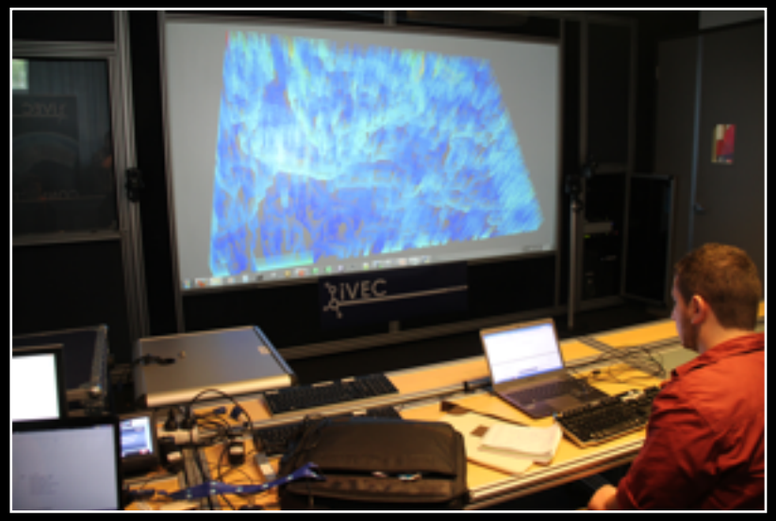
UWA

Curtin



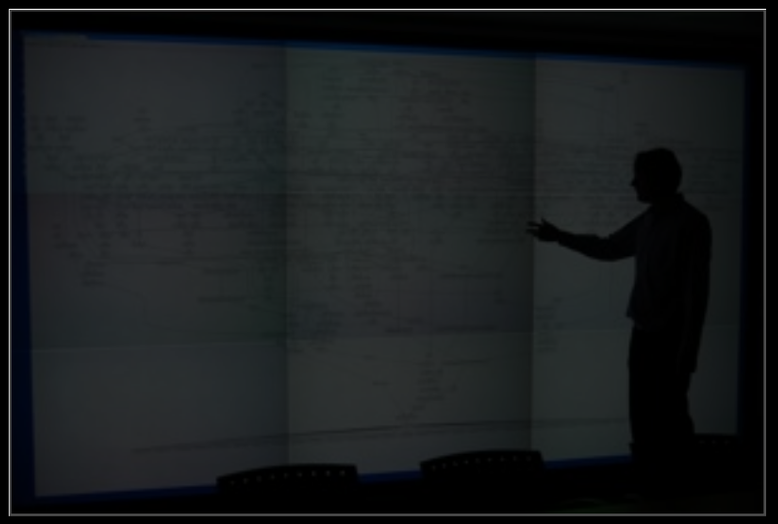
Pawsey

Why - Who - Where - What - How



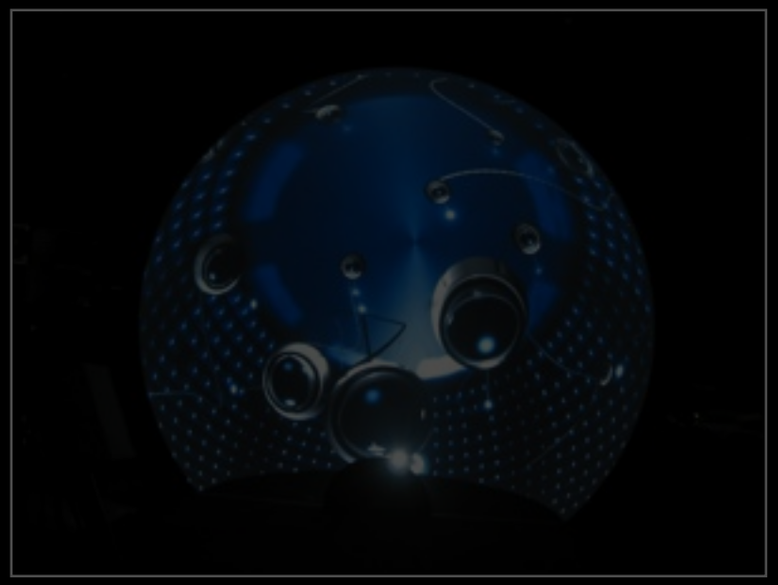
ARRC

ECU

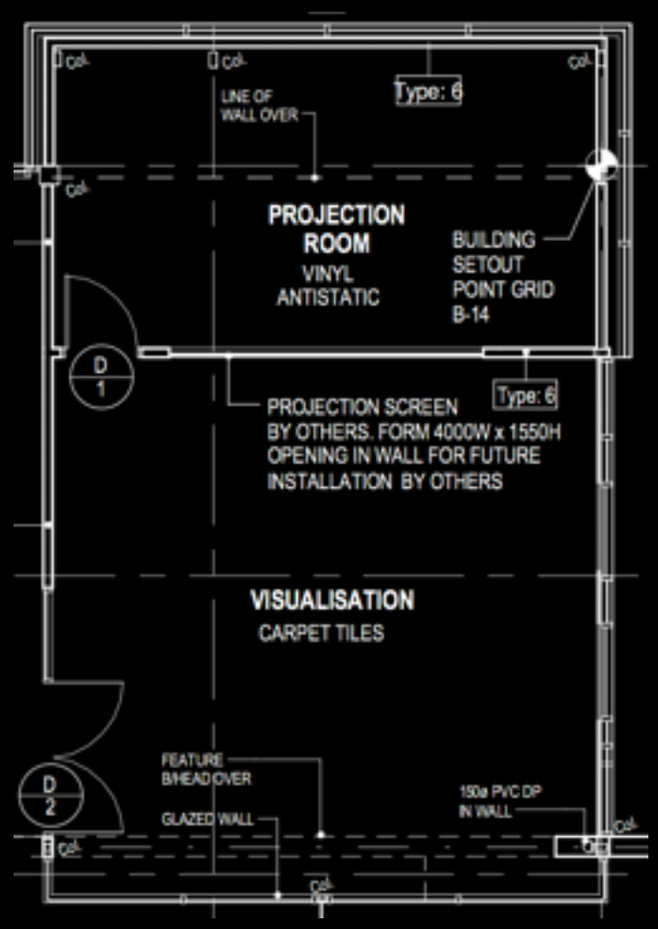


Murdoch

UWA

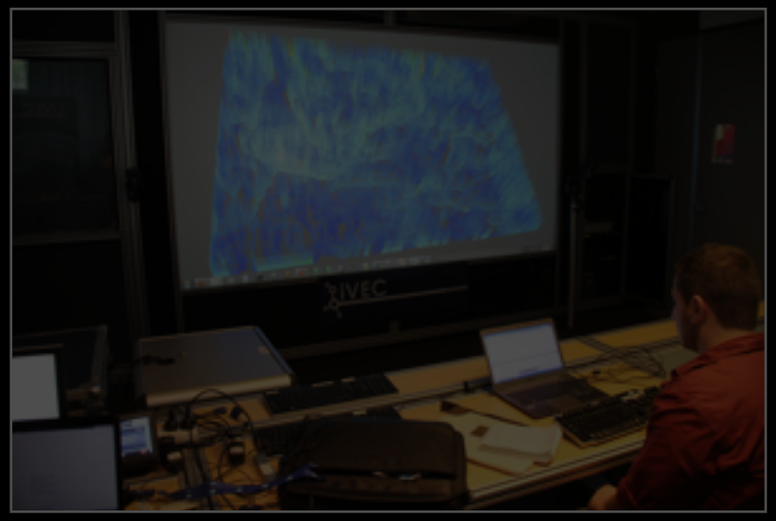


Curtin



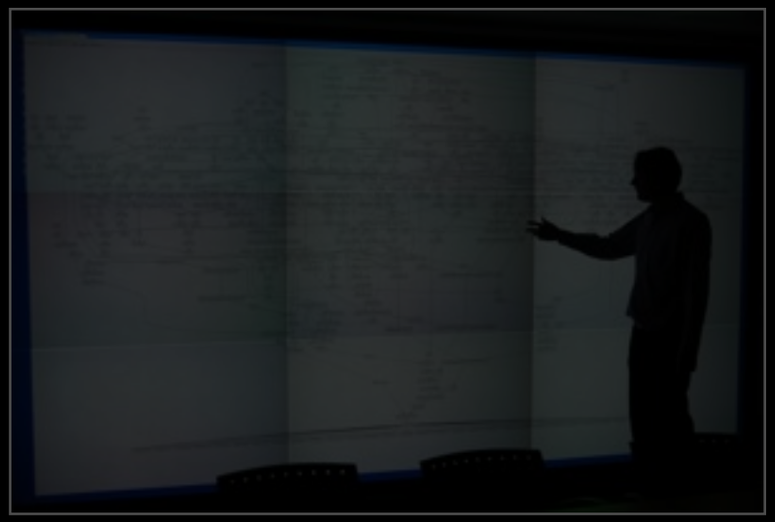
Pawsey

Why - Who - Where - What - How



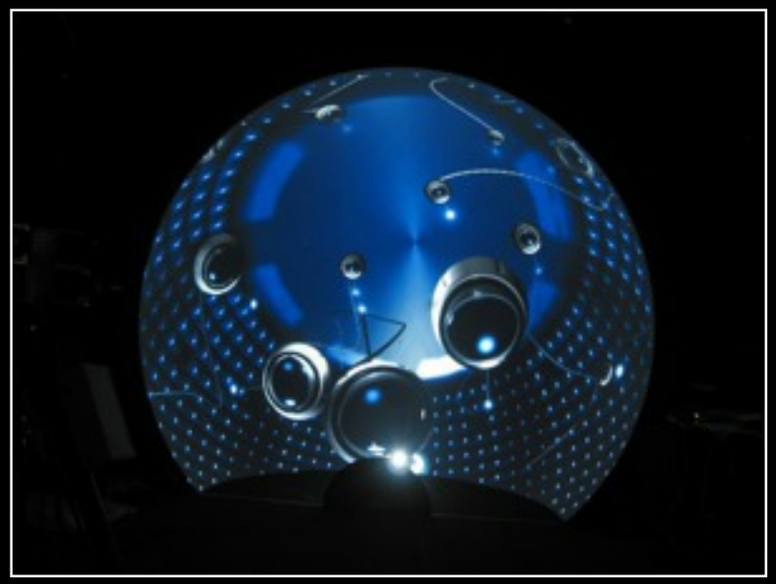
ARRC

ECU

