



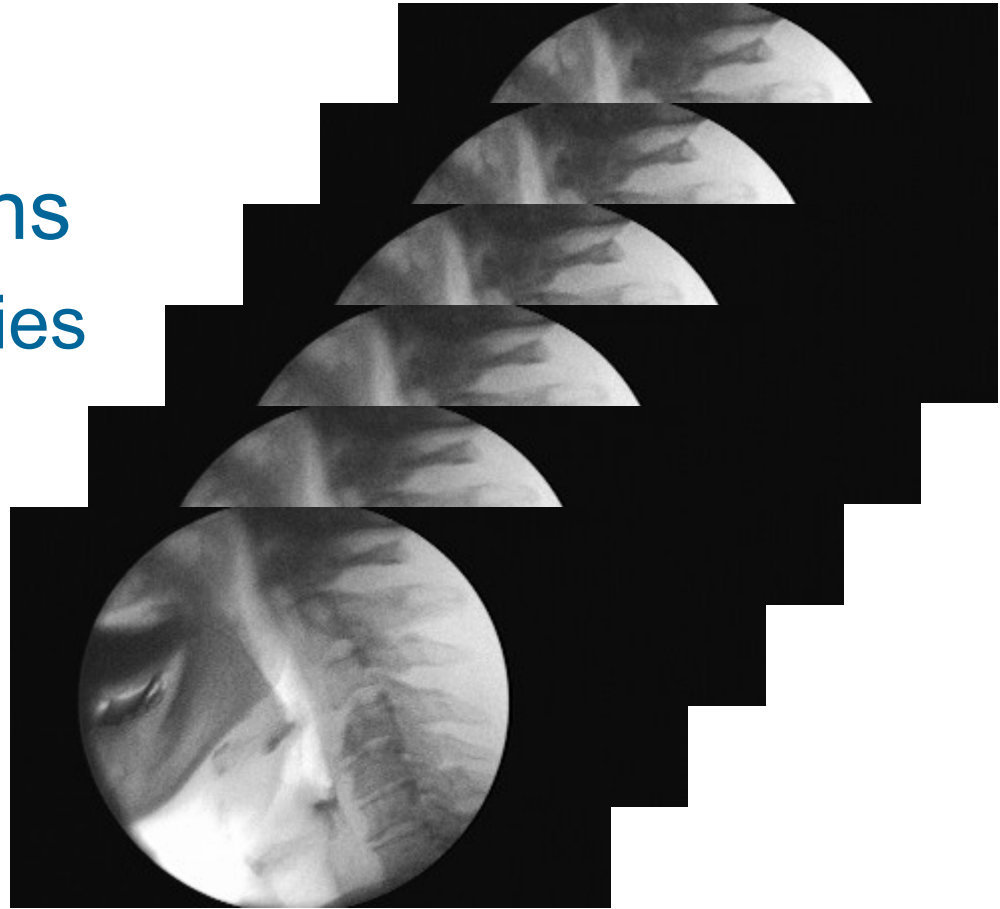
# 'Visual' and 'Metric' 3D

How to process reference images  
and display resolution to pave way  
for reliable automation

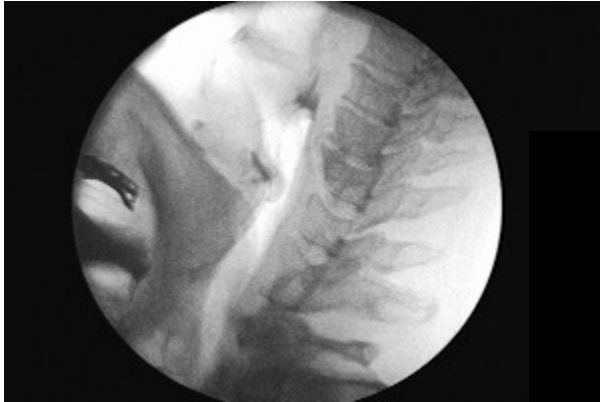
**Sabine K McNeill – Oct. 15, 2008**

# Reference Images

- Medical applications
  - Medical technologies
  - DICOM format
- Image collections
  - Changes
  - Progress

