Photographs to models and everything in between

Paul Bourke

iVEC's Visualisation Capability

Paul Bourke

Visualisation is the process of applying advanced computing techniques to data in order to provide insight into the underlying structures, relationships and processes.
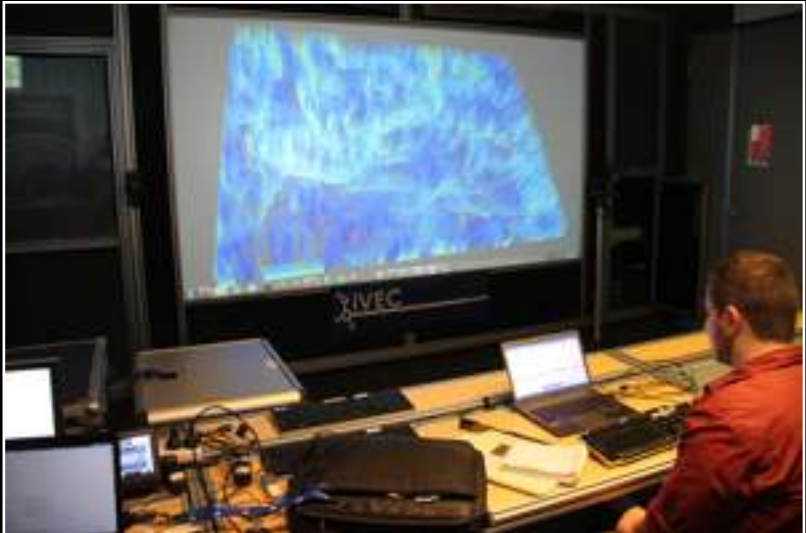
Andrew Squelch
iVEC@CSIRO
iVEC@Curtin

Paul Bourke
iVEC@UWA
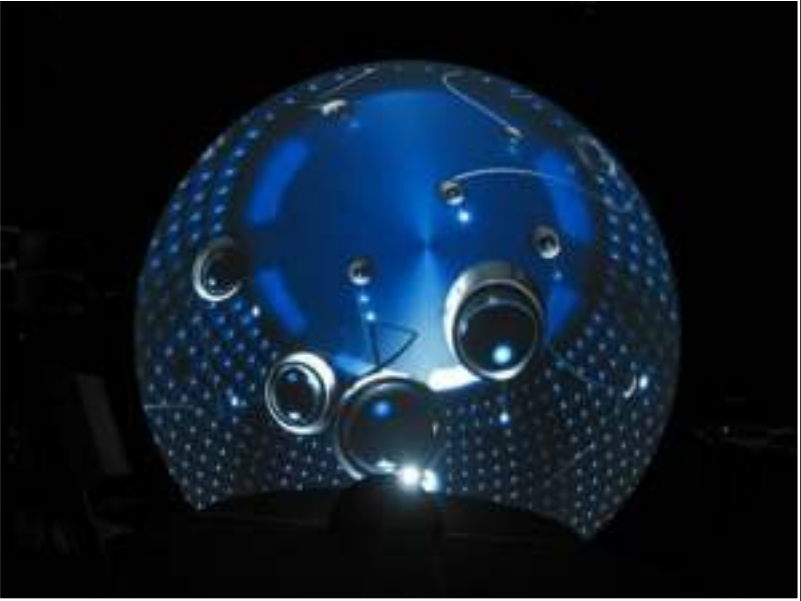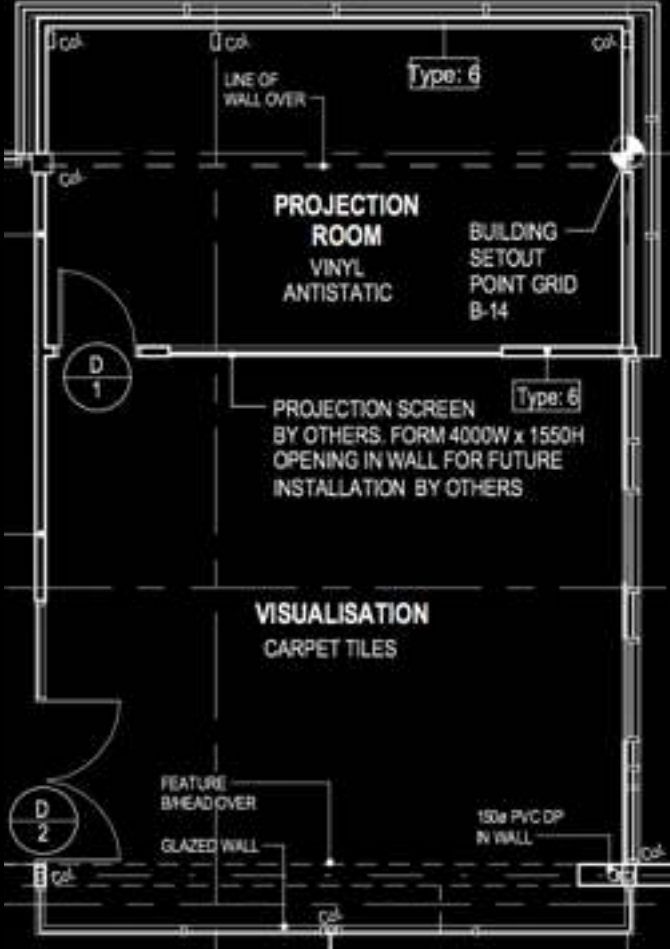
ARRC