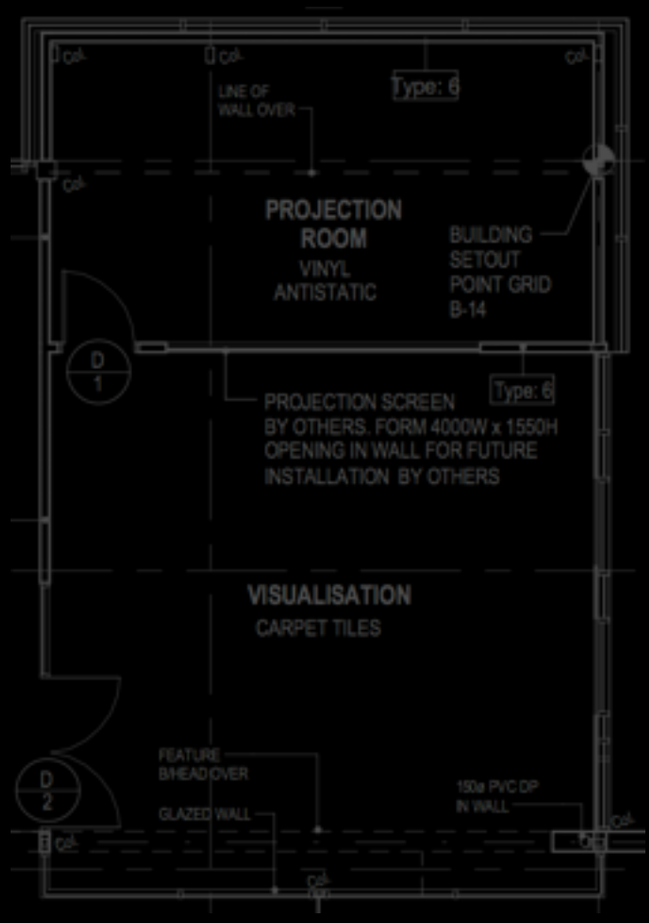


Murdoch

UWA



Curtin



Pawsey

Why - Who - Where - What - How

3D cameras

Immersive displays

Specialist cameras

Stereoscopic displays

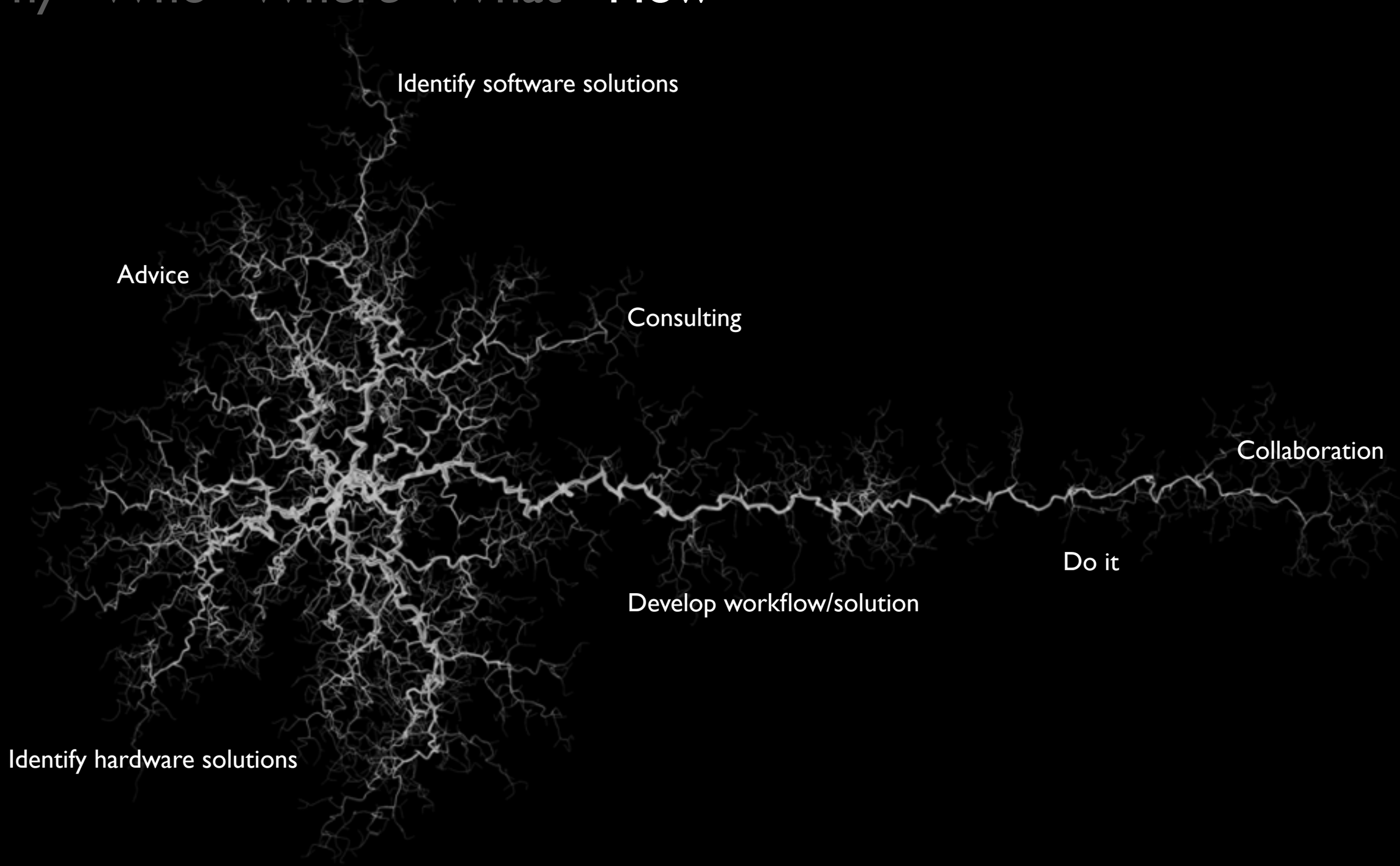
Software

High end visualisation workstations

3D scanners

Unique displays

Why - Who - Where - What - How



Collaboration with Alistair Paterson and Jo McDonald
(Archaeology, UWA)

Photographs to models and everything in between