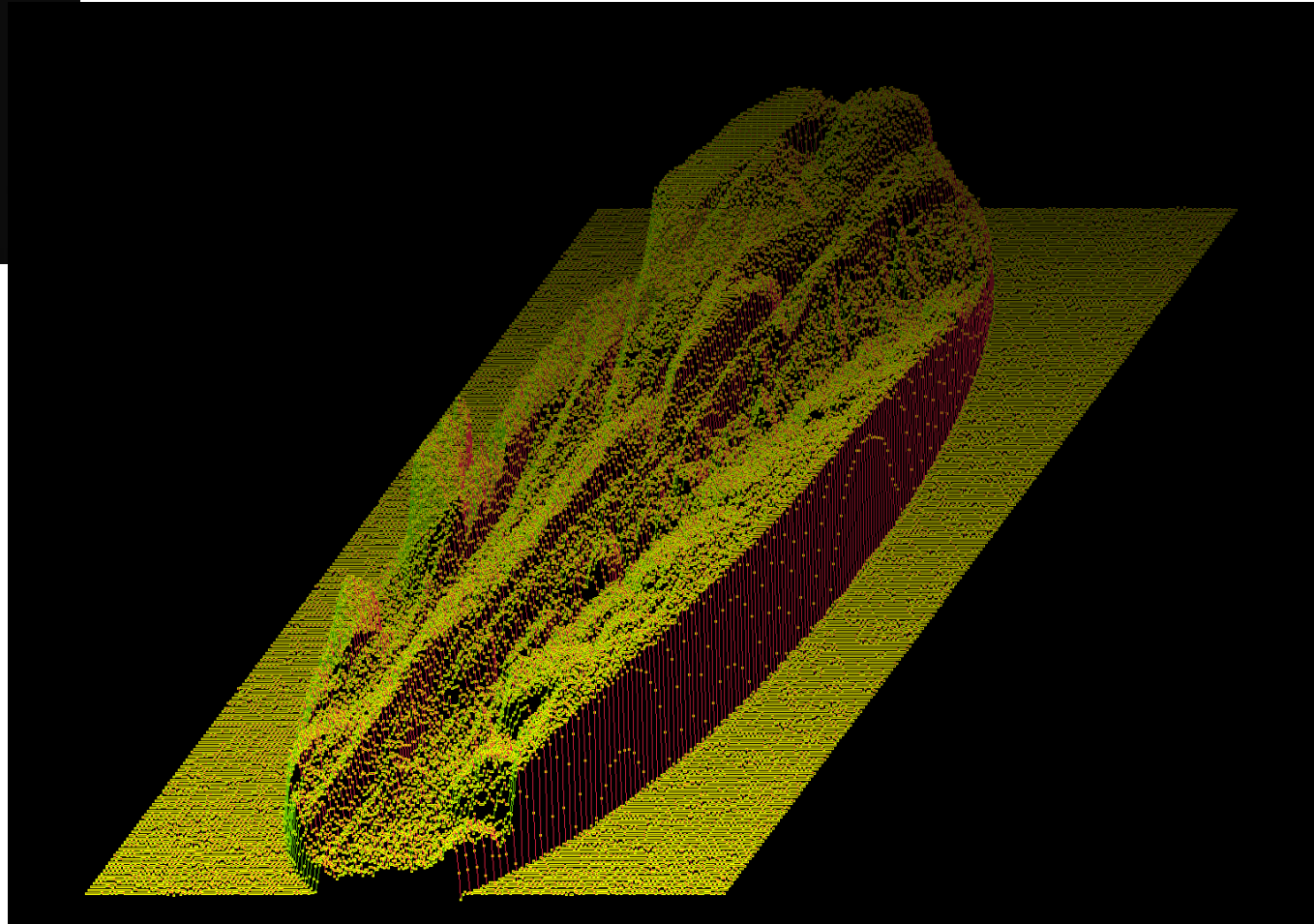


# Image 1 – Re-visualized

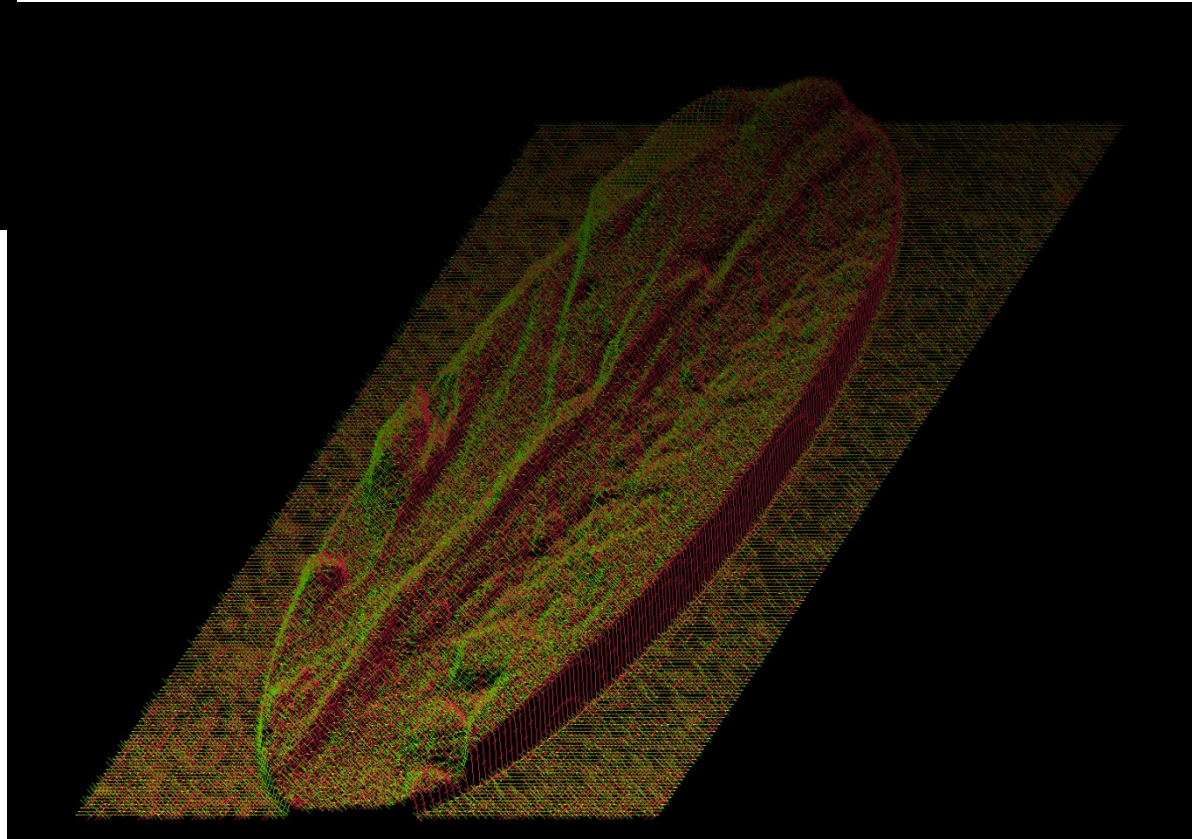
