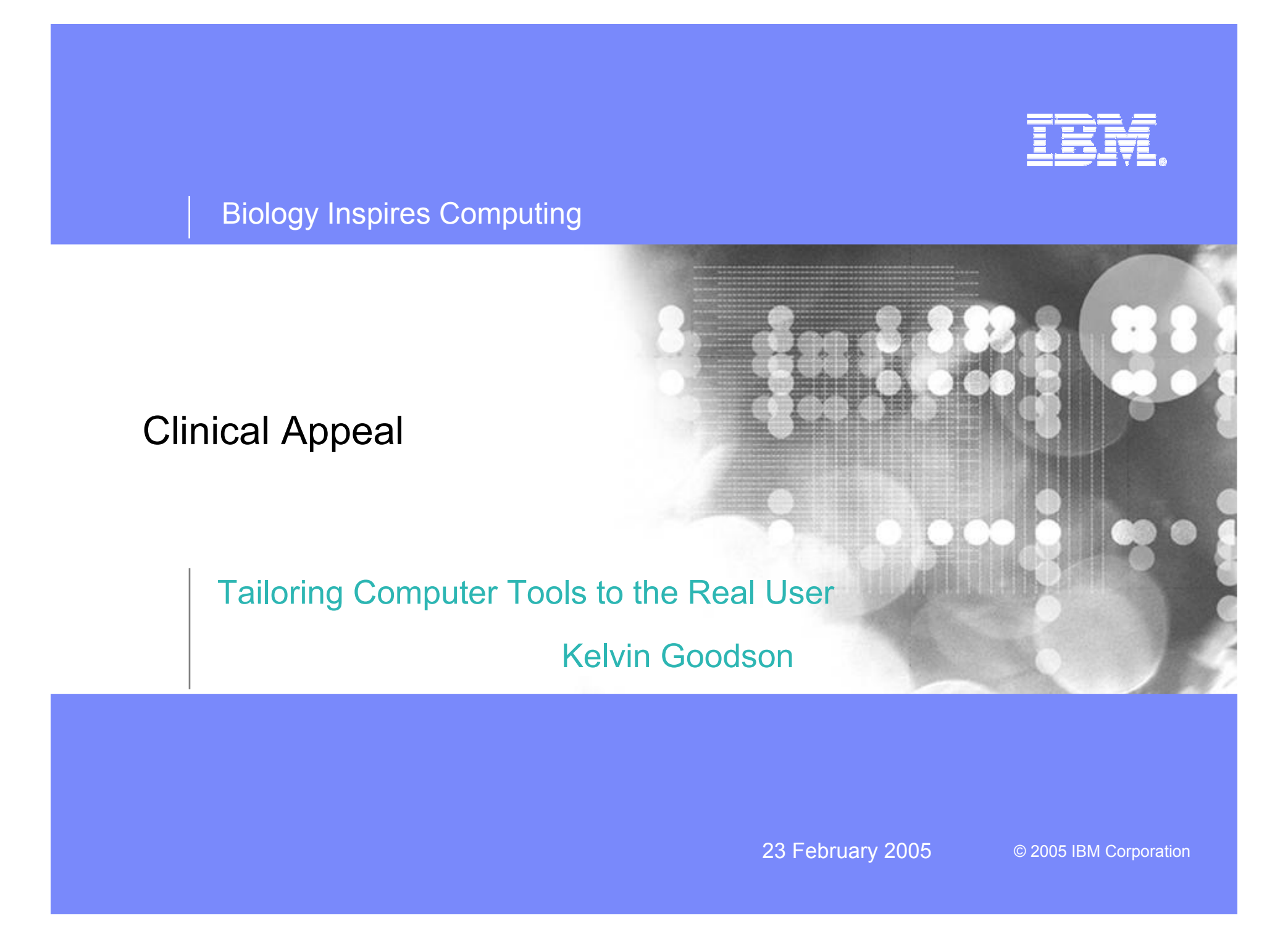
IBM
Biology Inspires Computing
Clinical Appeal
Tailoring Computer Tools to the Real User
Kelvin Goodson
23 February 2005
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Overview

- **Introduce Projects**
- **Participants / Roles**
- **Technology Driven/User Driven Solutions**
- **Tangible Outcomes**
- **Intangible Outcomes**
- **Intangibles revisited**

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Advanced Informatics in Medicine (AIM) Projects (1)

- **Computer Vision in Radiology – COVIRA**
  - 22 partners across Europe
    - Industrial
      - IBM, Philips, Siemens
    - Academic
      - 13 University Departments
  - Clinical
    - 6 Clinics,
  - Radiotherapy, Radiological Diagnosis, Neurosurgery