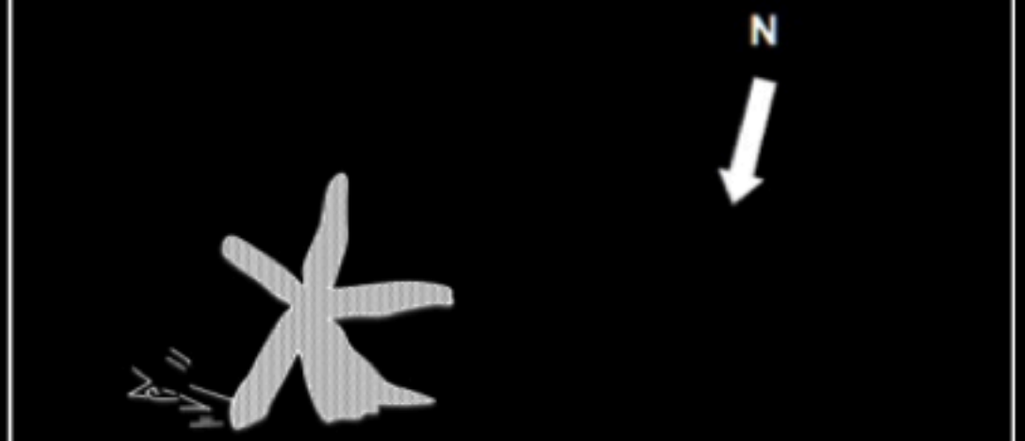
Paul Bourke

iVEC @UWA

Wanmanna

Data collection

Panel | (512858mE 7714203mN)	
Aspect:	North
Technique:	Pecked
Style:	In filled
Form:	Enigmatic
Clarity:	High
Weathering:	Low
Boulder Size (mm):	590 x 380 x 330
Motif Size (mm):	120 x 110
Location of Panels:	Small rock outcrop (rock pile)
Lithology:	Basalt
Disturbance (%):	10
Erosion:	Low
Rock and Motif Color:	Brown/Light