ECU

Murdoch

UWA

Curtin

Pawsey

ARRC

ECU

Murdoch

UWA

Curtin

Pawsey

ARRC

ECU

Murdoch

UWA
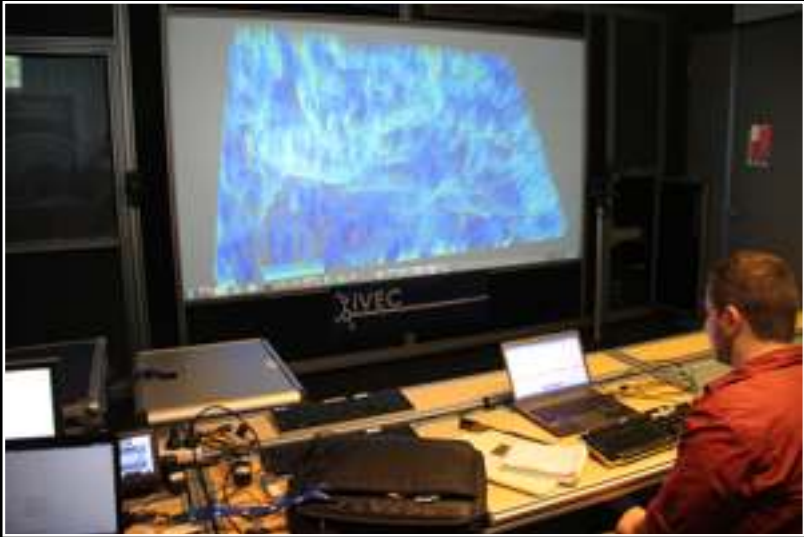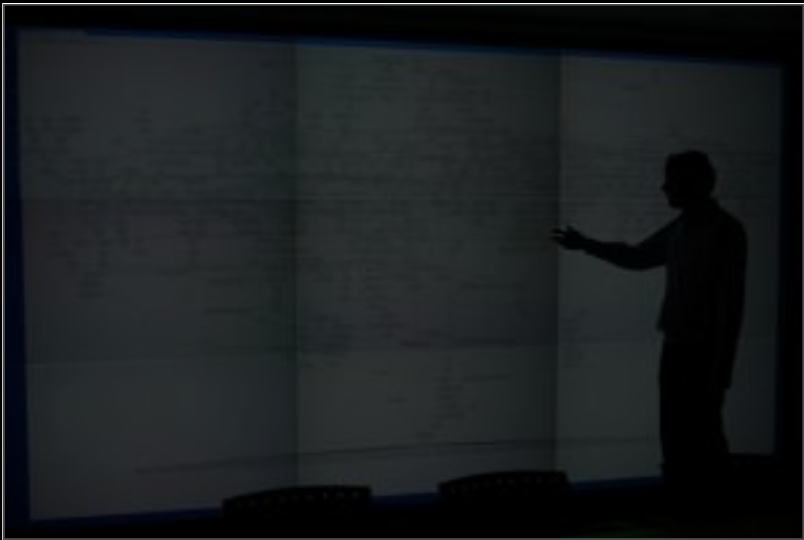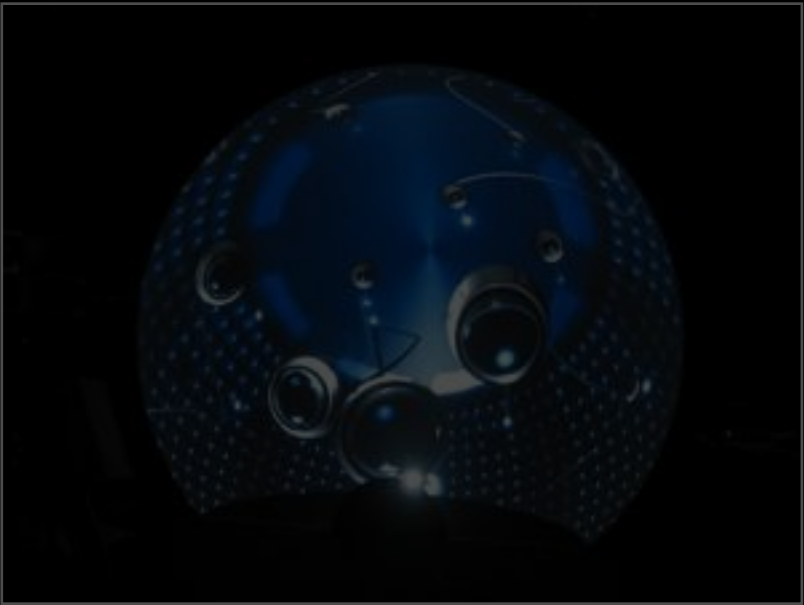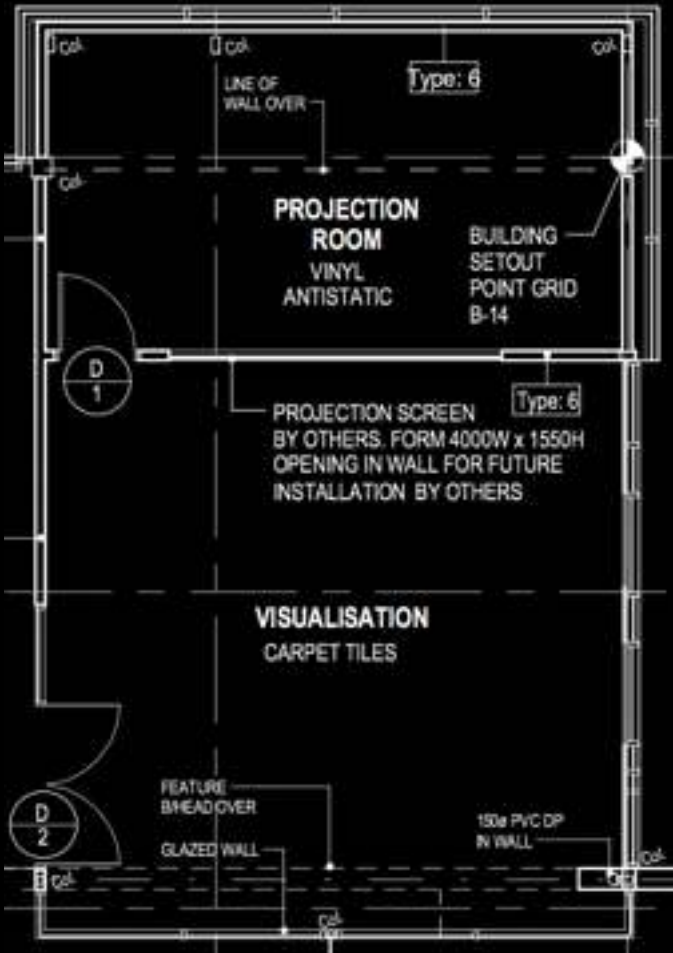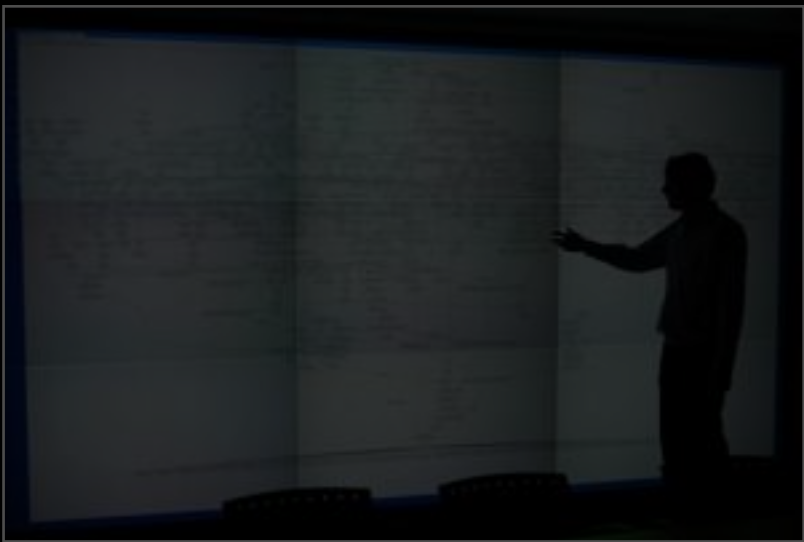
Curtin