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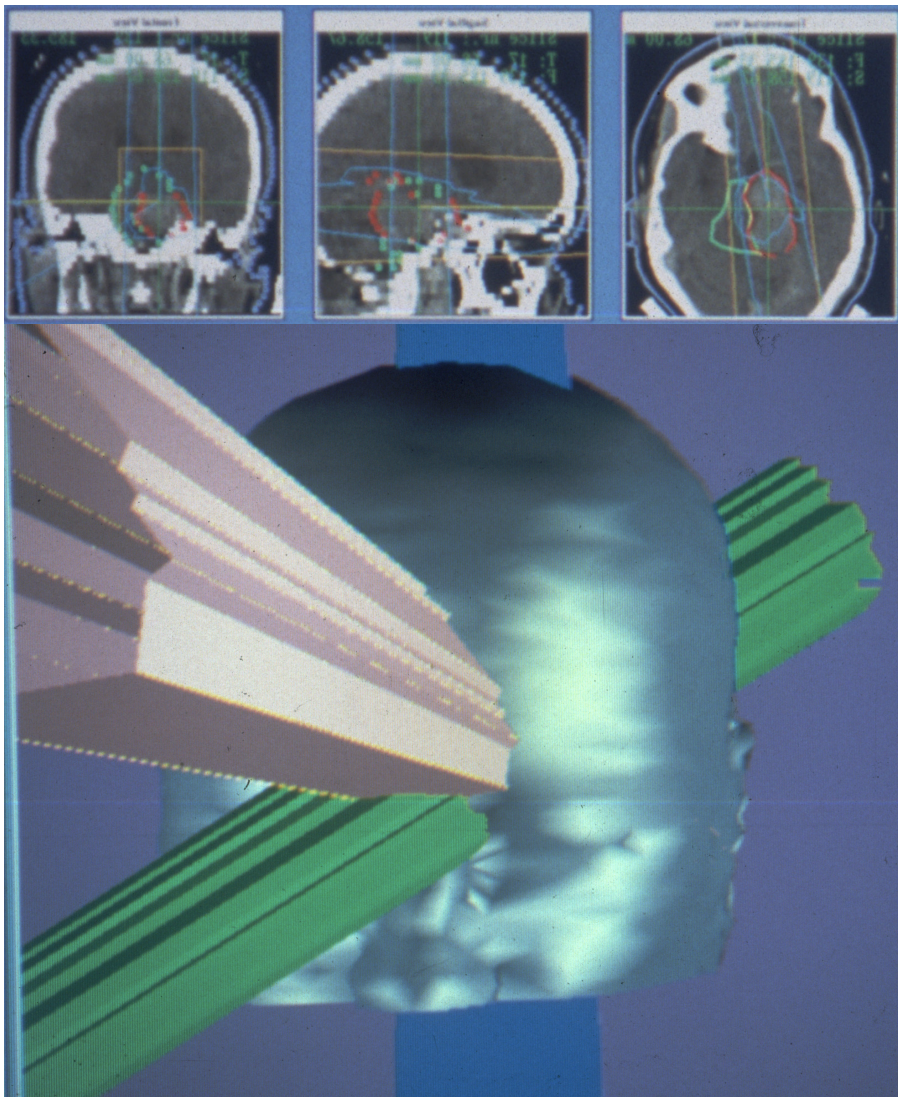
Radiotherapy Treatment Planning



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AIM Projects (2)

- **Telematics application in radiation and general oncology treatment– TARGET**
  - Industrial
    - IBM, Siemens
  - Academic
    - 3 University Departments
  - Clinical
    - 2 Clinics + satellites, Florence, Kent
- **Remote Clinical Diagnosis and Planning**

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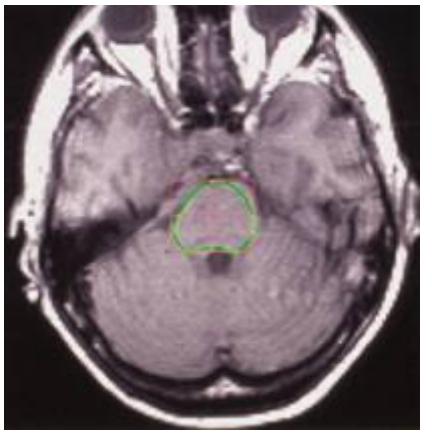
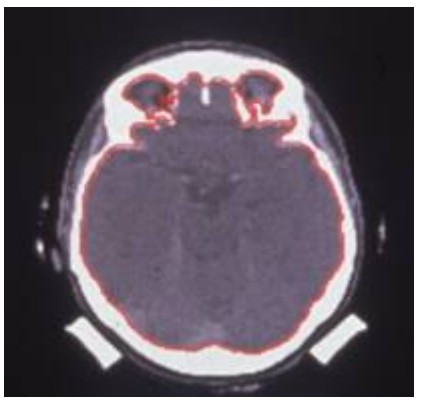
Image Data

- **Stacks of slices**
- **Routine Clinical Acquisition**
  - Magnetic Resonance
    - Soft Tissue
    - Distortions
  - X-Ray Computed Tomography
    - Bone
    - Dose data
    - Dimensionally stable