Gigapixel photography

13 x 3 grid

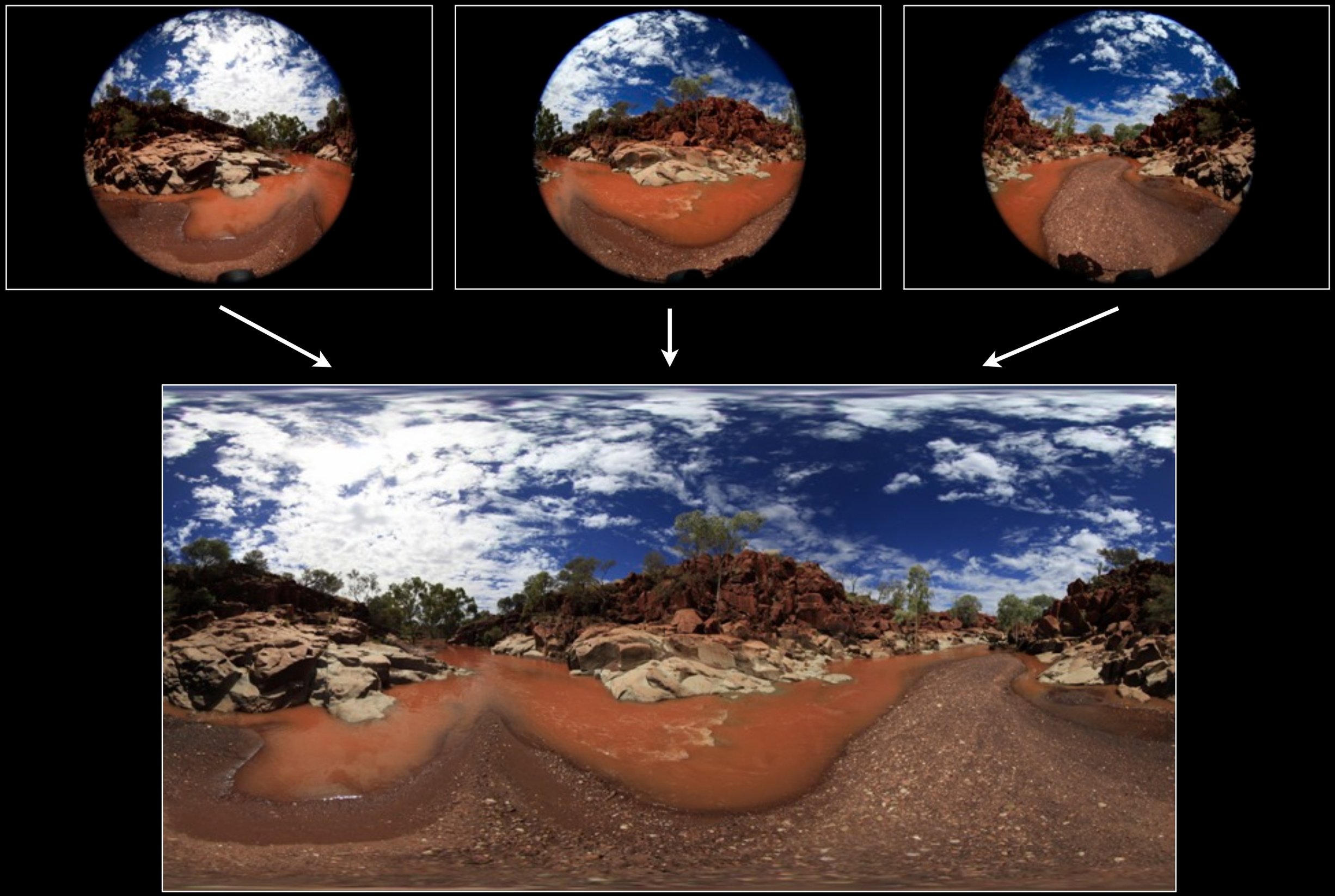
40,000 x 10,000 pixels

Gigapixel photography

15 x 4 grid

Single 10MPixel image

Bubble photography

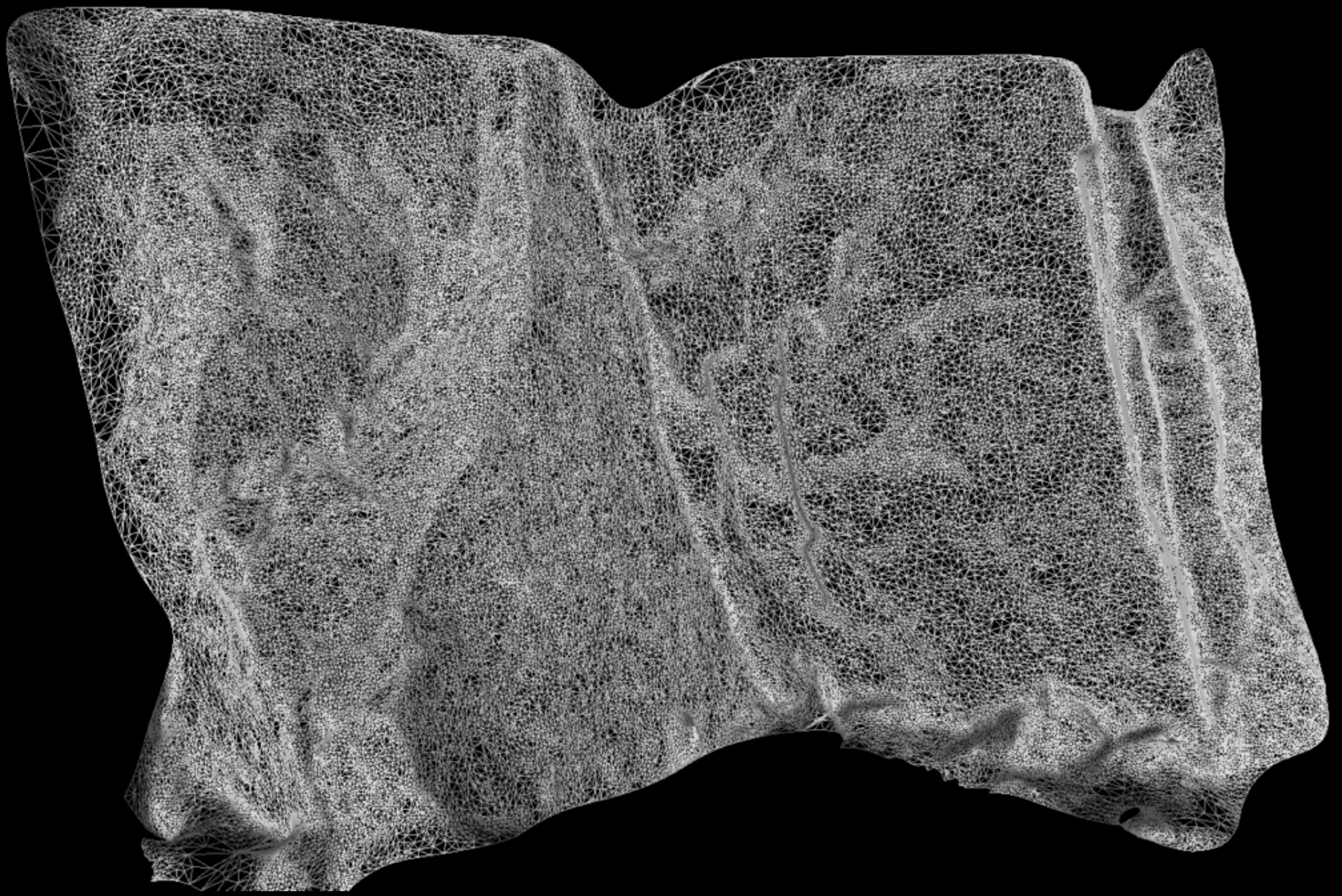


Virtual tours

Immersive exploration