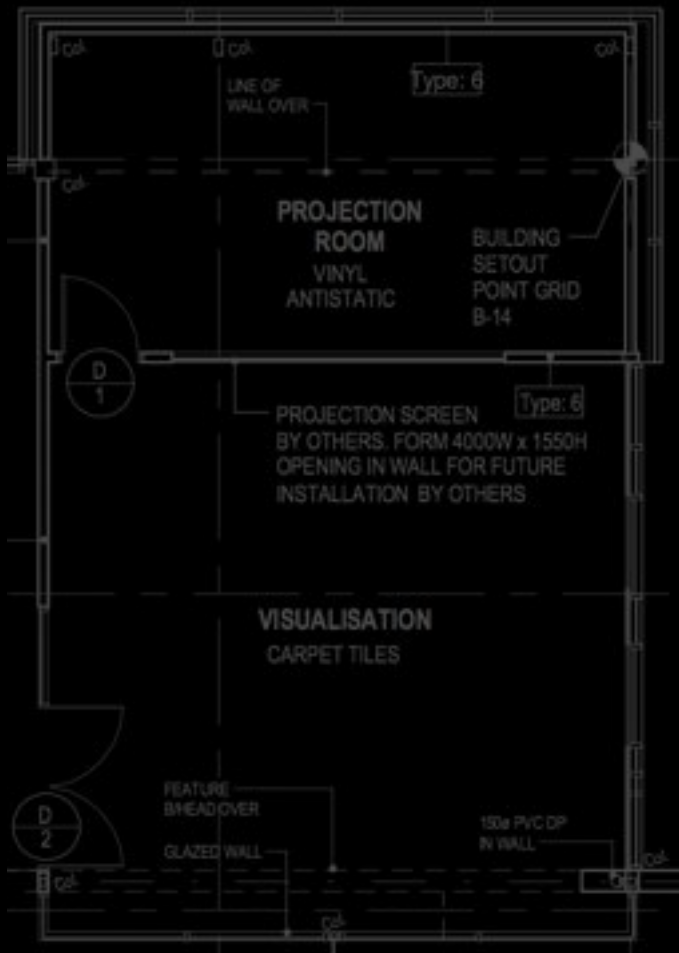

Pawsey

3D cameras

Immersive displays

Specialist cameras

Stereoscopic displays

Software

High end visualisation
workstations

3D scanners

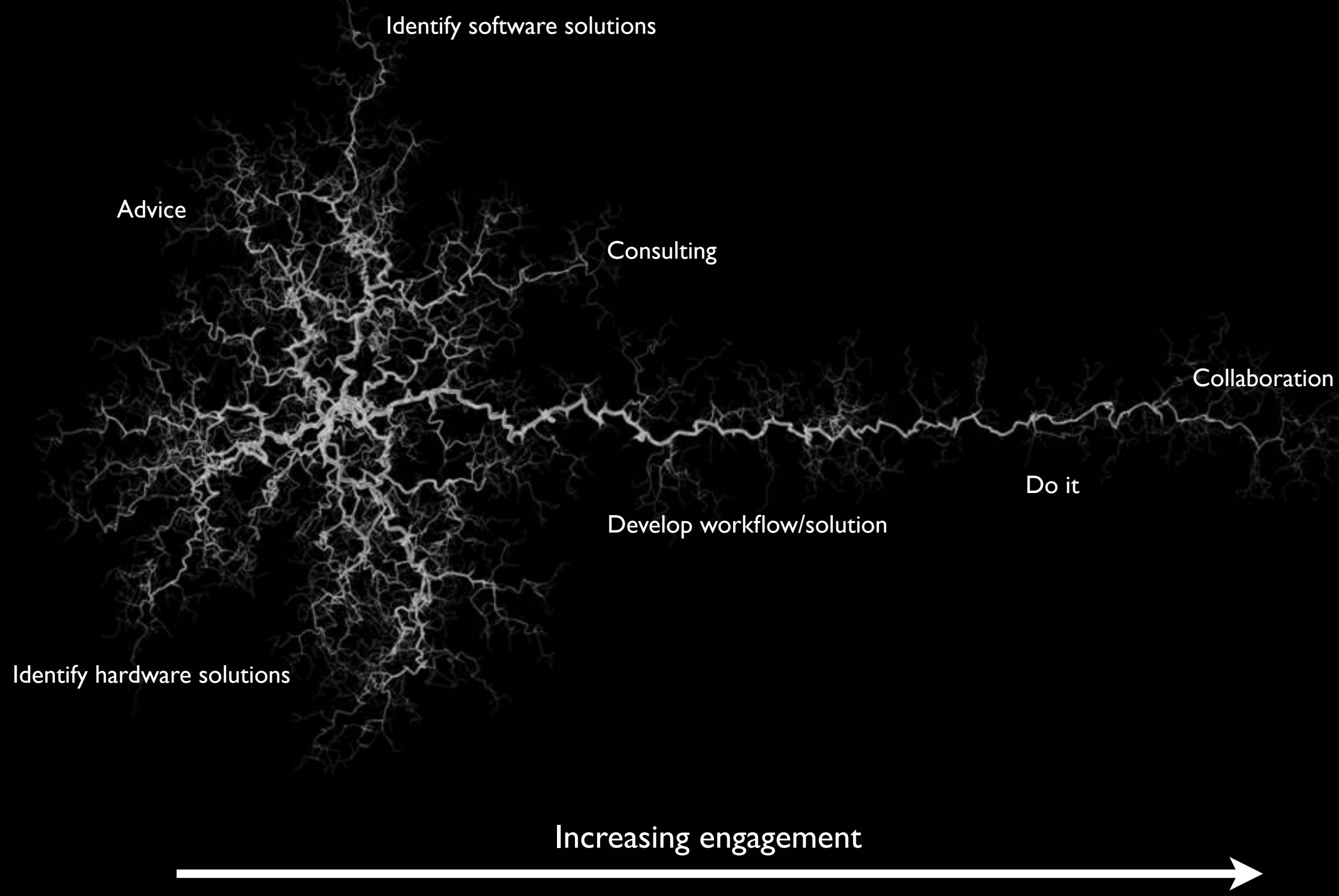Unique displays

Identify software solutions

Advice

Consulting

Collaboration

Do it

Develop workflow/solution

Identify hardware solutions

Increasing engagement

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

# Photographs to models and everything in between

Paul Bourke

iVEC
@UWA

Wanmanna

Data collection

Timelapse Movie

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
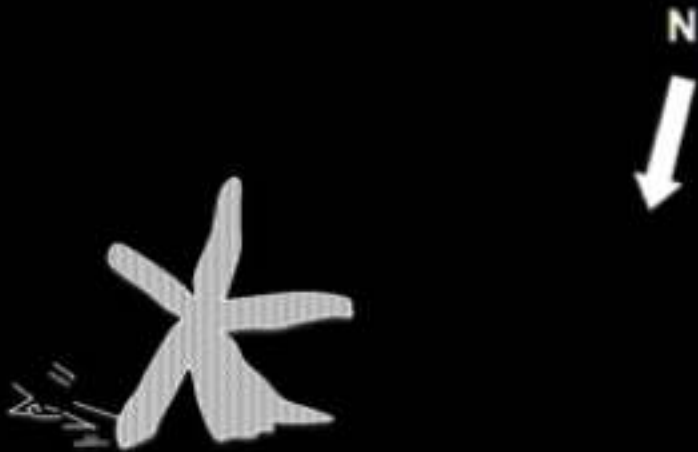
Gigapixel photography

