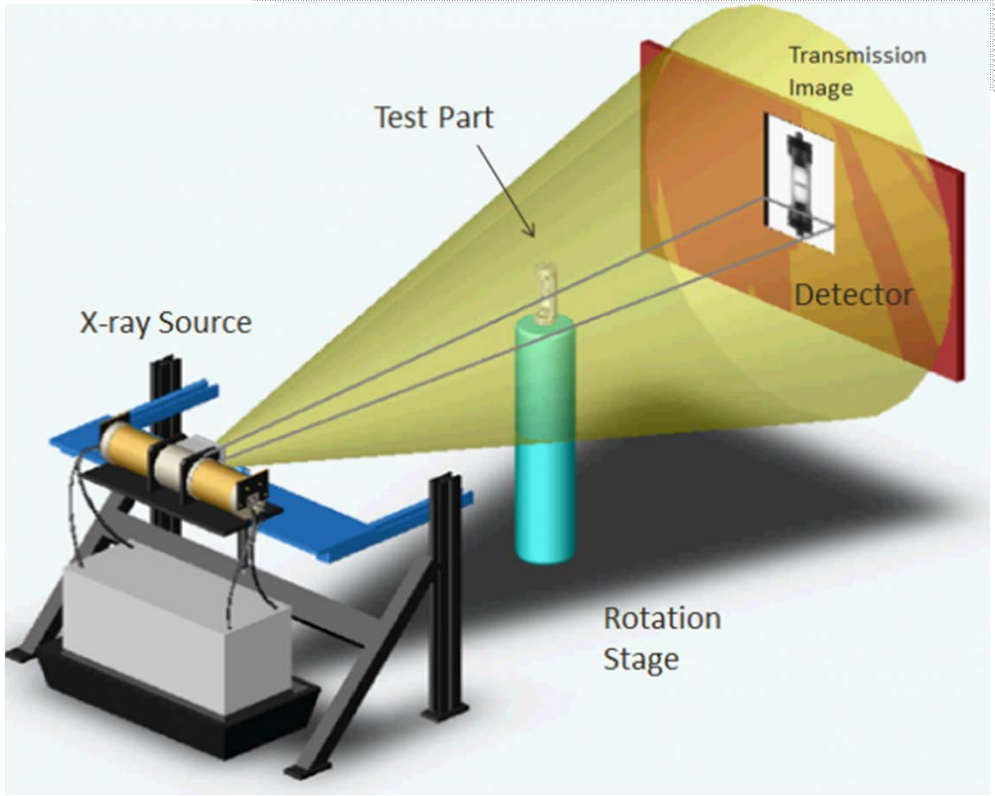
High Precision X-ray CT-scanning of Biological Samples

Olivia Valley, Nick Collison, Abigail Collison, Nick Cosentino

CT Scans

What?
Why?



CT Scans

continued

How with biological materials?
Process now.
How this is different.

medical ct scan

Pros with biomaterials

The CT scan provides us with greater detail which enables us to better understand the structure of what is being observed.