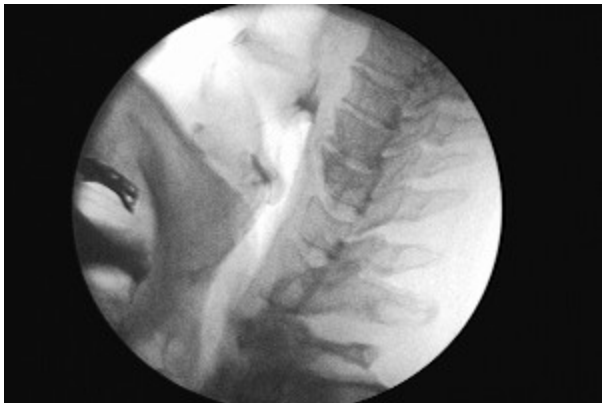
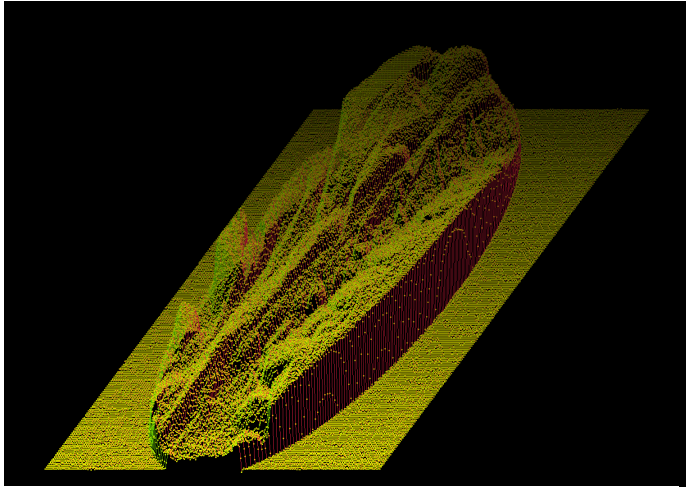