13 x 3 grid

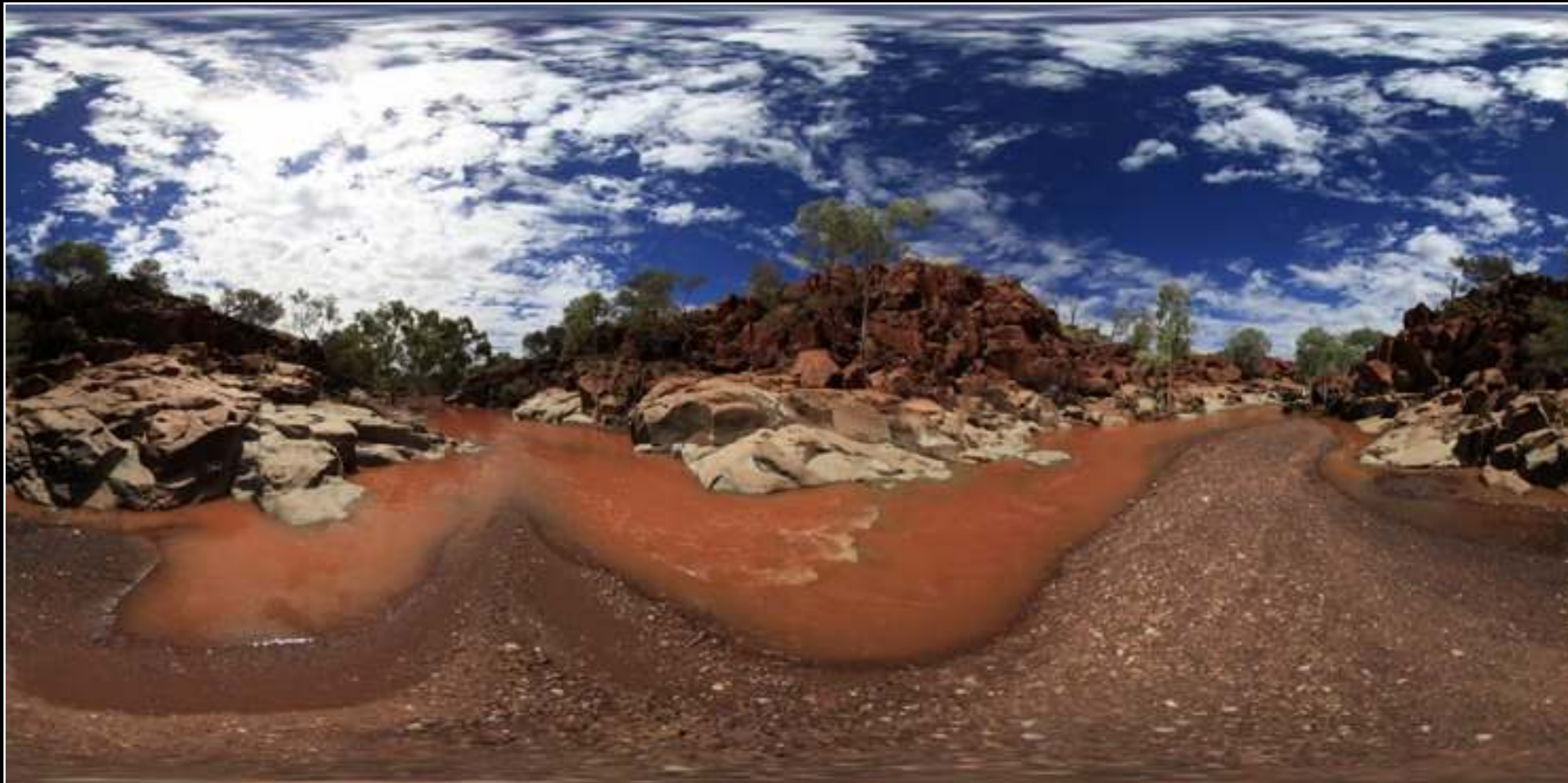40,000 x 10,000 pixels

Gigapixel photography

15 x 4 grid

Single 10MPixel image

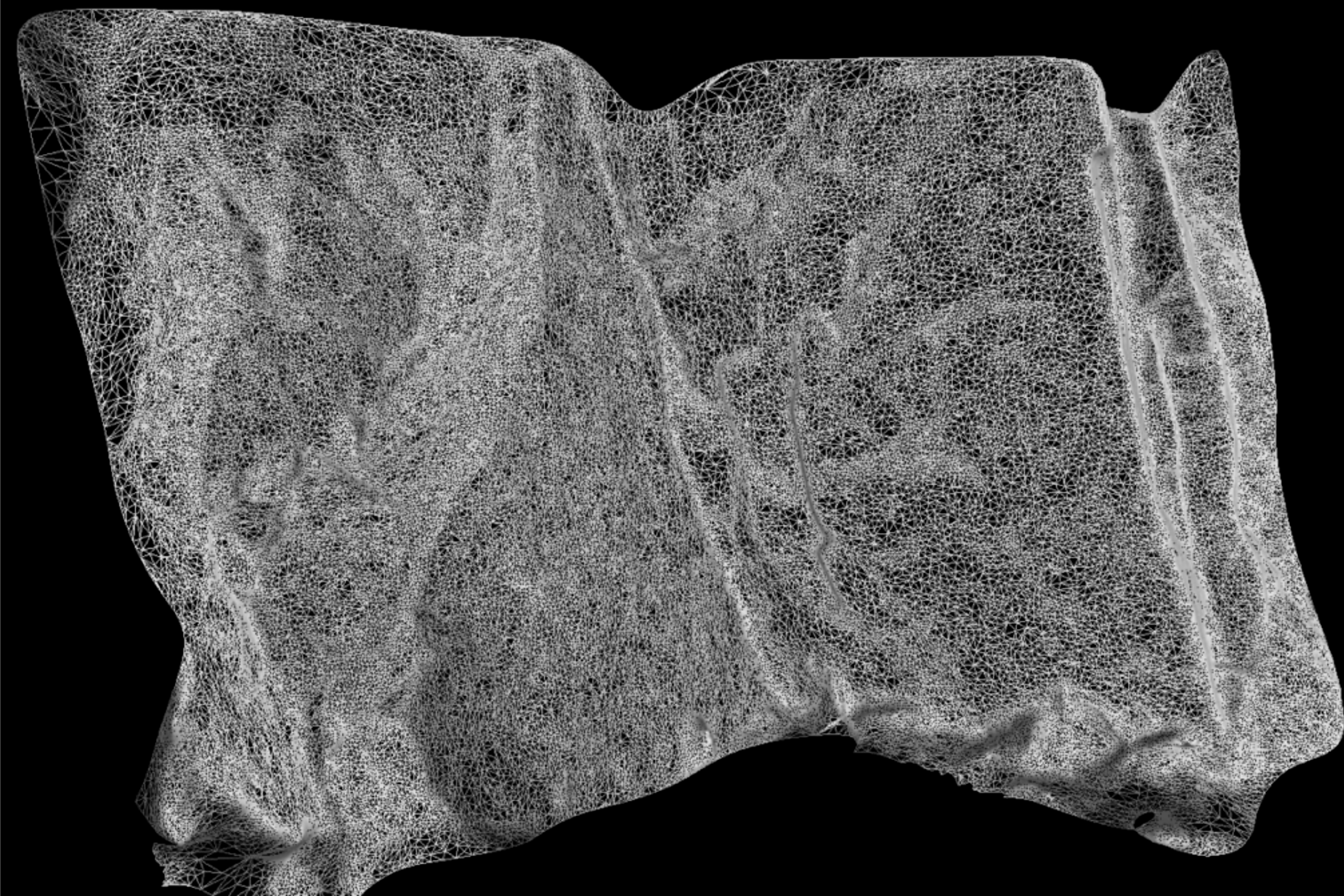# Bubble photography