Cons with biomaterials

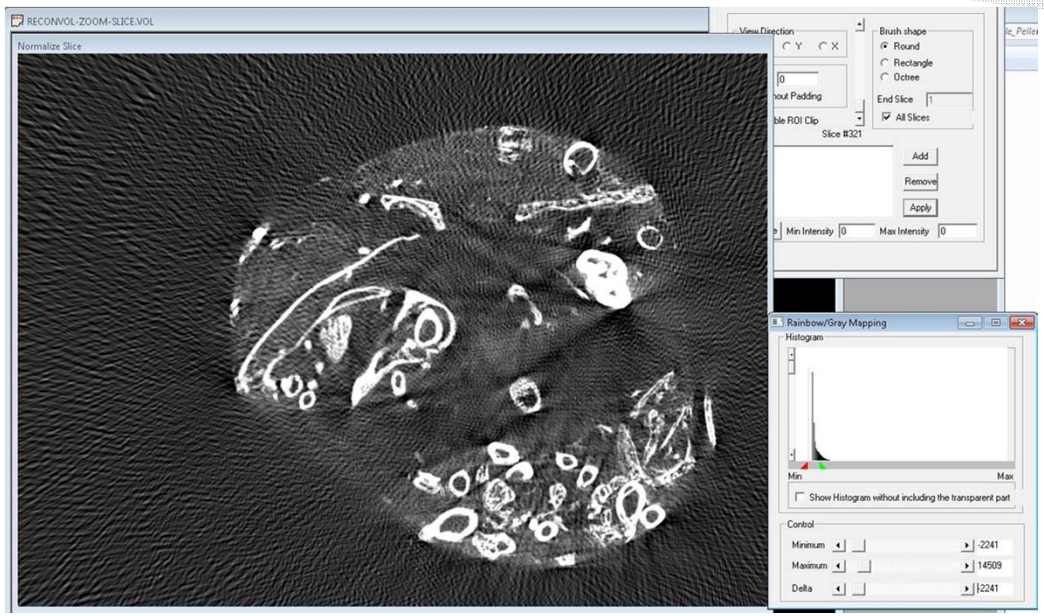
long scan time
need ridged samples

Very Small - embryo

https://www.youtube.com/watch?v=RrSc9WjKovo

small - owl pellets

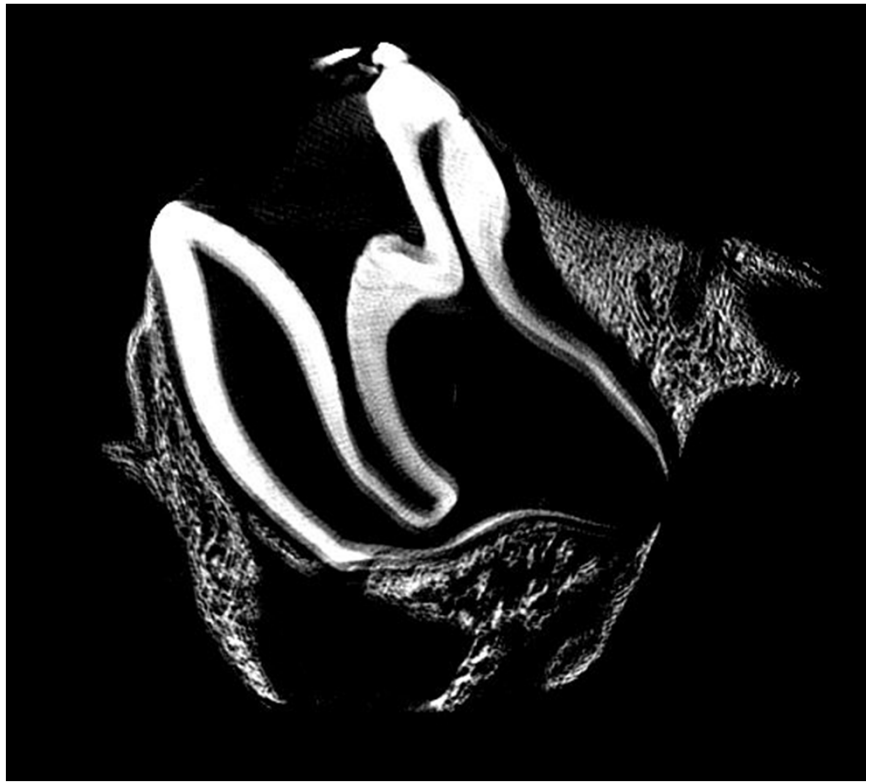
https://www.youtube.com/watch?v=22LmhlWjMko