3D reconstruction

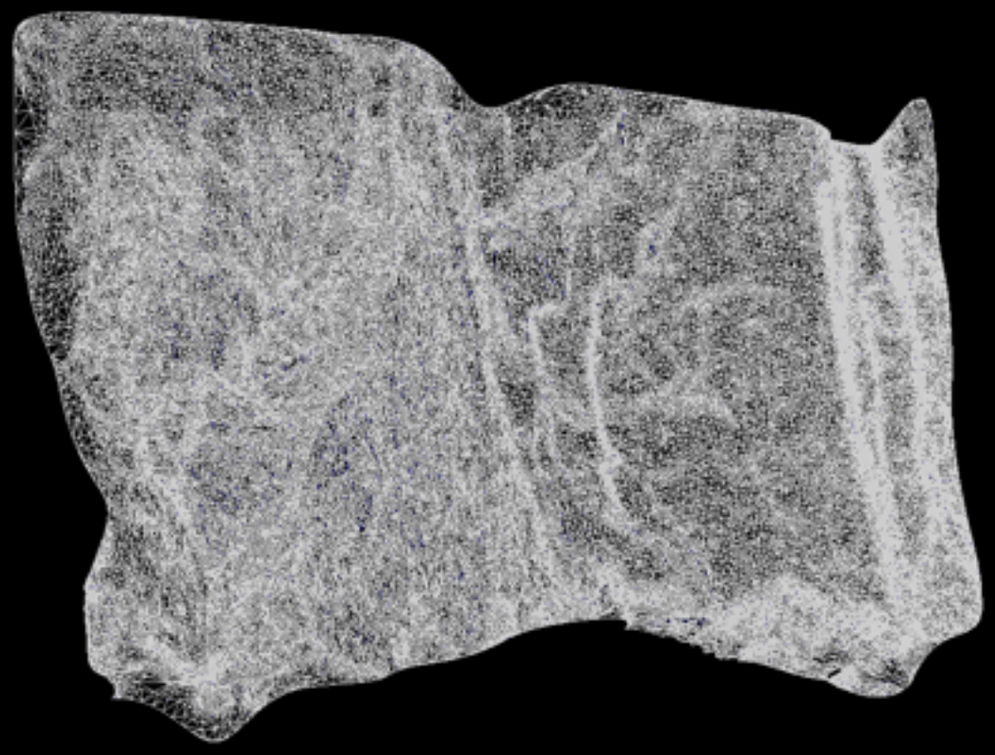
Reconstructed mesh



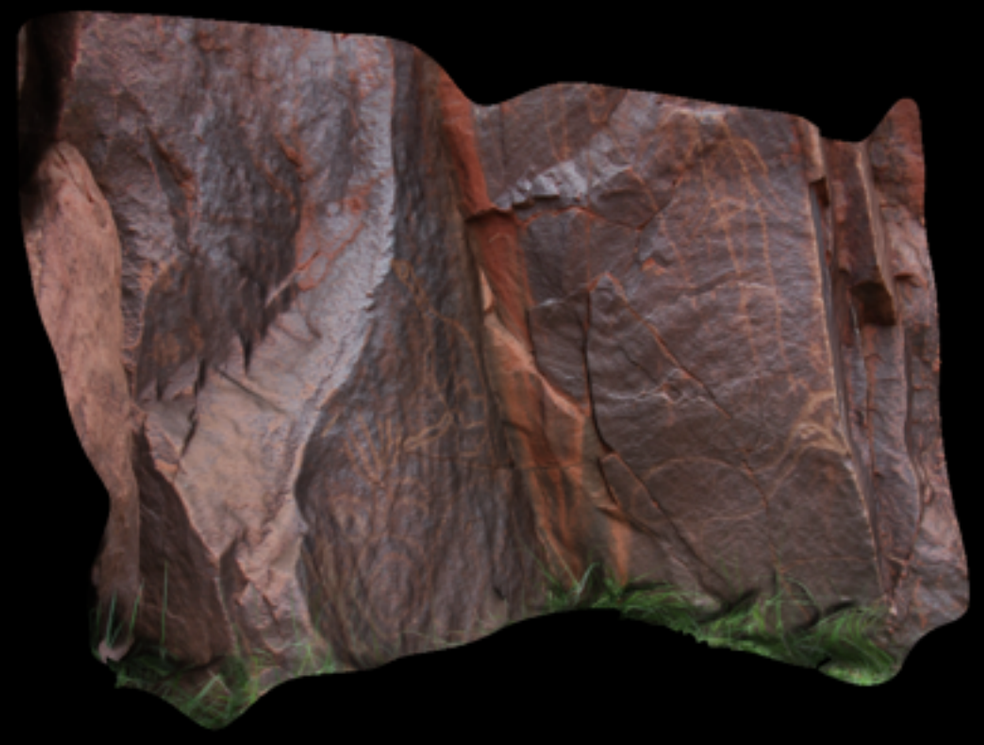
Textured 3D model

Movie

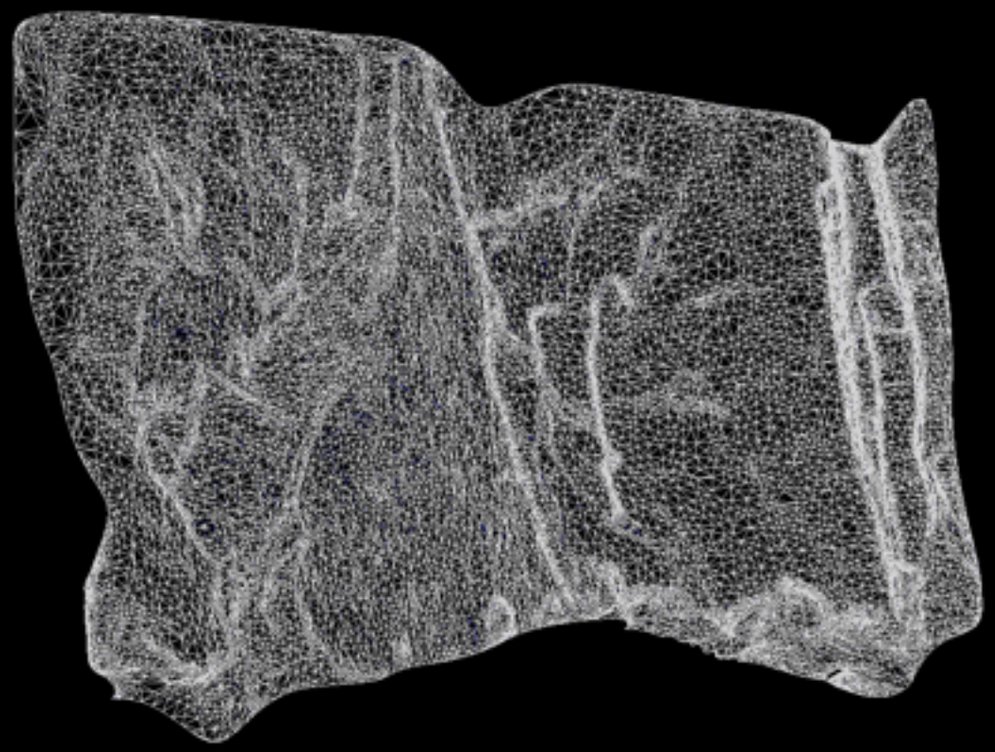
Mesh decimation: Online and populating virtual worlds