Virtual tours
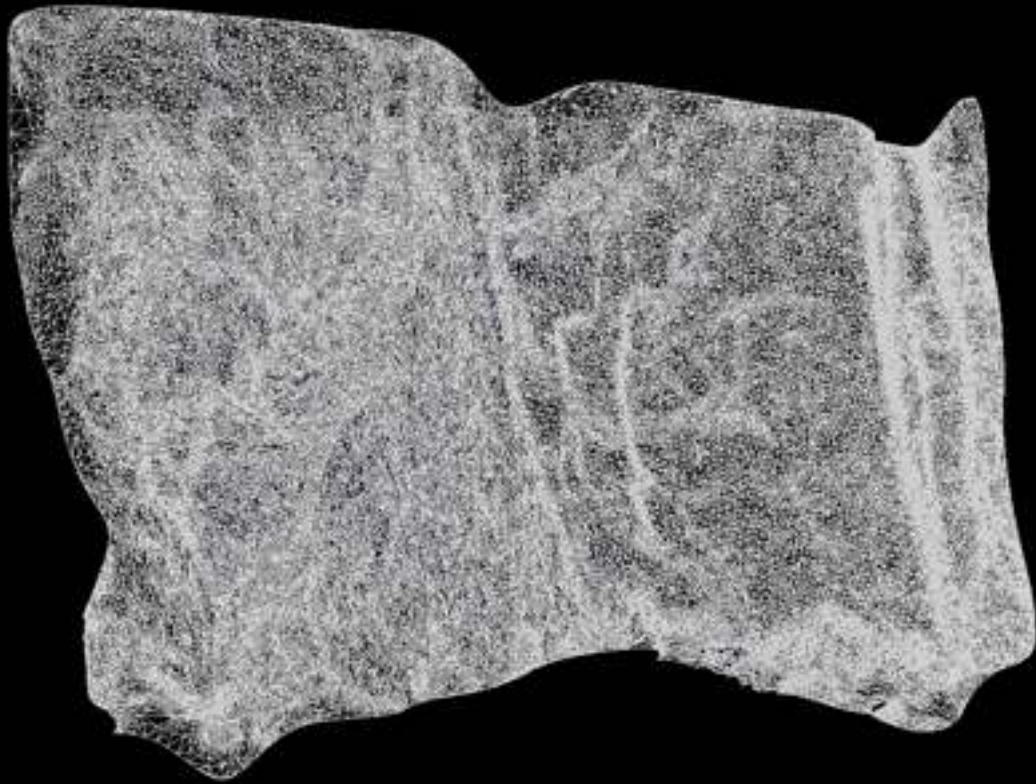
Immersive exploration

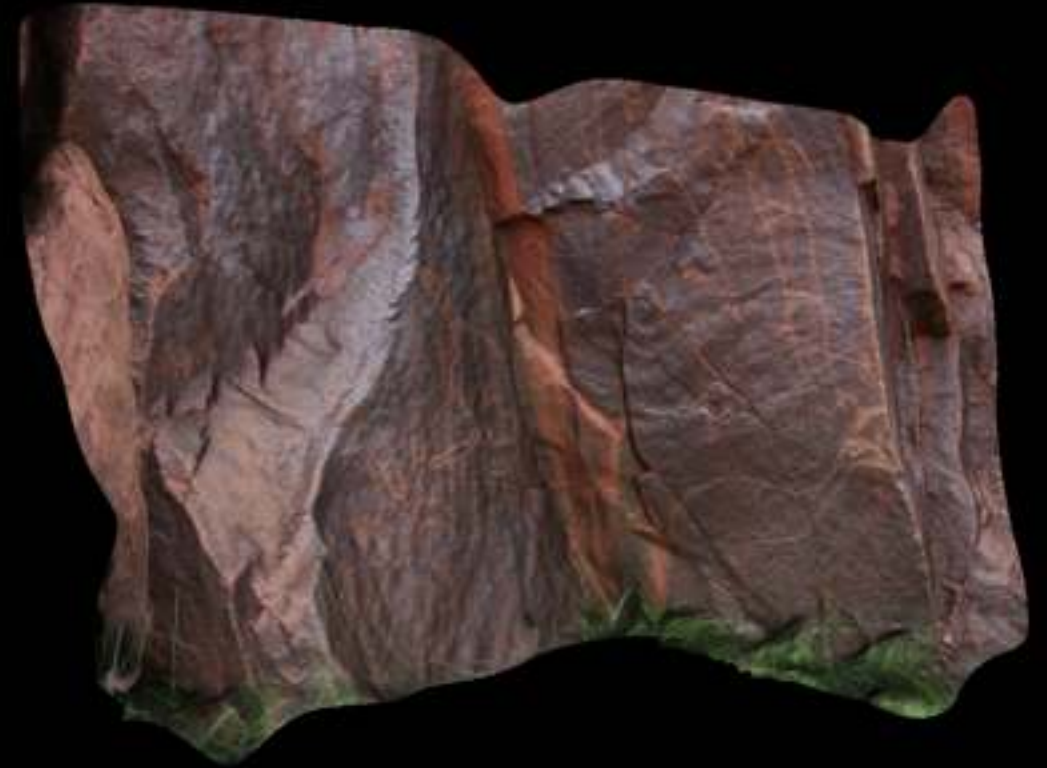# 3D reconstruction

Reconstructed mesh
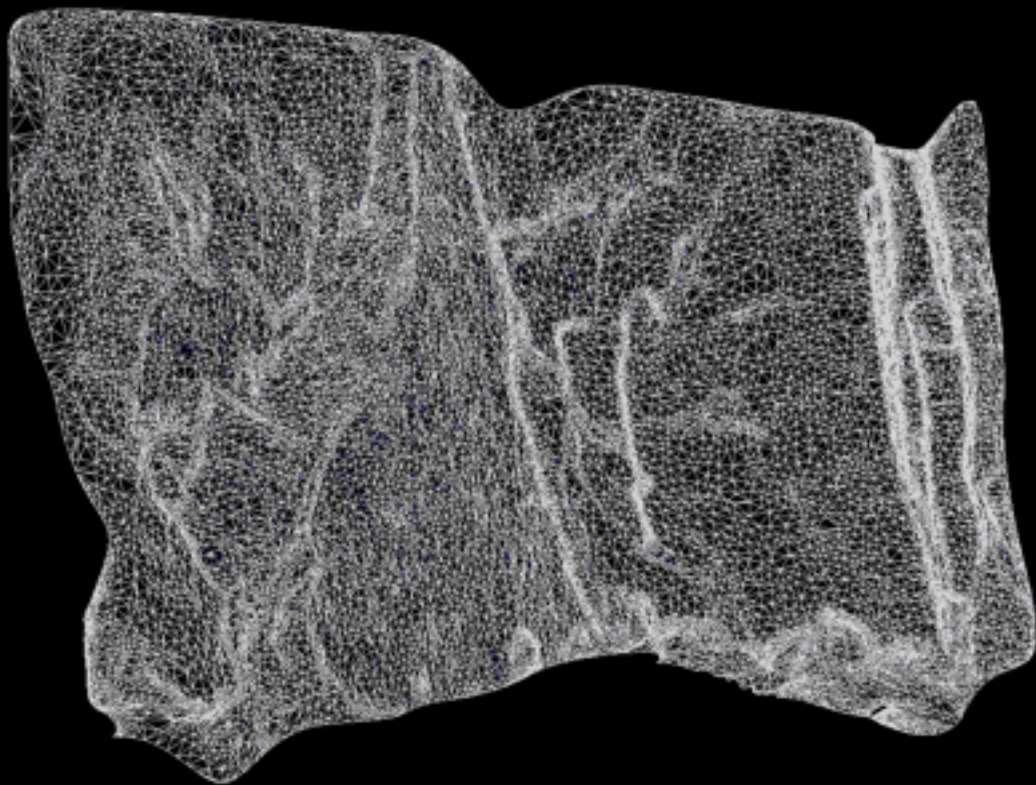