Fluoro X-ray image of a patient swallowing.

The screenshot shows new visual depth and new metric details plus texture through colour.



# Re-visualization 1 and 2

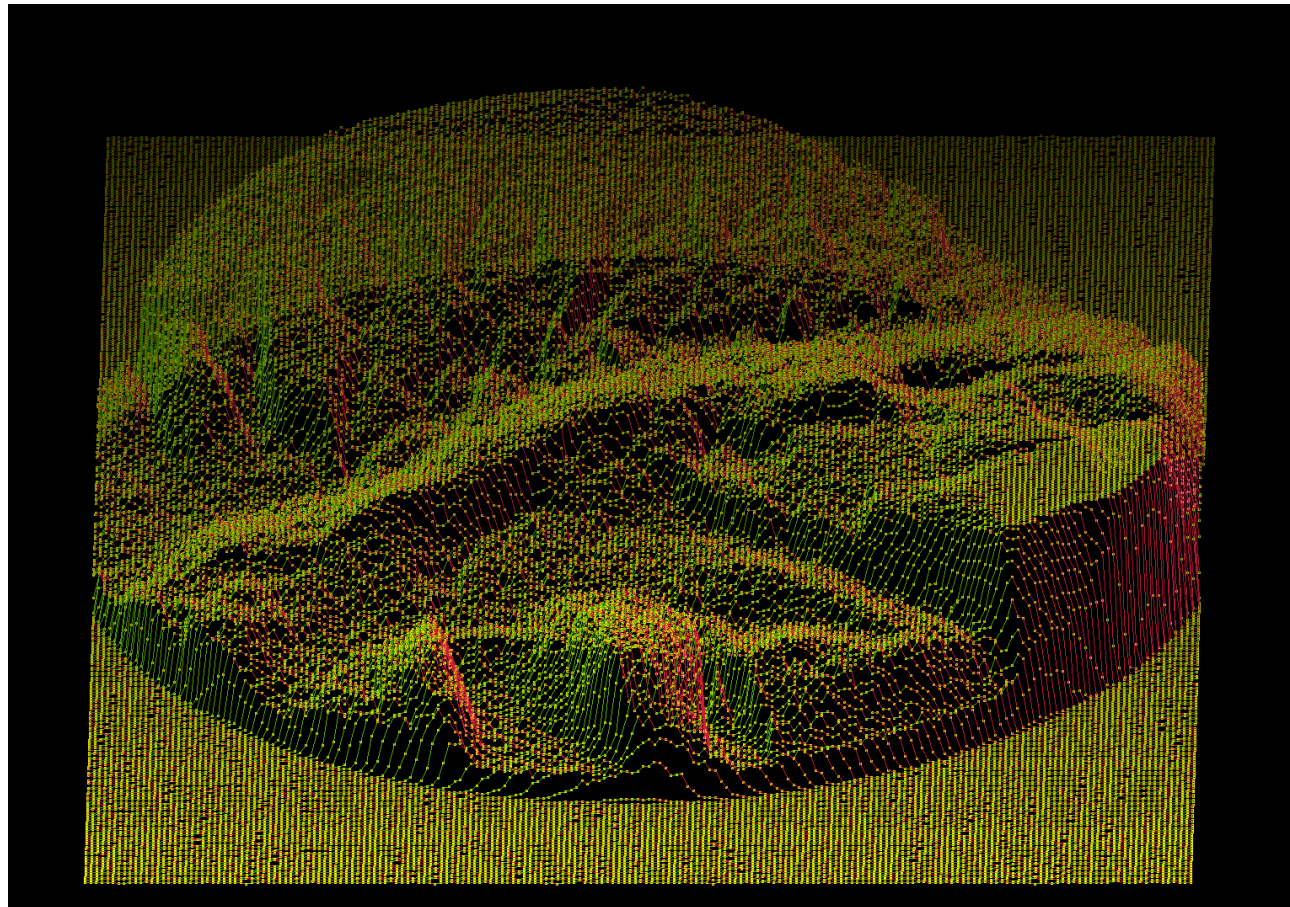




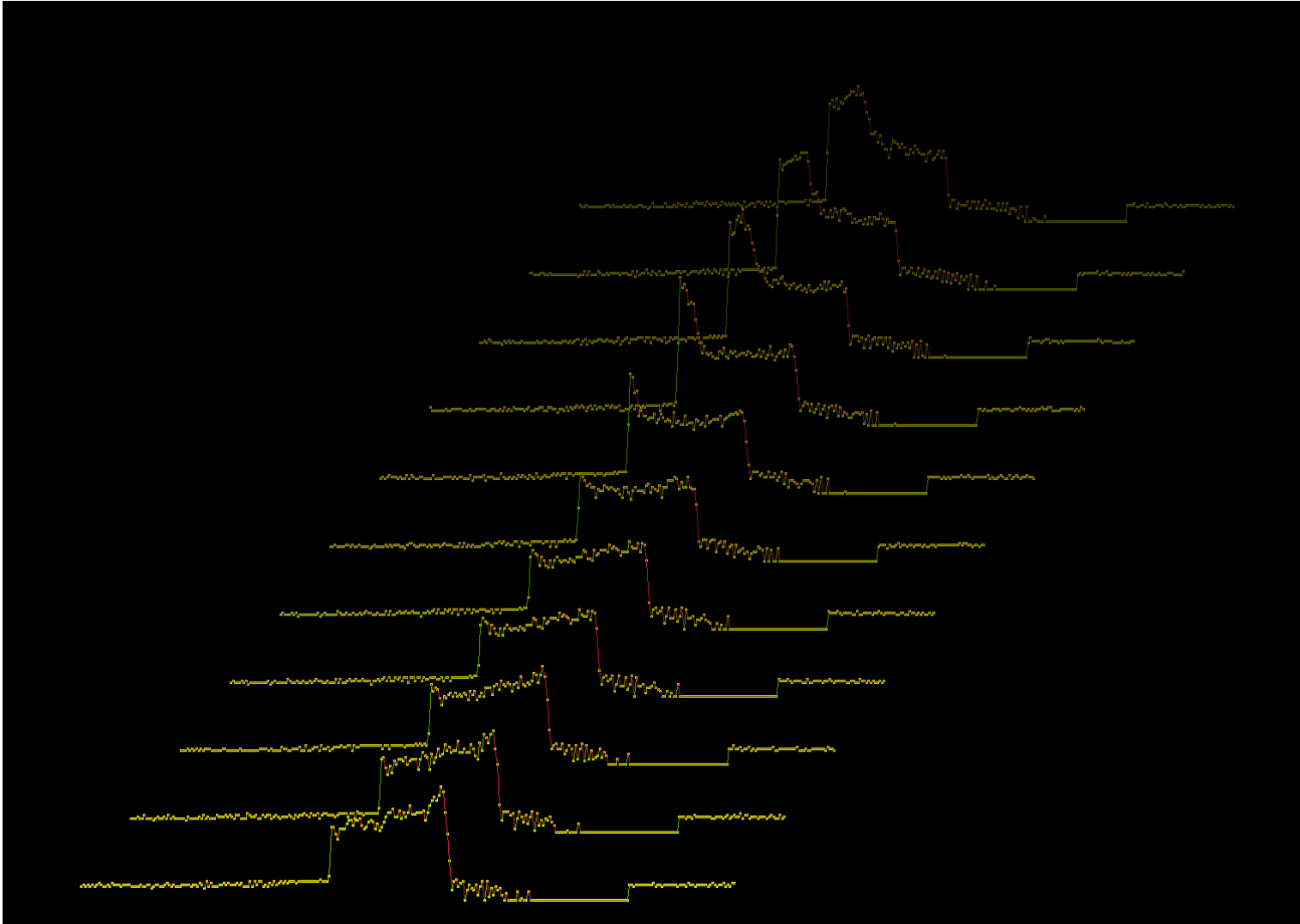
# Image 1 – New Angle



Only experts know what needs to be compared for the purpose of measuring.