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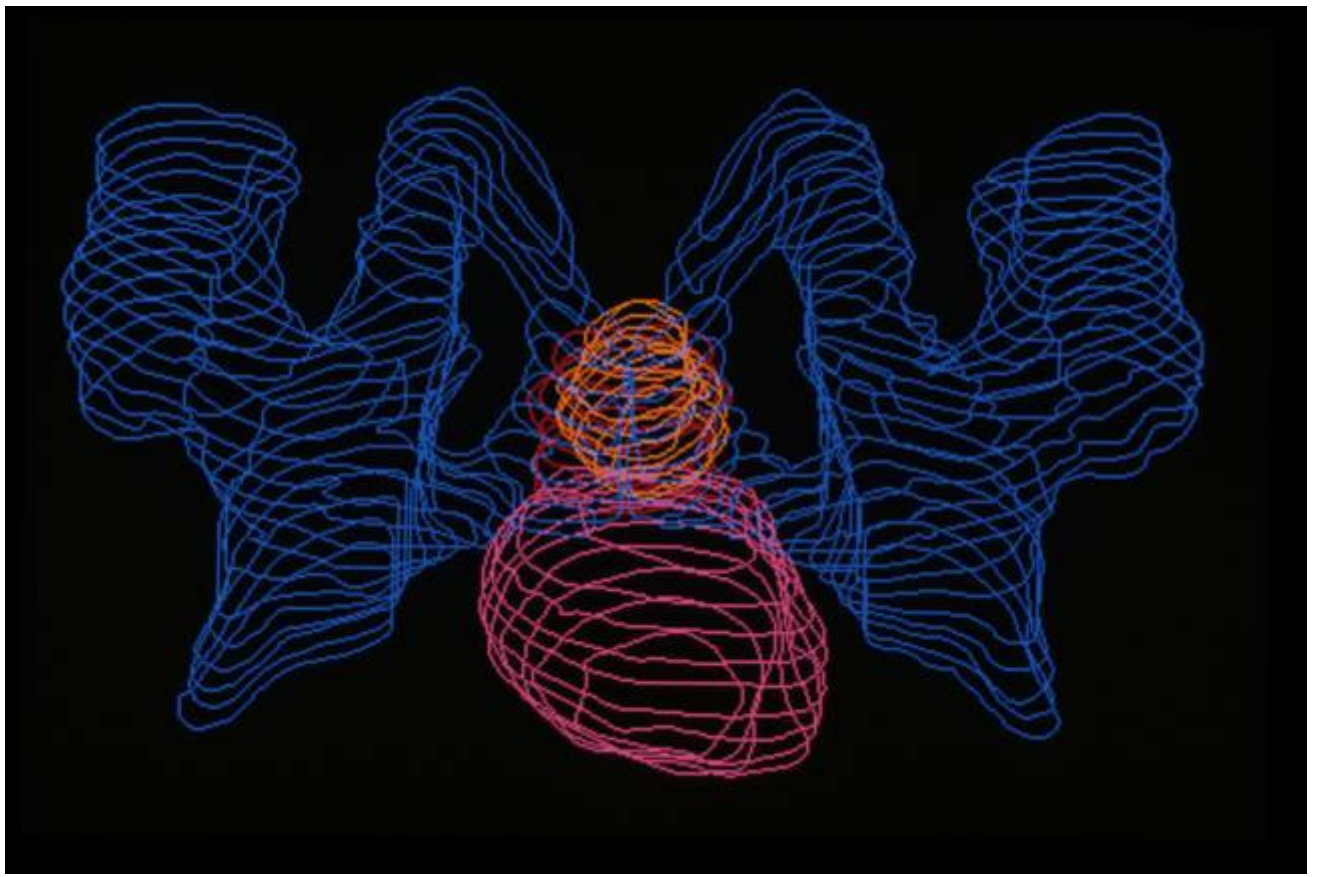
Volumes of Interest



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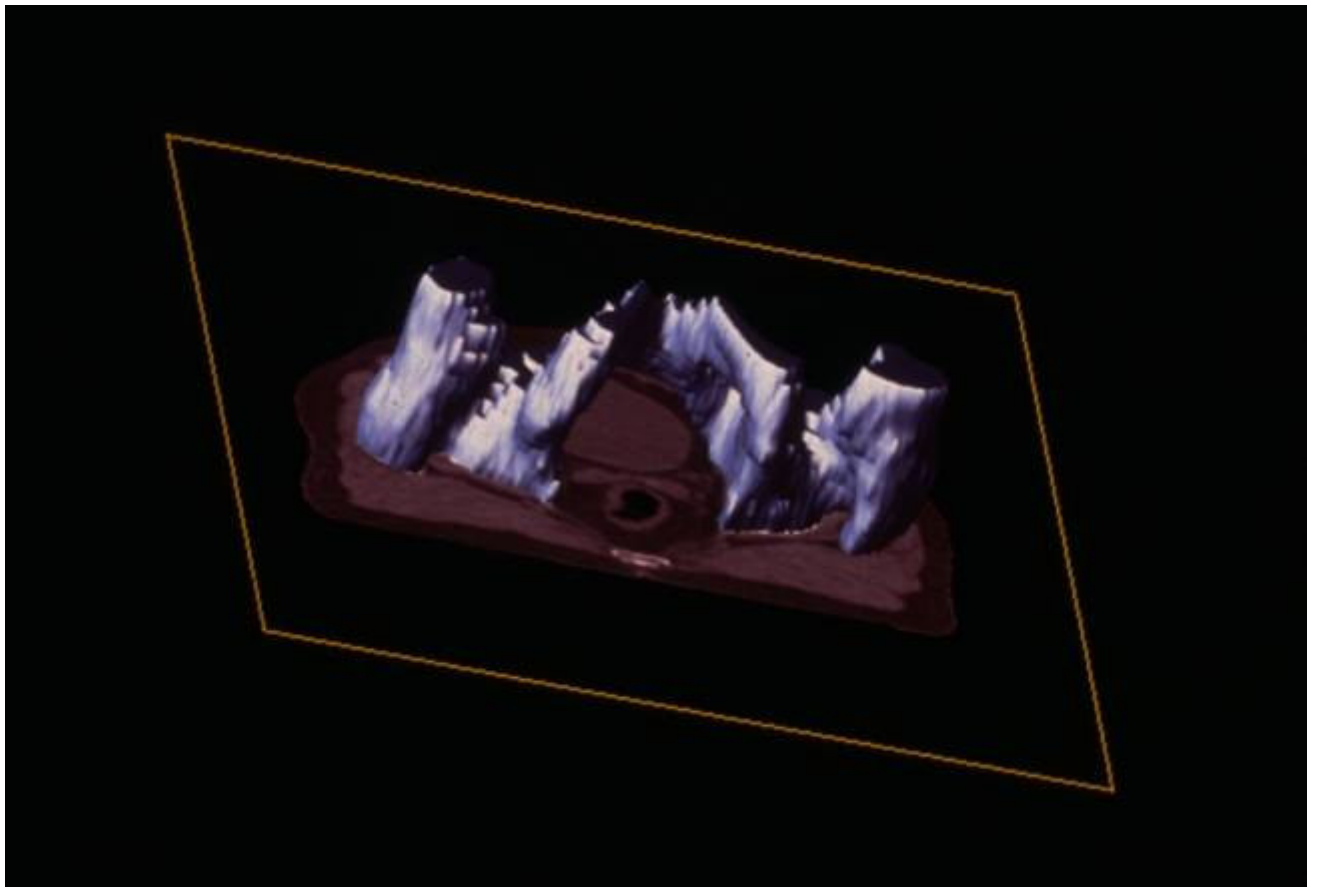
Low Hanging Fruits