Textured 3D model

Movie

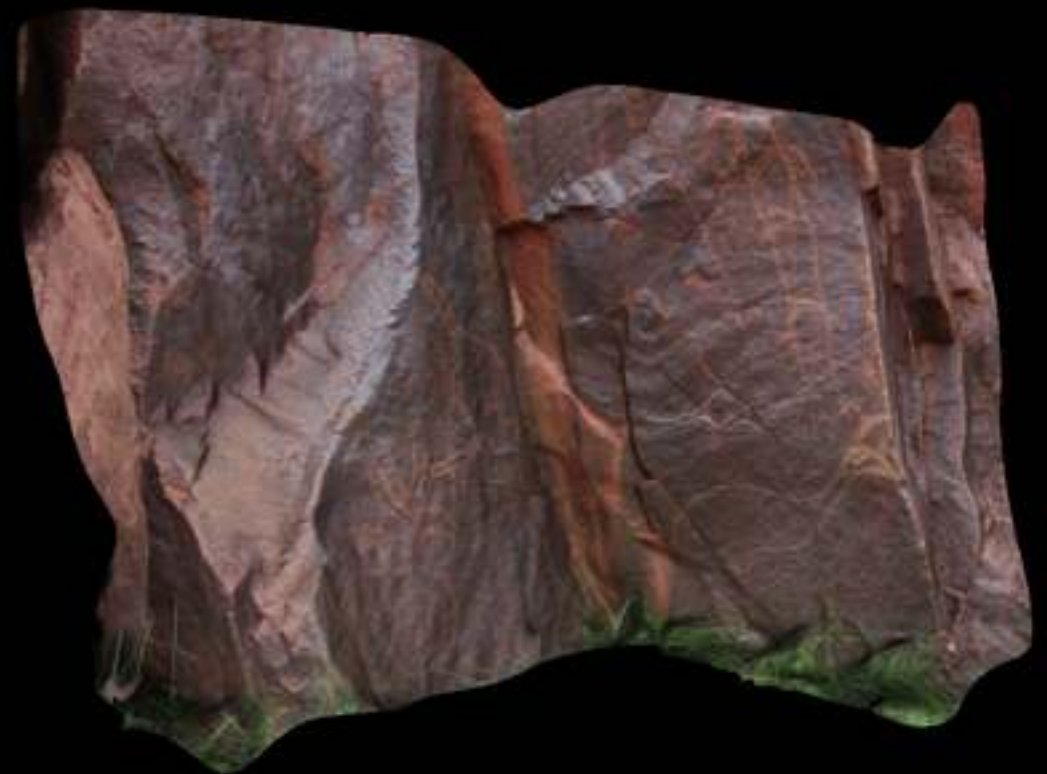# Mesh decimation: Online and populating virtual worlds
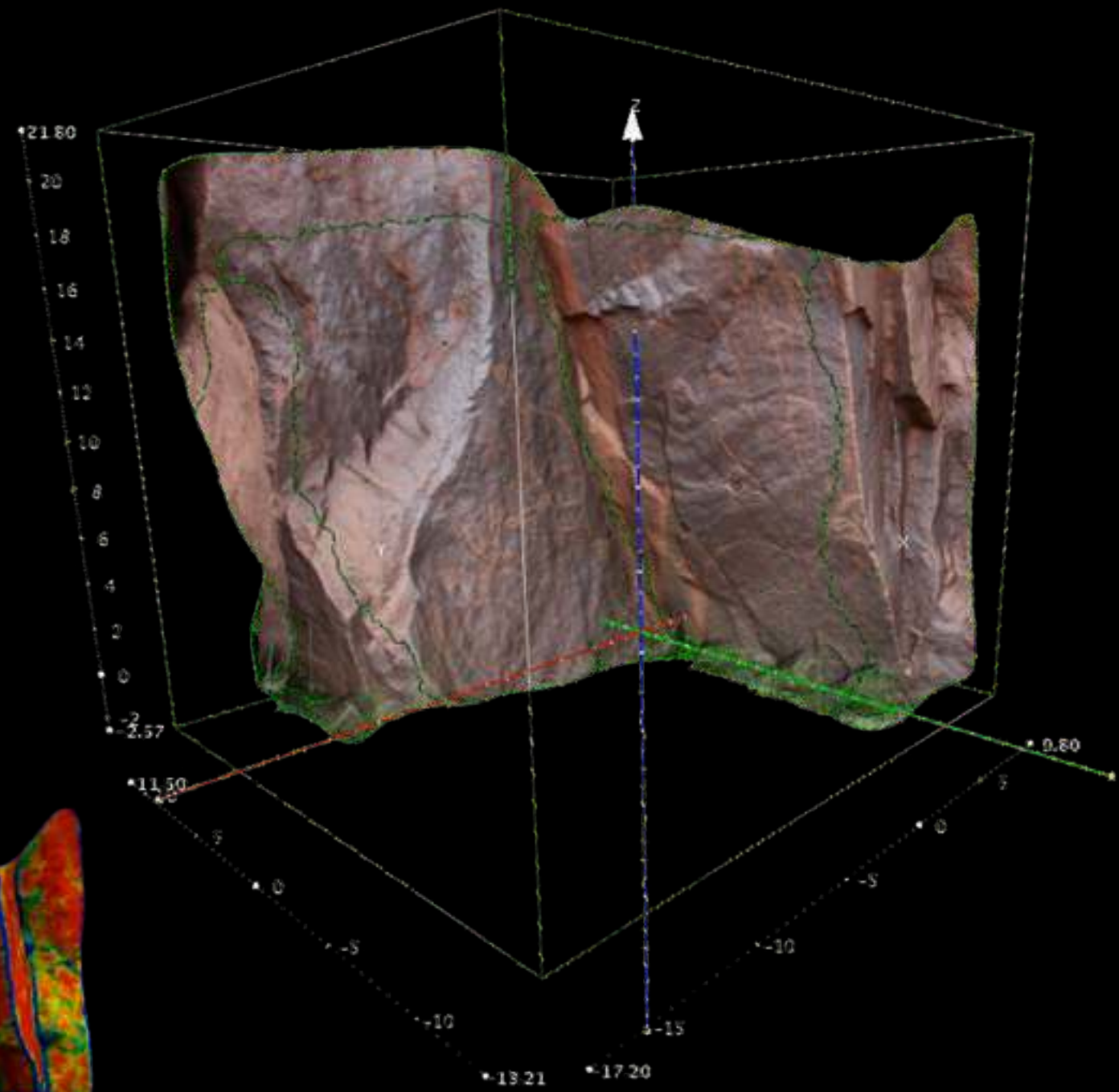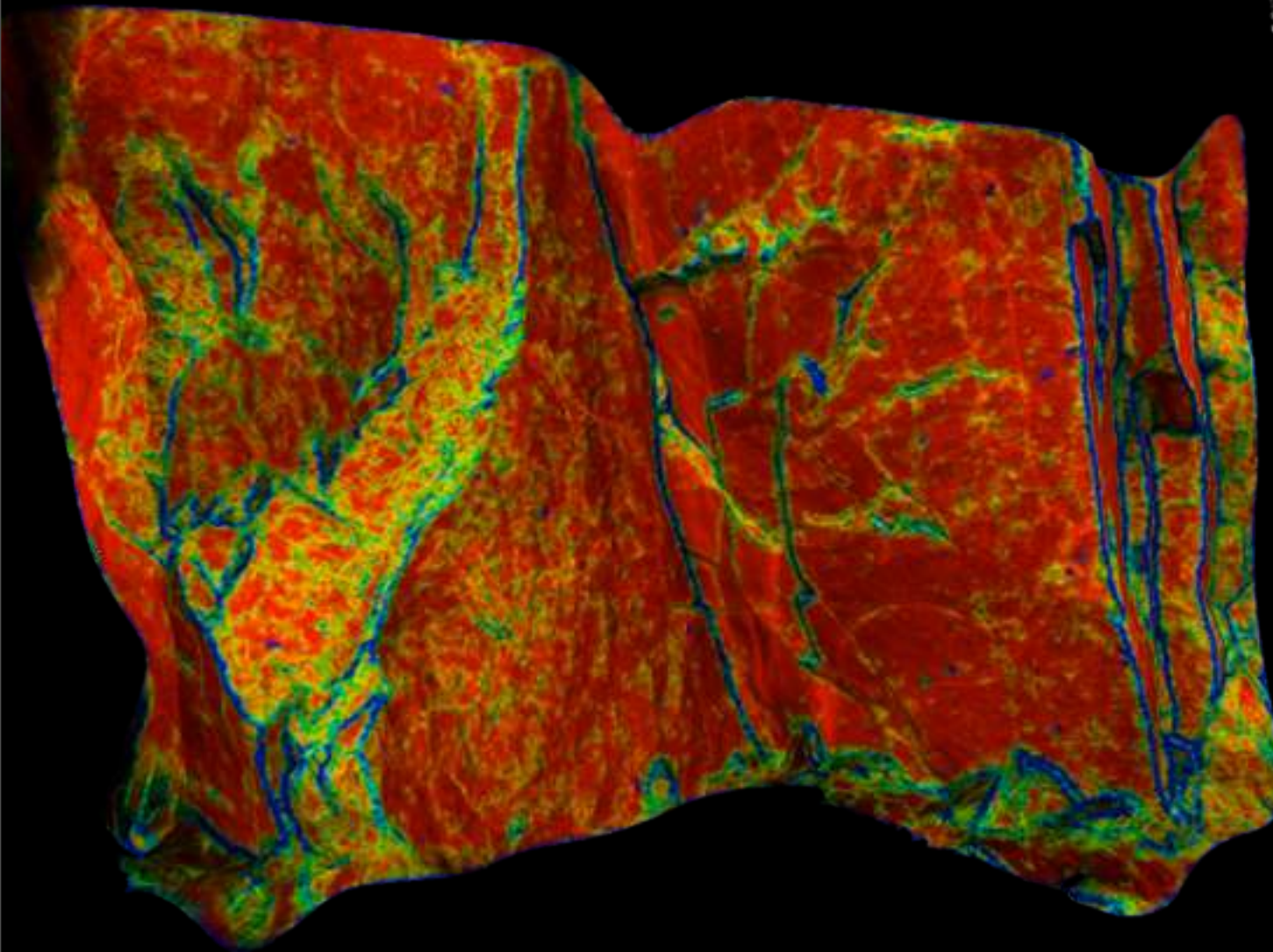