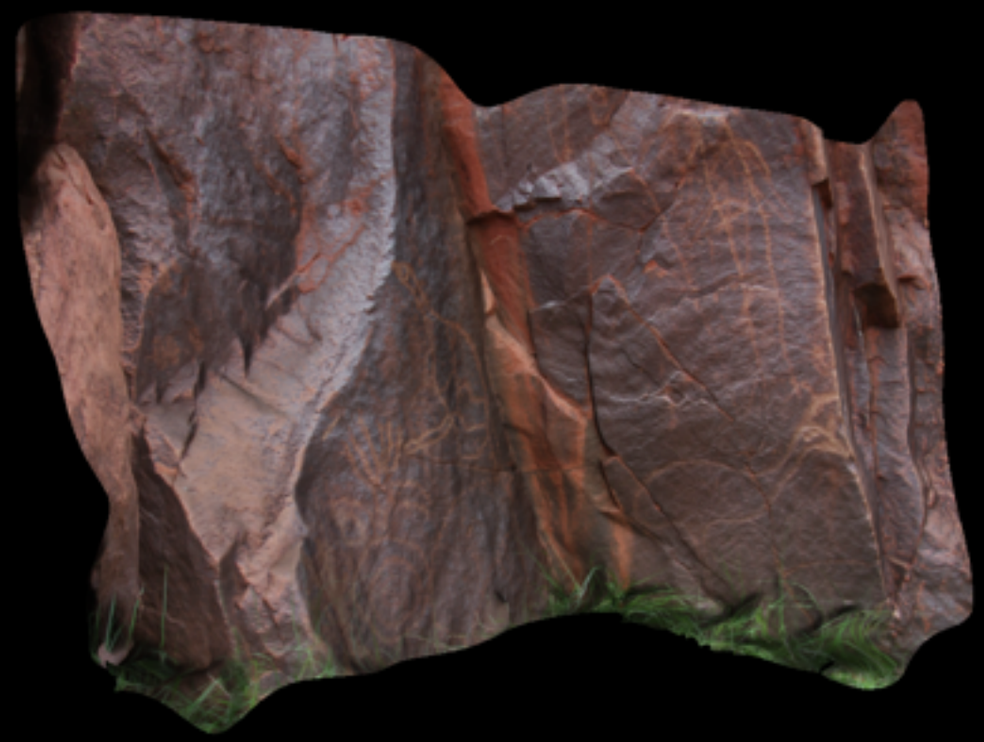
120,000 triangles



Quadratic mesh decimation

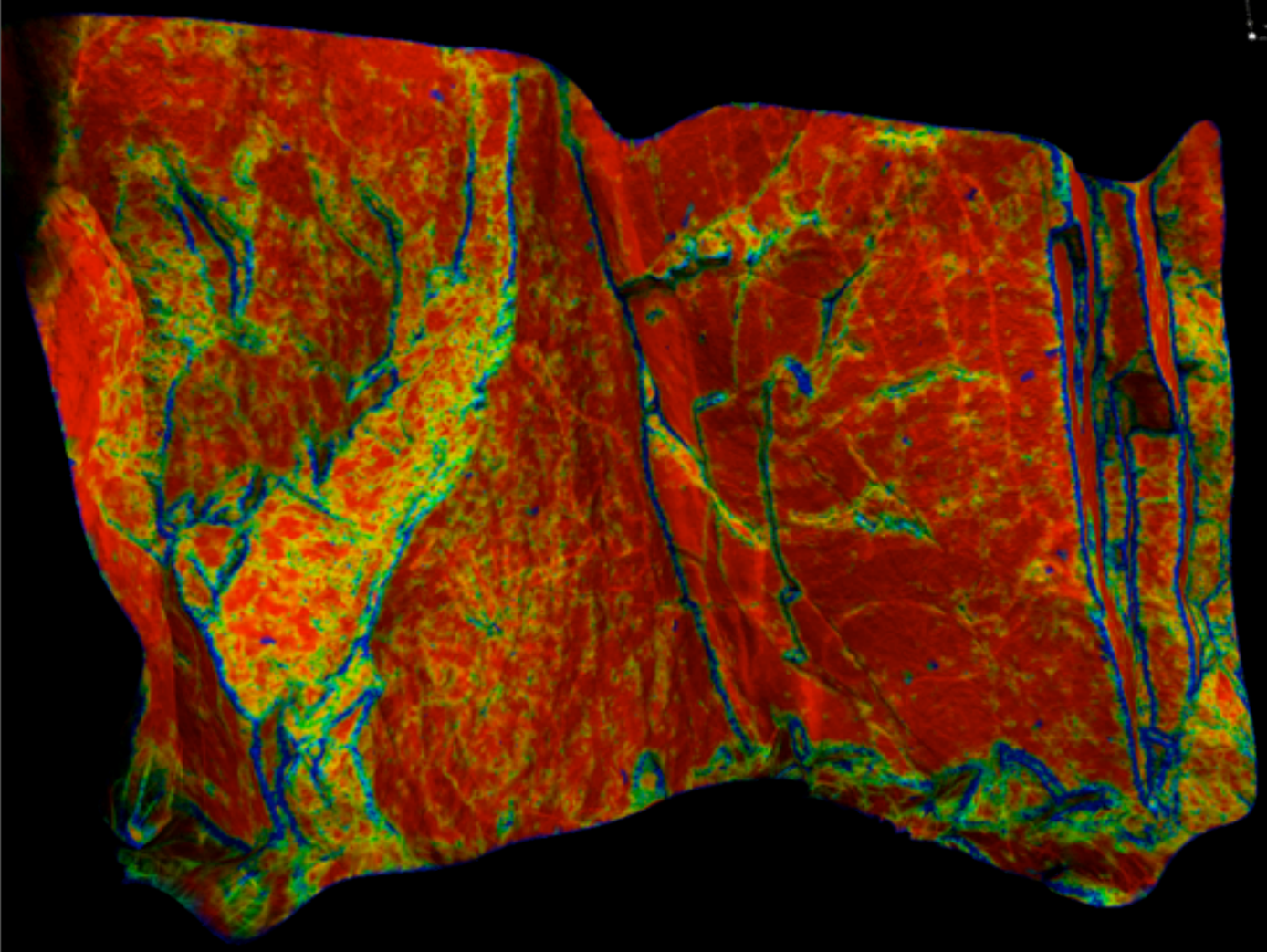