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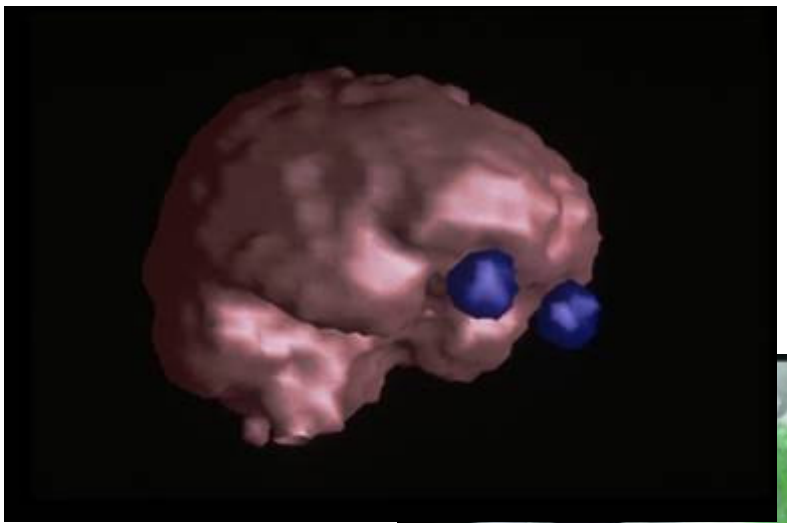
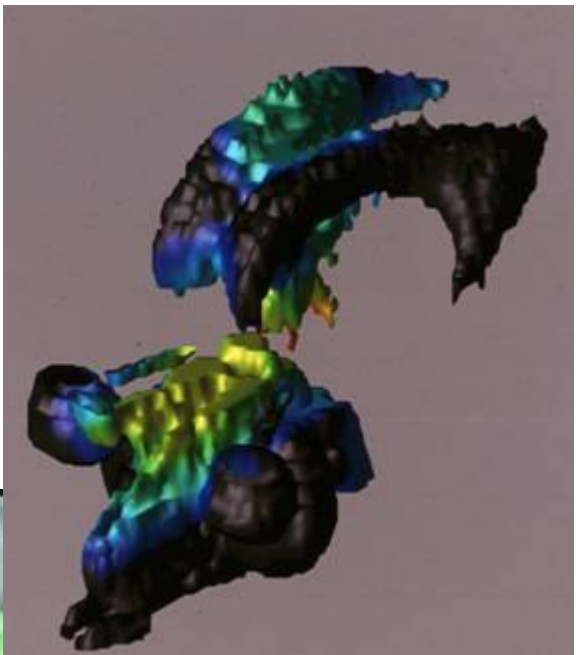
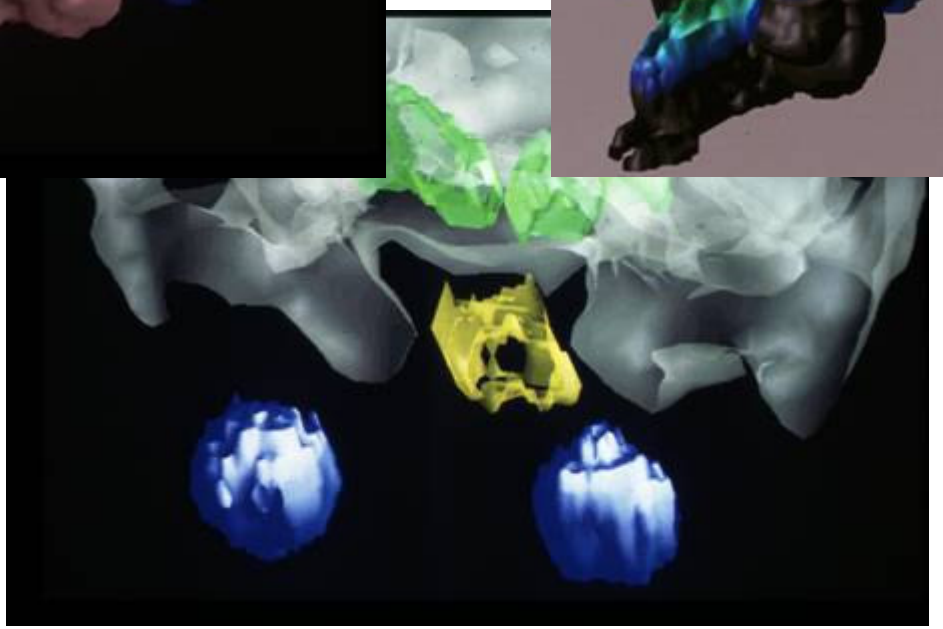
Pretty Pictures, but of what value?