120,000 triangles

Quadratic mesh decimation

40,000 triangles

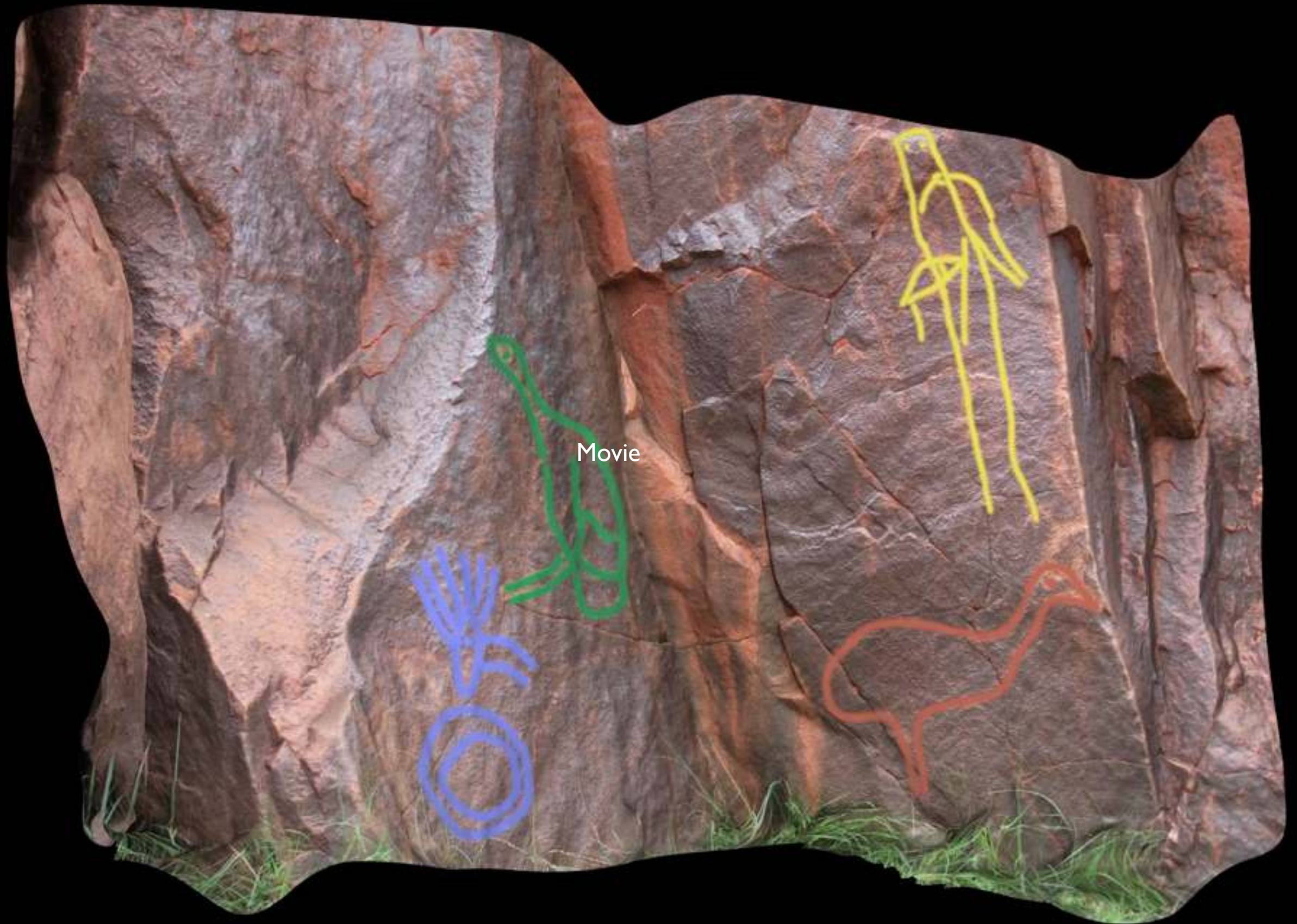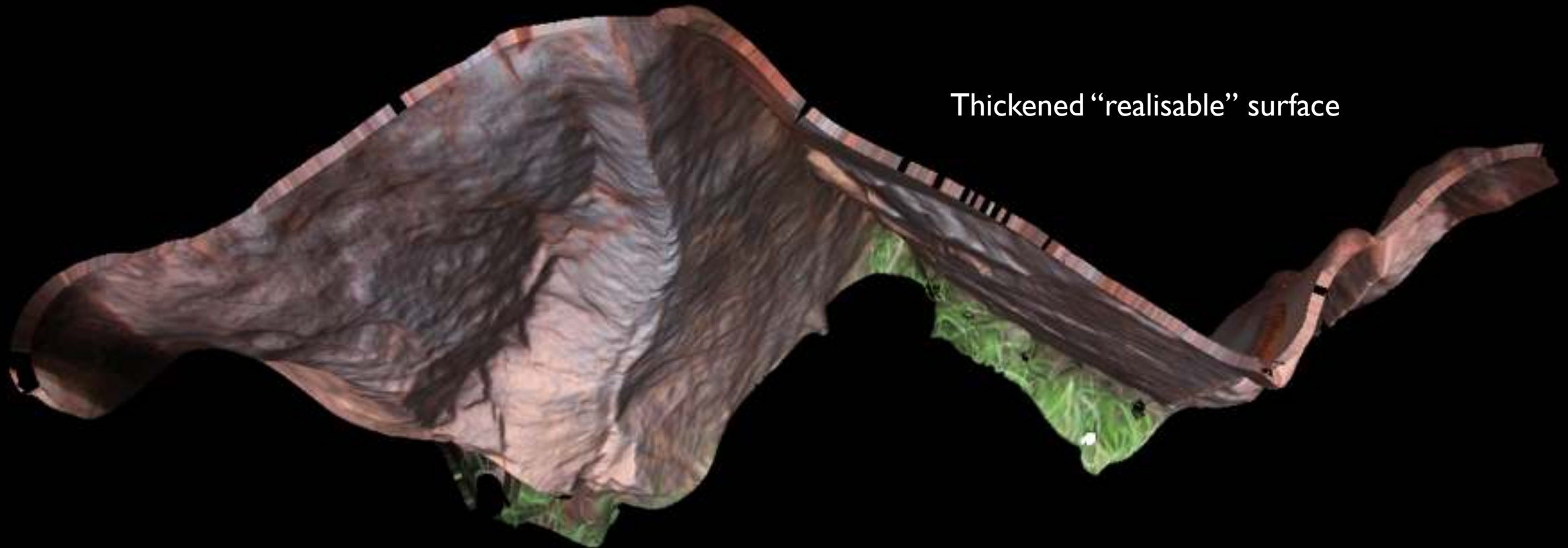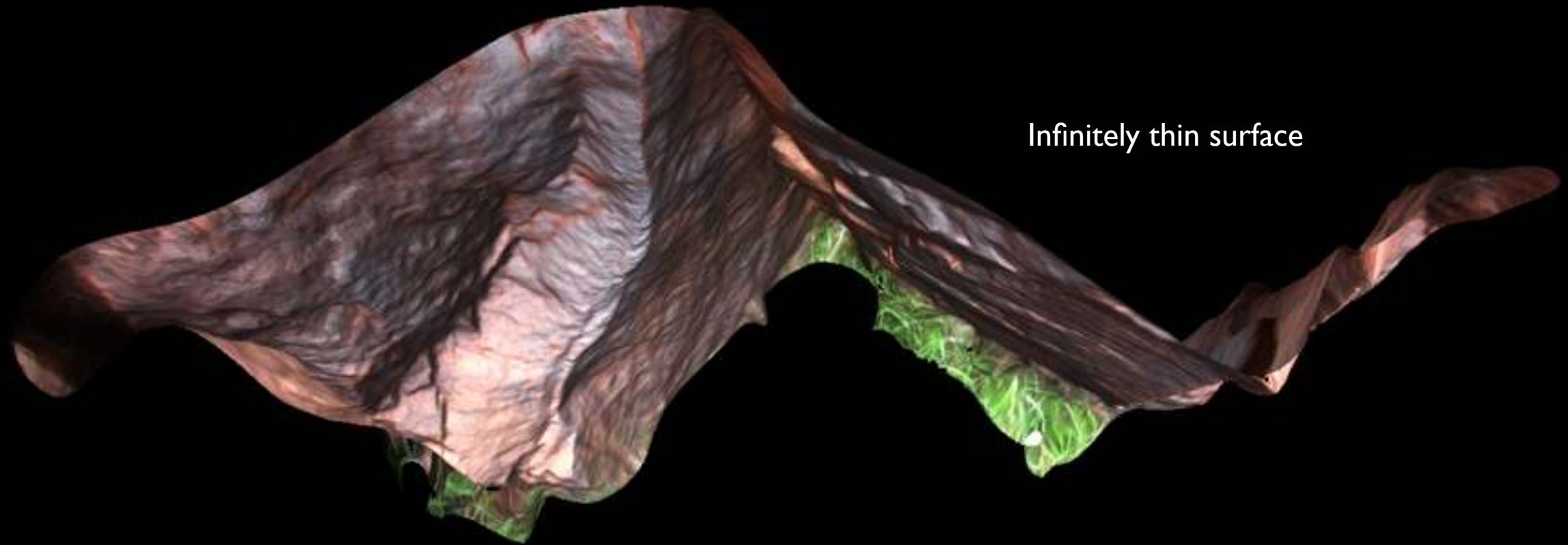# 3D Analysis