# Comparing Images

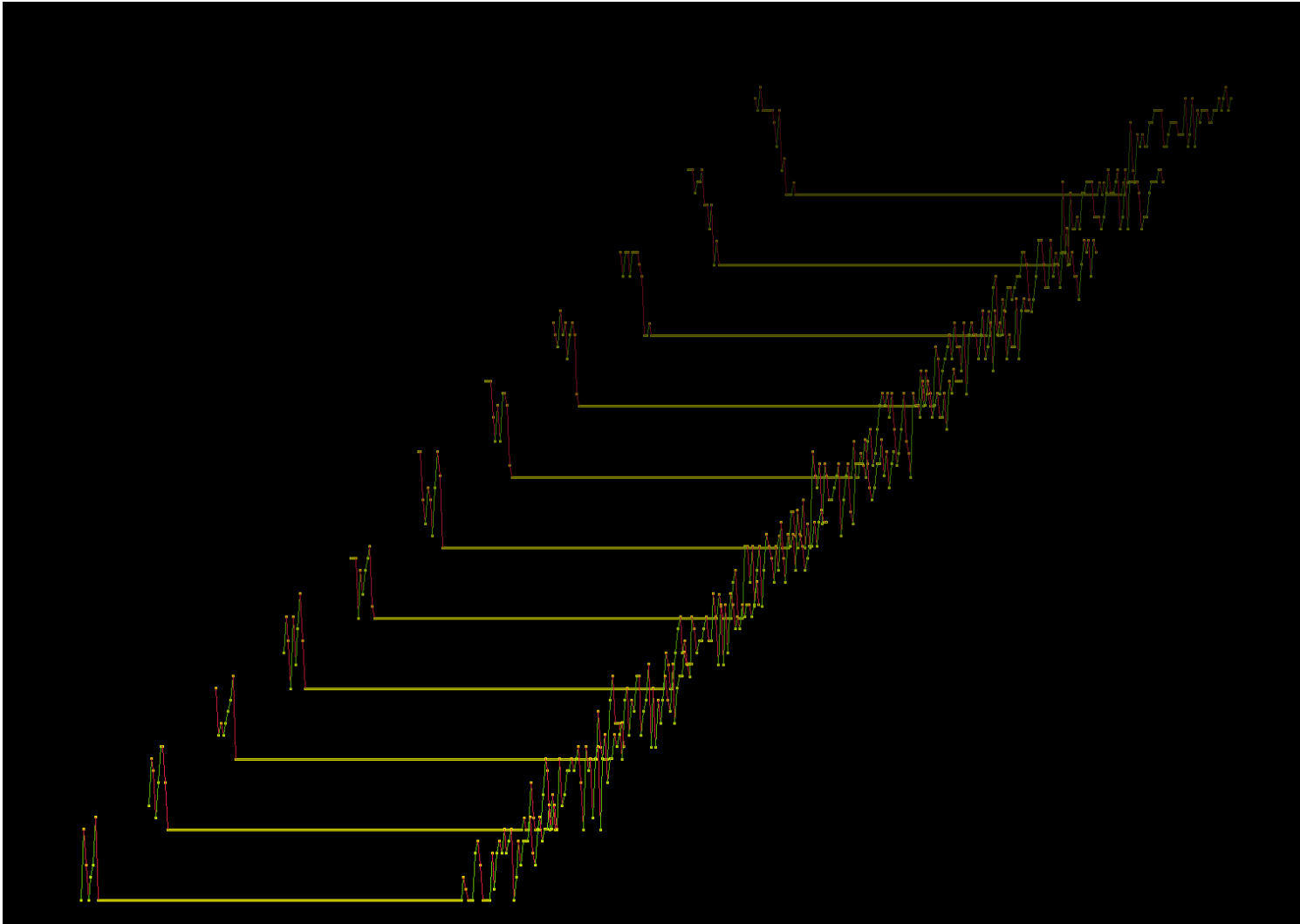


Eleven 'metric profiles' for eleven larynx images.