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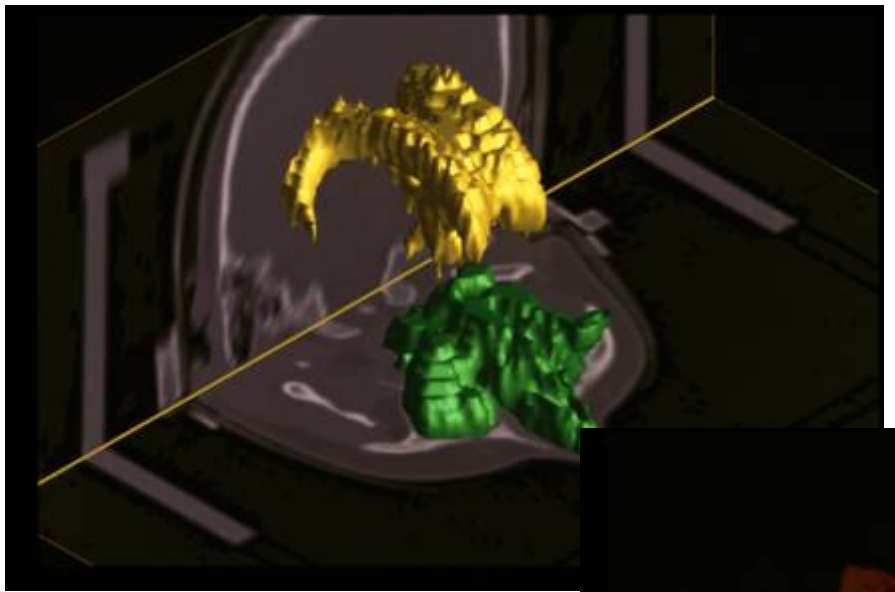
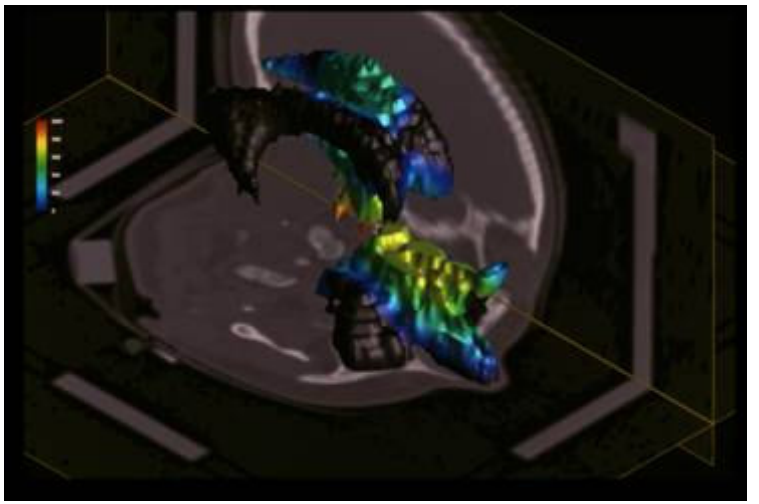
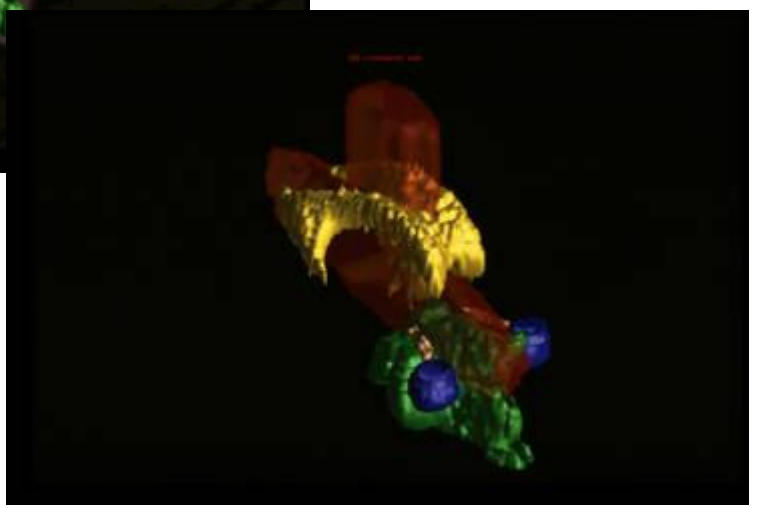
Pretty Pictures (2)







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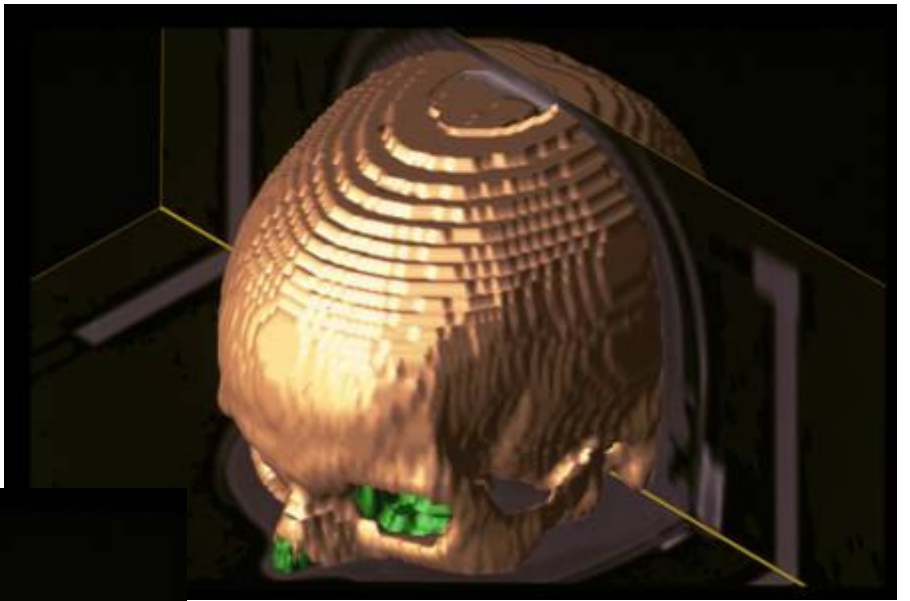
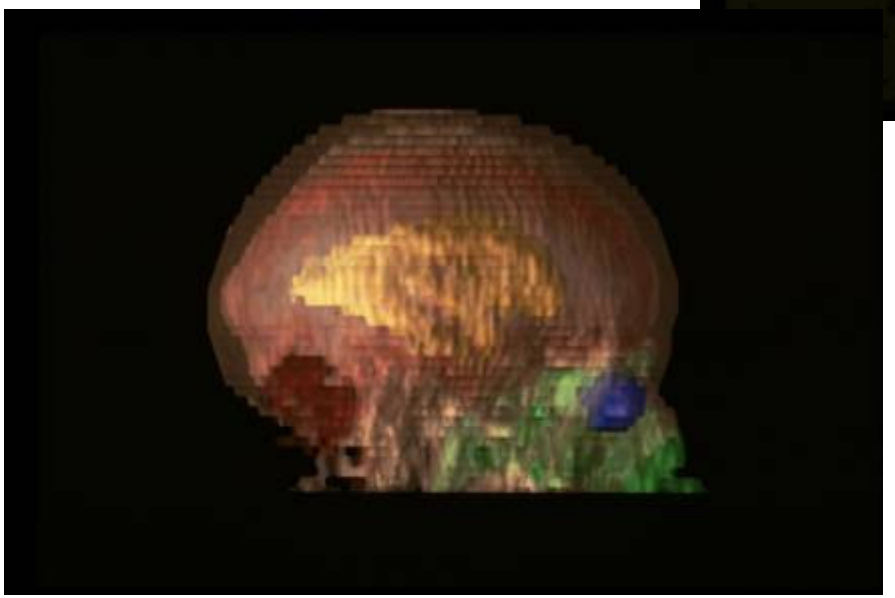
Pretty Pictures (3)