Discrete curvature

Relighting

Movie
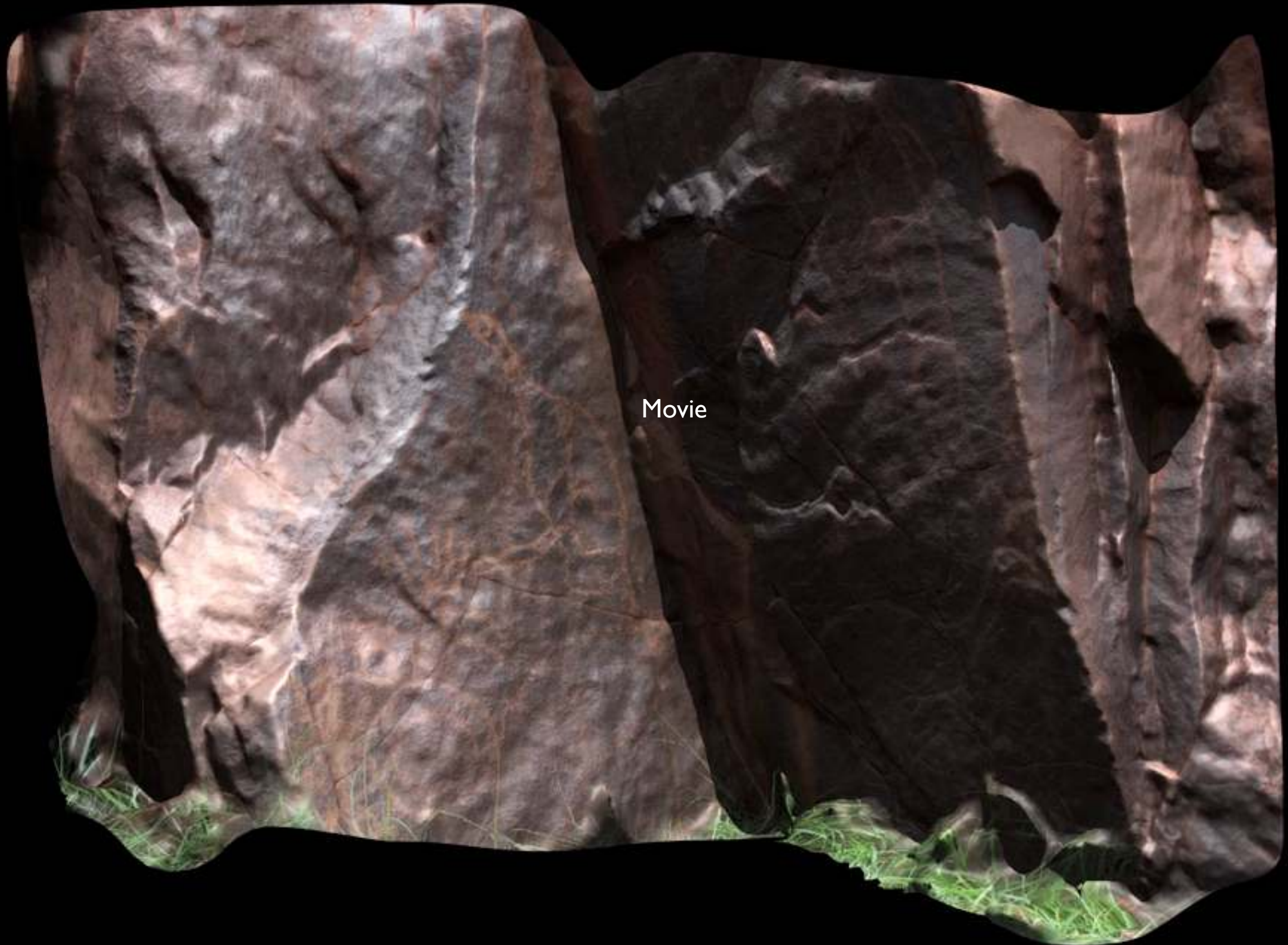
Image processing and annotating

Movie

Rapid prototyping

Infinitely thin surface

Thickened "realisable" surface

Rapid prototyping