Visually compared and metrically evaluated for sorting, classifying and ranking.



# Another 'metric profile'

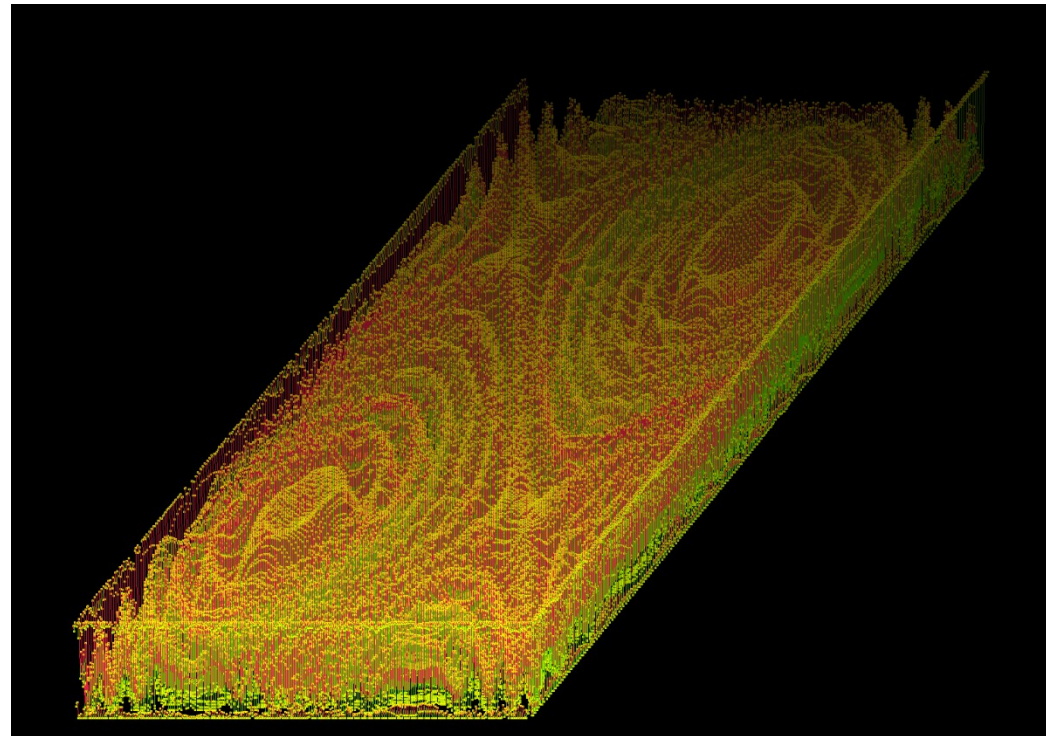
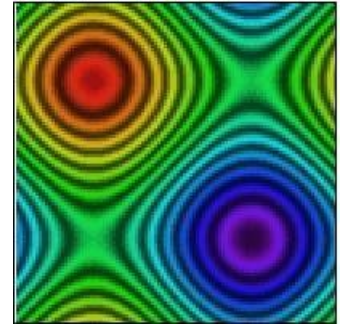


Our “image data metrics” can be used for: classifying, sorting, ranking and selecting images.

Parameters need to be input by experts.

# Display Resolution

- Resolution / Size
- Prototype Software
  - Proprietary transformations
  - Visual effects
  - Metric details
- Sample image from NPL
  - Calibrating instruments