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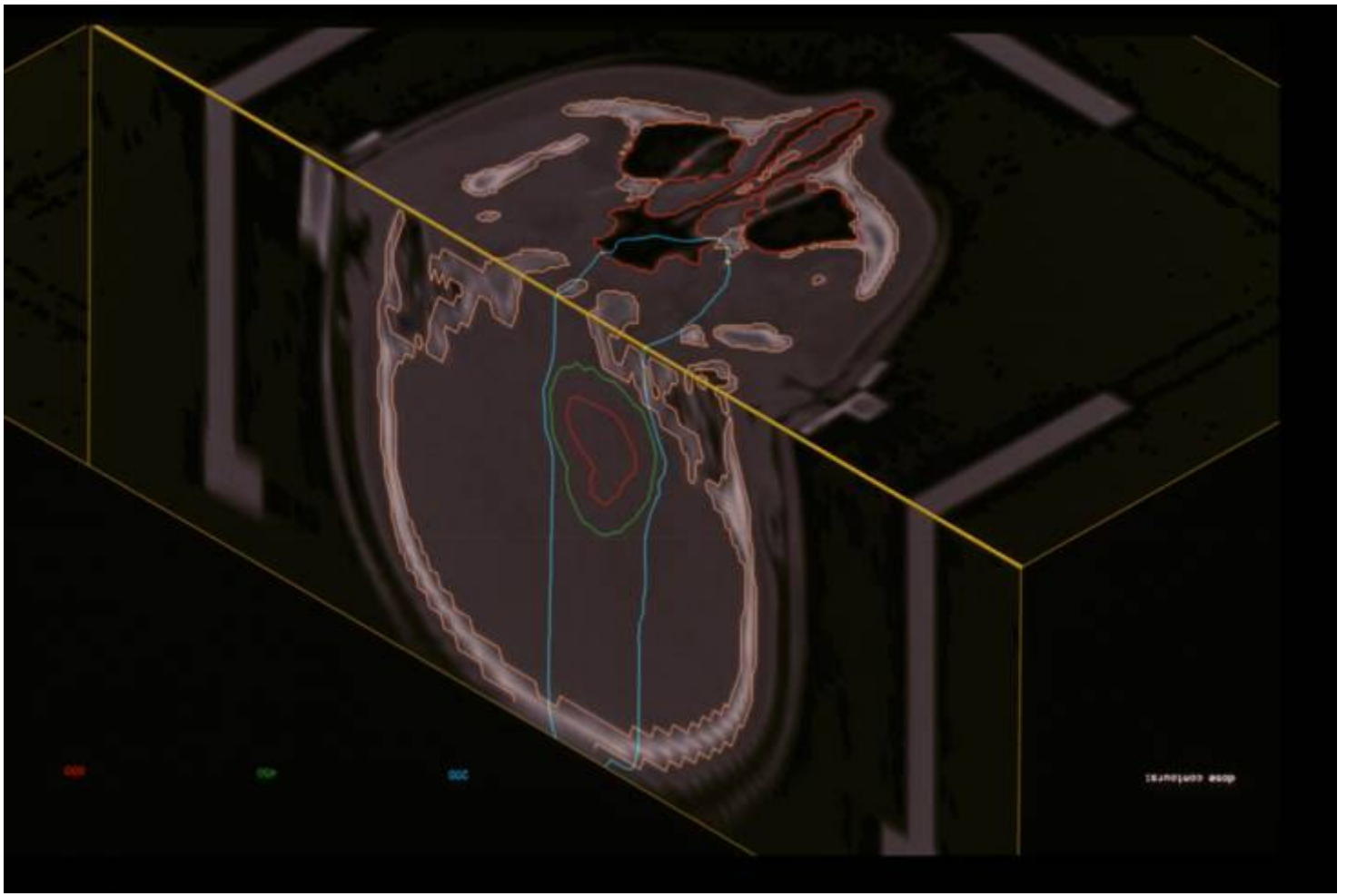
Producer / Consumer?