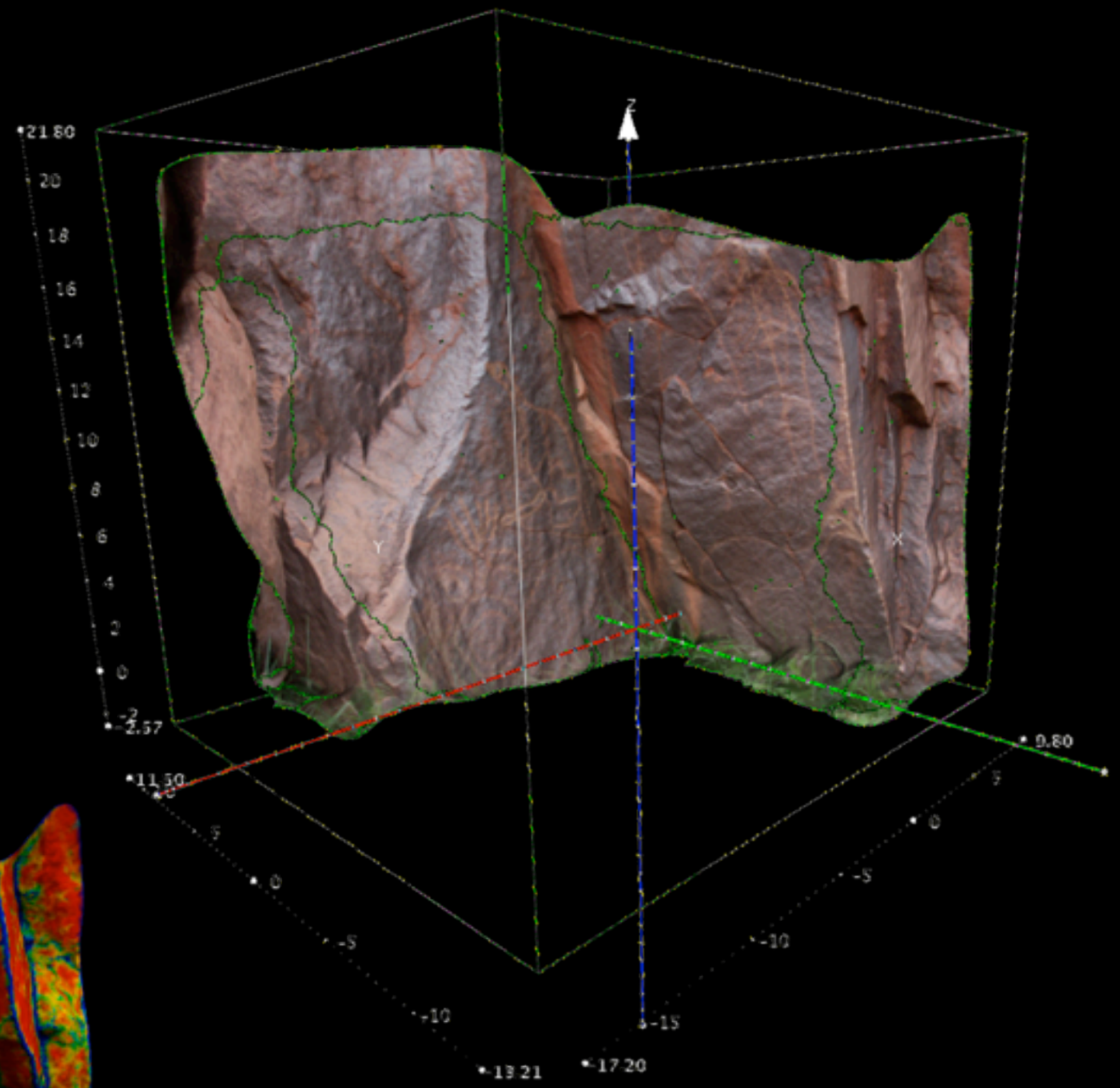
40,000 triangles



3D Analysis

Discrete curvature

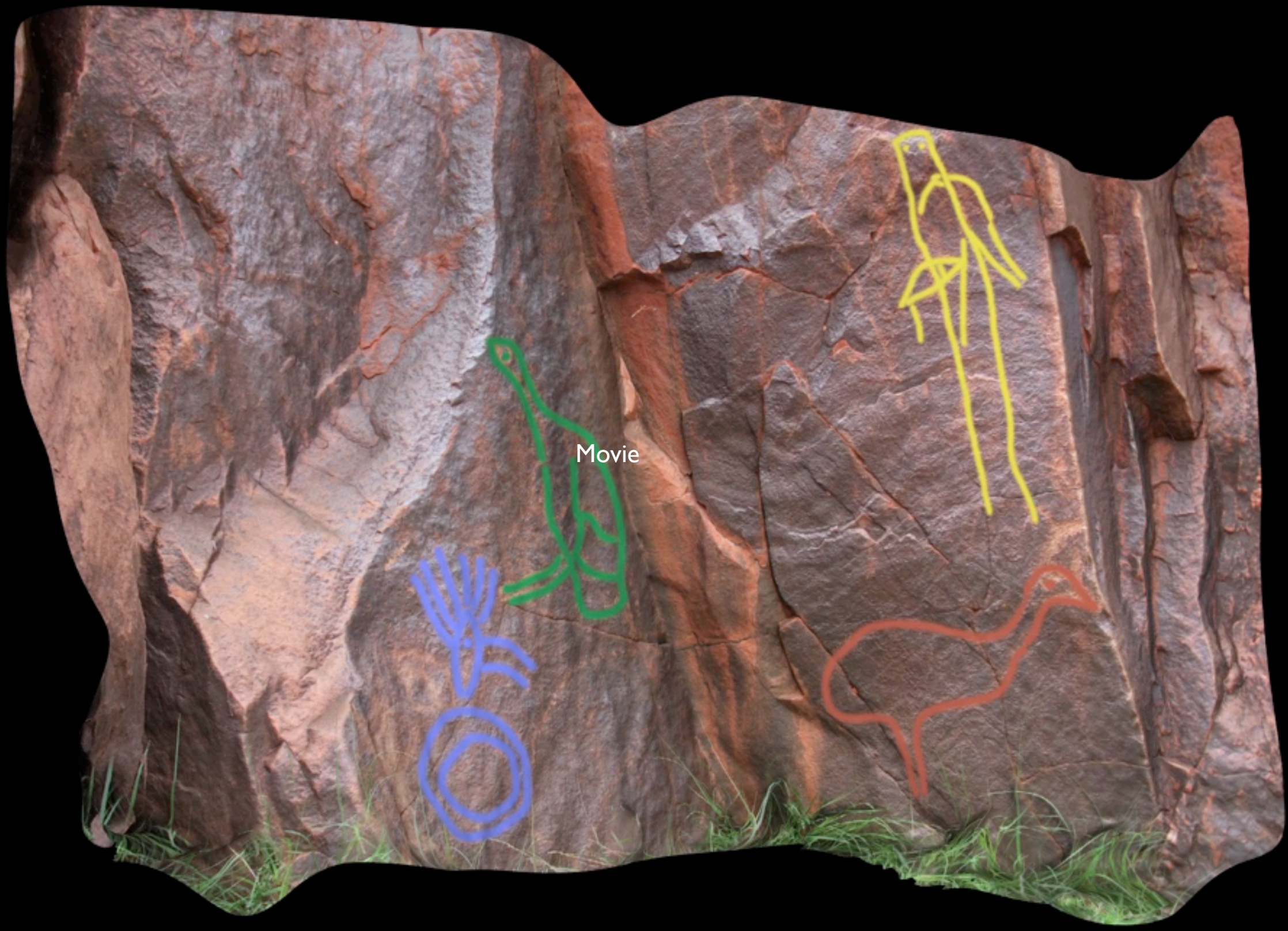




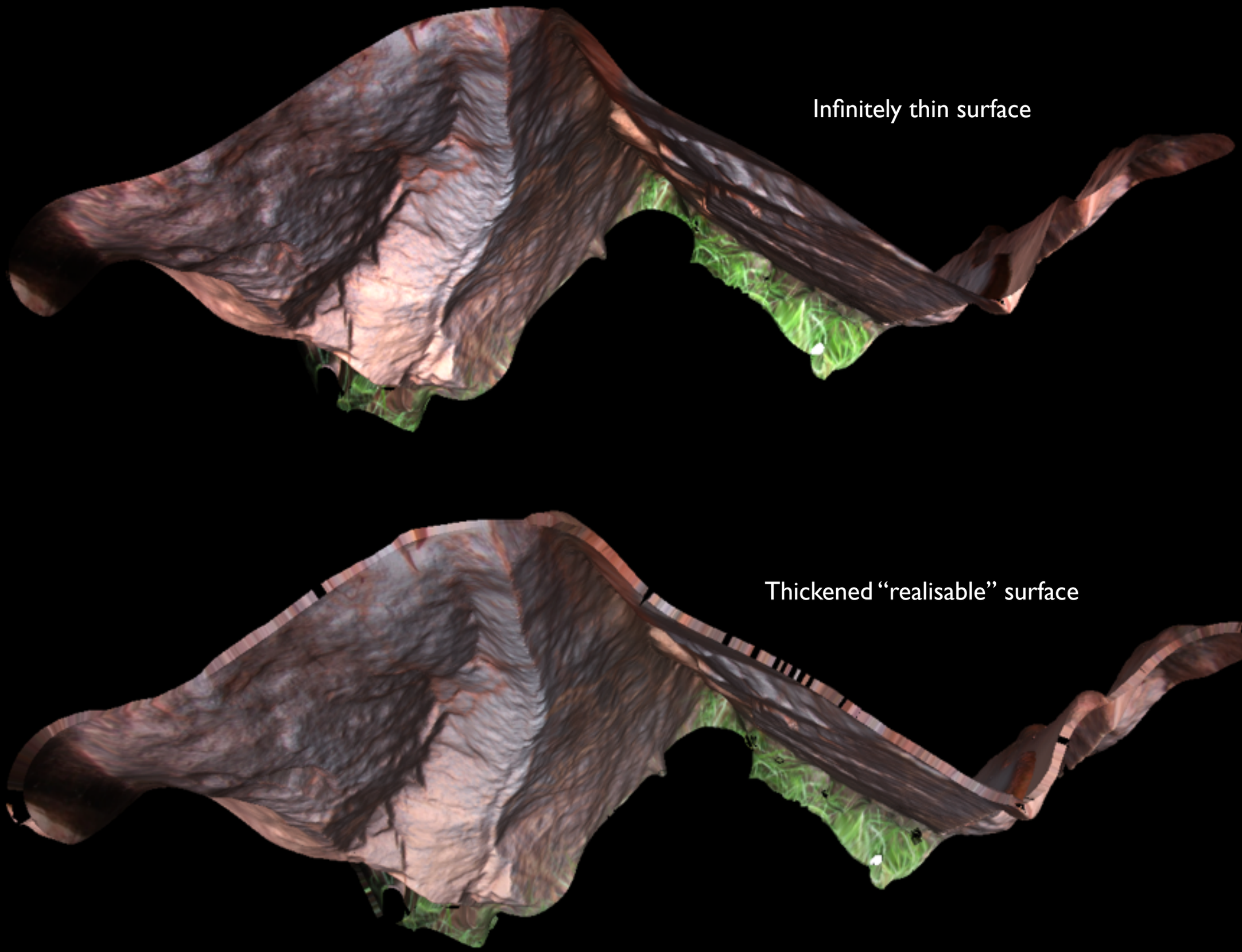