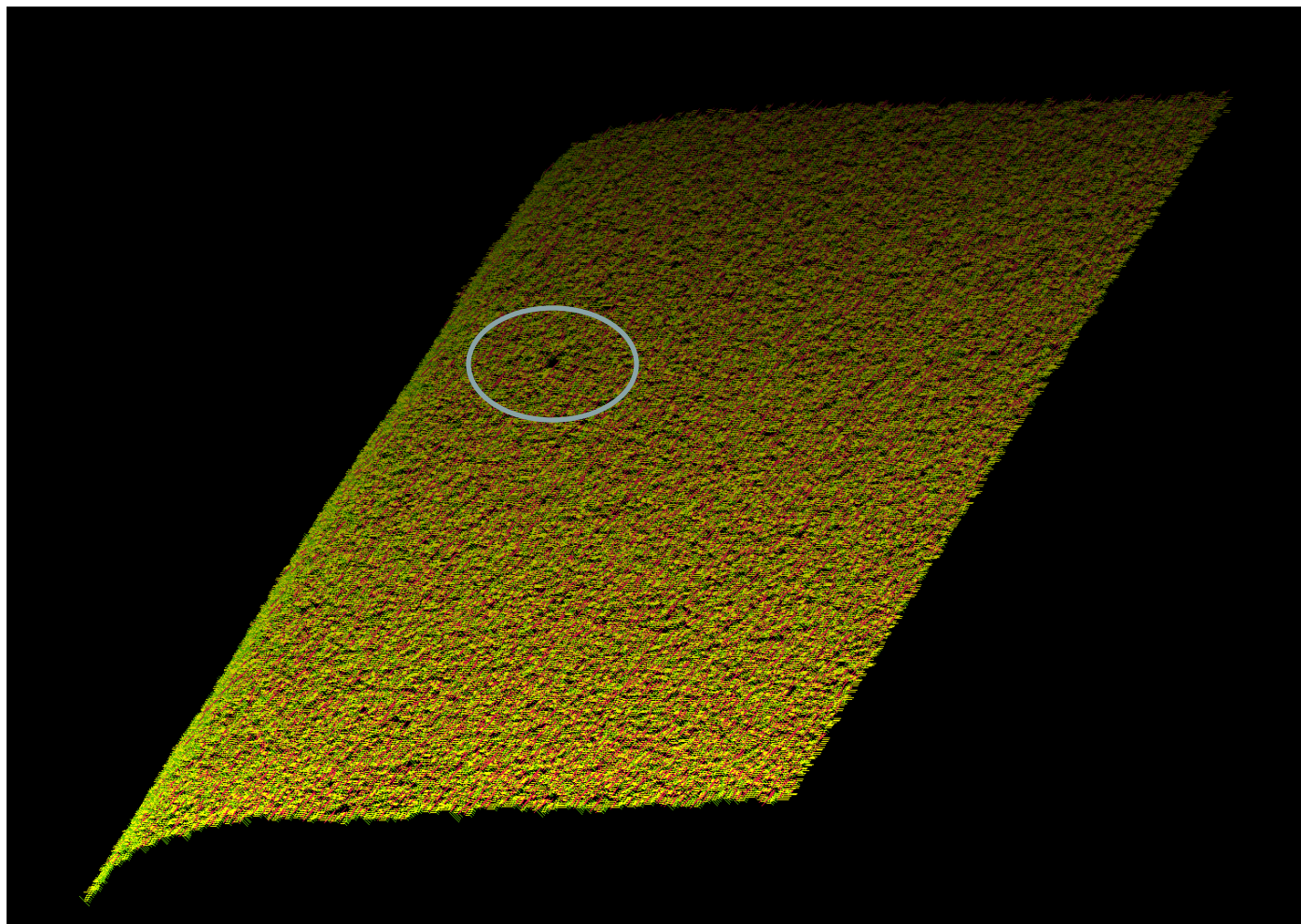




Barco



2048 x 2560  
pixels



400 x 400 pixels



# Integrating Expertise

- **Domain-Specific Vocabularies**
  - Define scale-dependent measuring units
  - Analyse image-dependent components
  - Name context-critical considerations
- **Expert Input**
  - Specifies known limits
  - Proposes new standards
  - Helps to eliminate uncertainties



# Reliable Automation

- Image Data Metrics
  - Quantifying images as a whole
    - Classifying
    - Sorting / Ranking
    - Selecting against Decision Making Criteria
  - Differentiating image components
    - Shapes / Objects
    - Patterns
    - Contrasts / Colours



# Strategic Co-Developers

- Instrumentation
  - Calibration
- Software
  - MATLAB toolboxes
- Research
  - Which instrument for which purpose?
  - Establishing standards at nanoscale & below
- Wellcome Trust
  - Differentiating Cell Types



# Thank You for Listening!

- More is on
  - <http://3dmetrics.co.uk>
  - <http://3dmetrics.wordpress.com>
- Or by email from
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  - T: 020 7328 3701
  - M: 07968 039 141