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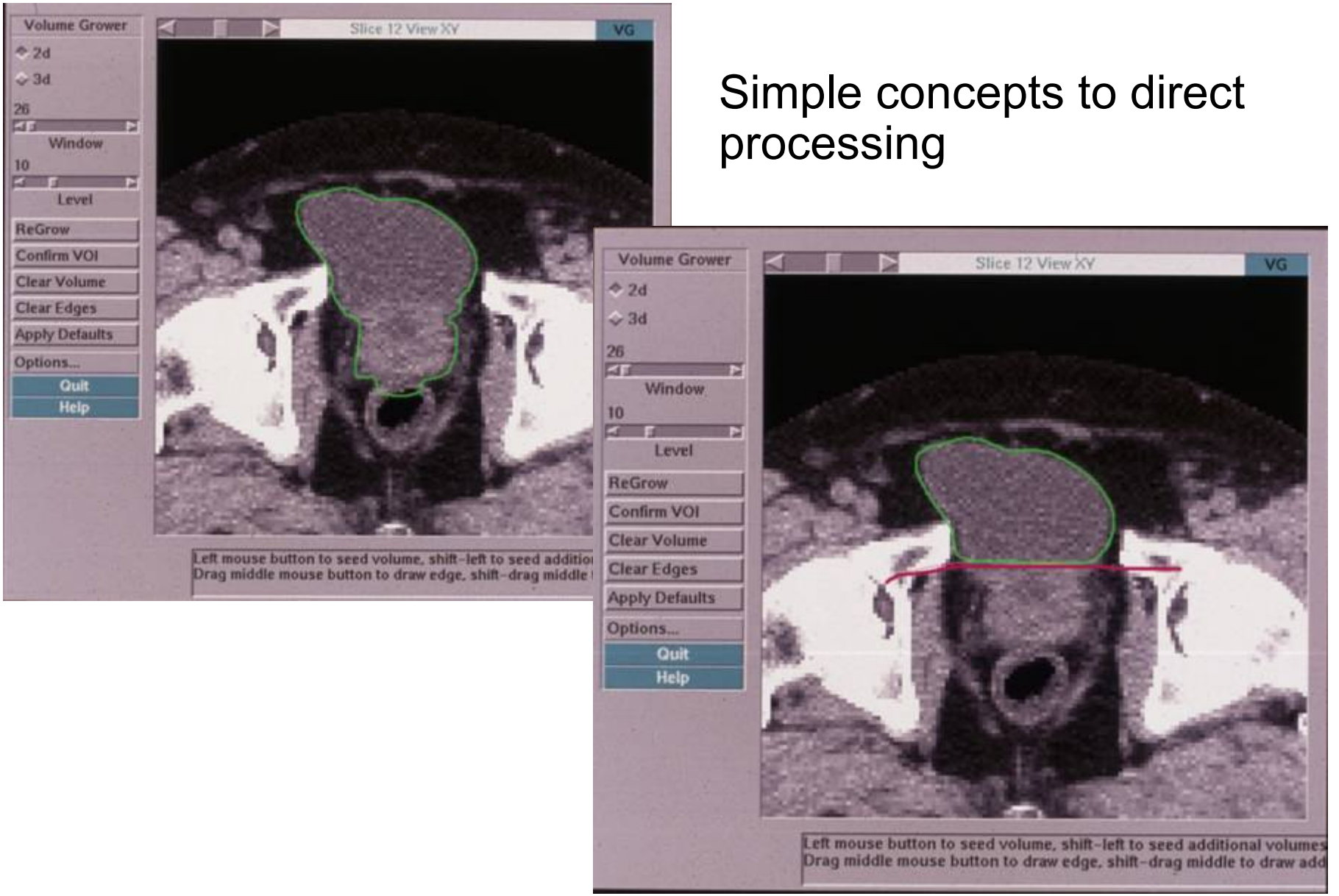

Simple concepts to direct processing

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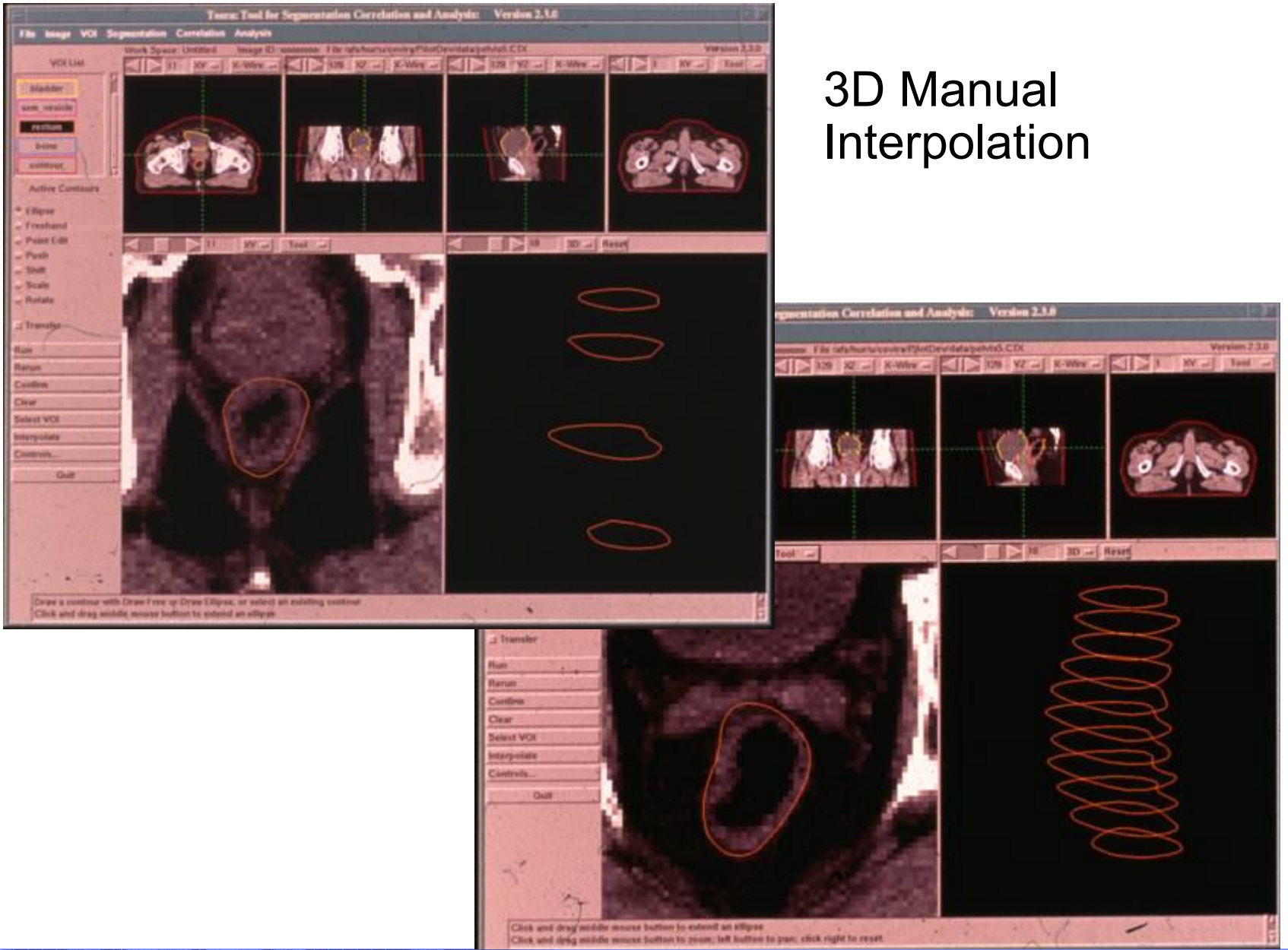