Video

https://www.youtube.com/watch?v=eIGdWLamIfc

medium - jaw bone & wing

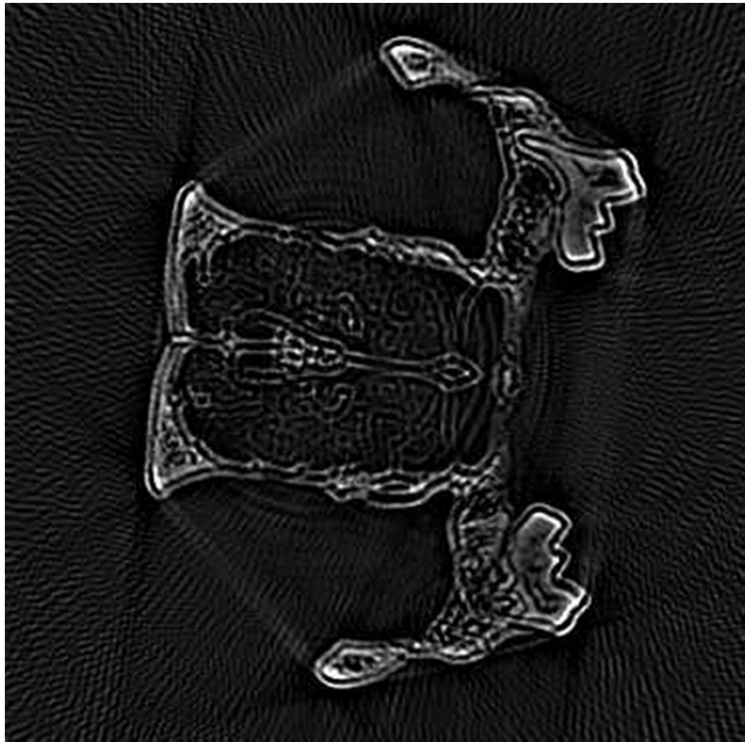


https://www.youtube.com/watch?v=WmA-e1SCqs0

video

https://www.youtube.com/watch?v=jh96jD054g4

Large - Skull



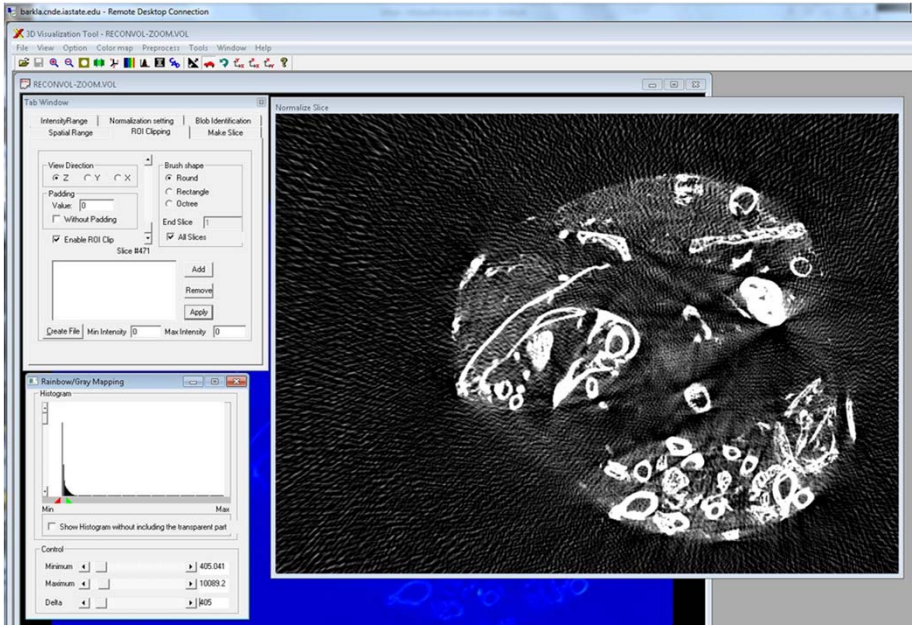
https://www.youtube.com/watch?v=r7sMOf0MTEE

Contrast enhancers/Stains

Since the CT scans make the scans in grey, it may be hard to distinguish colors so stains are used.
When we scanned the embryo we stained it with Iodine solution in order to better view it.