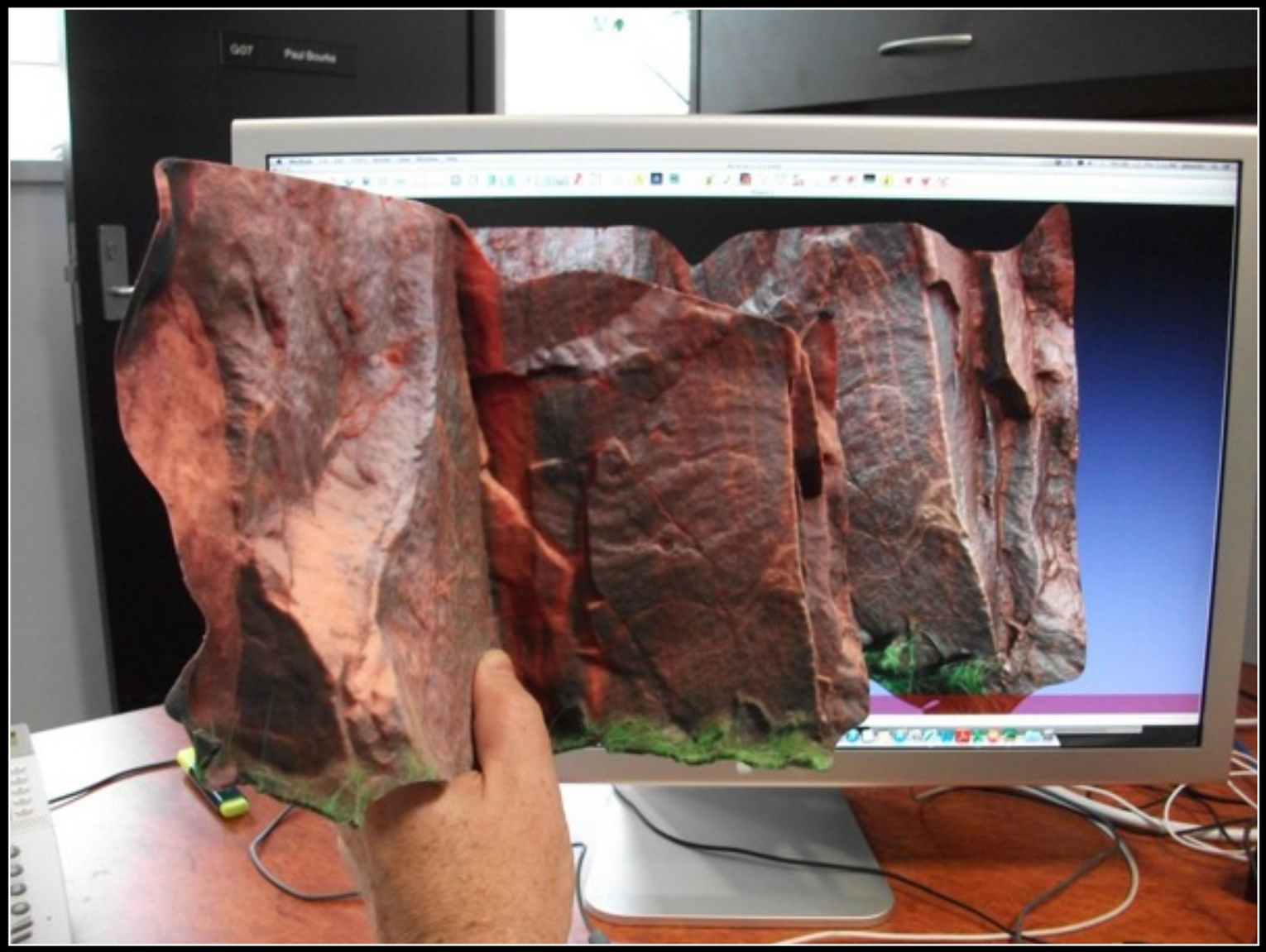
Relighting

Movie

Image processing and annotating



Rapid prototyping



Rapid prototyping