artifacts in slice images

reason for coding

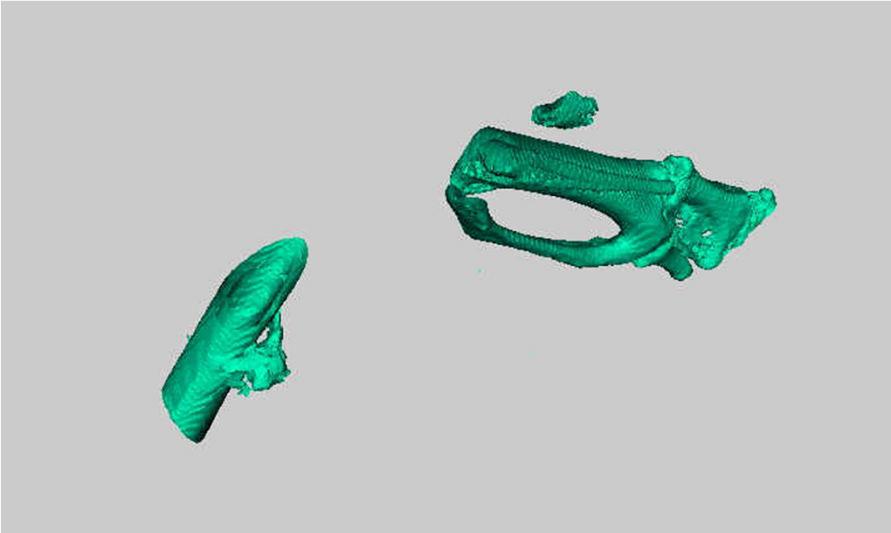


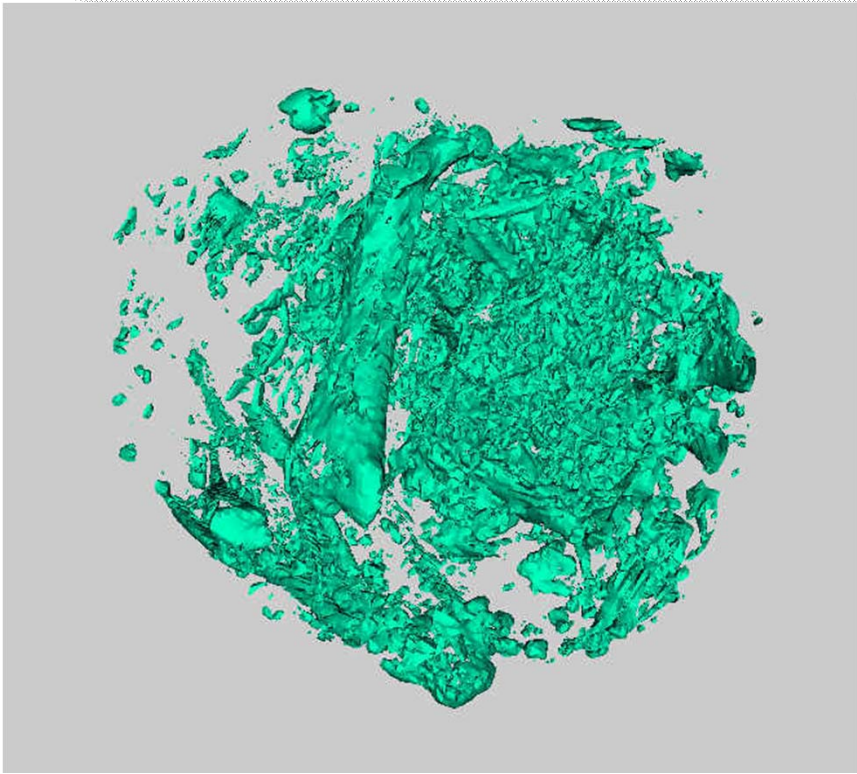
Programming

Conclusions

Future work that could be done

CAD/3D printing





Questions?