3D Manual Interpolation

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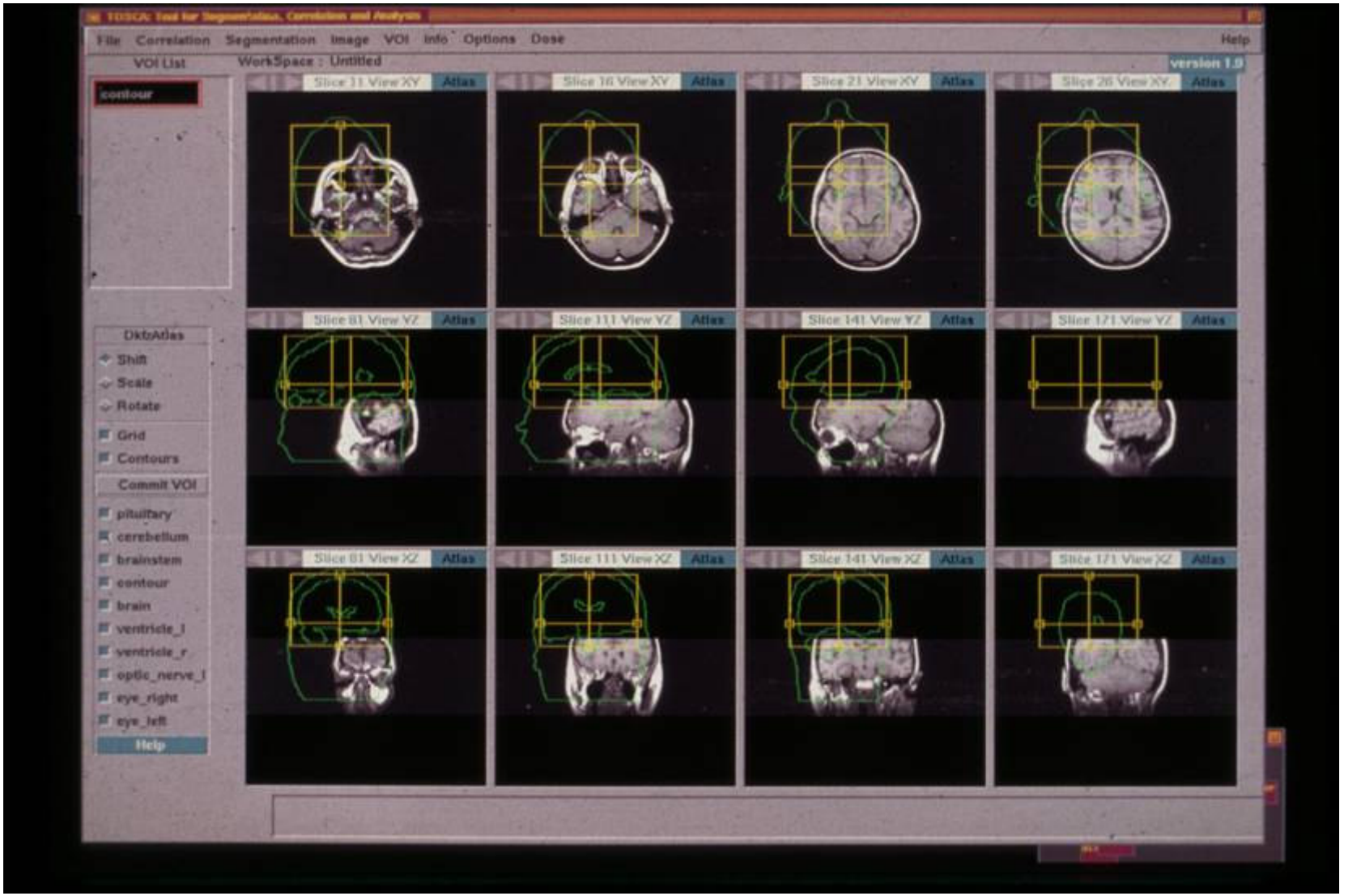
Model Guided Manual Volume Initialisation



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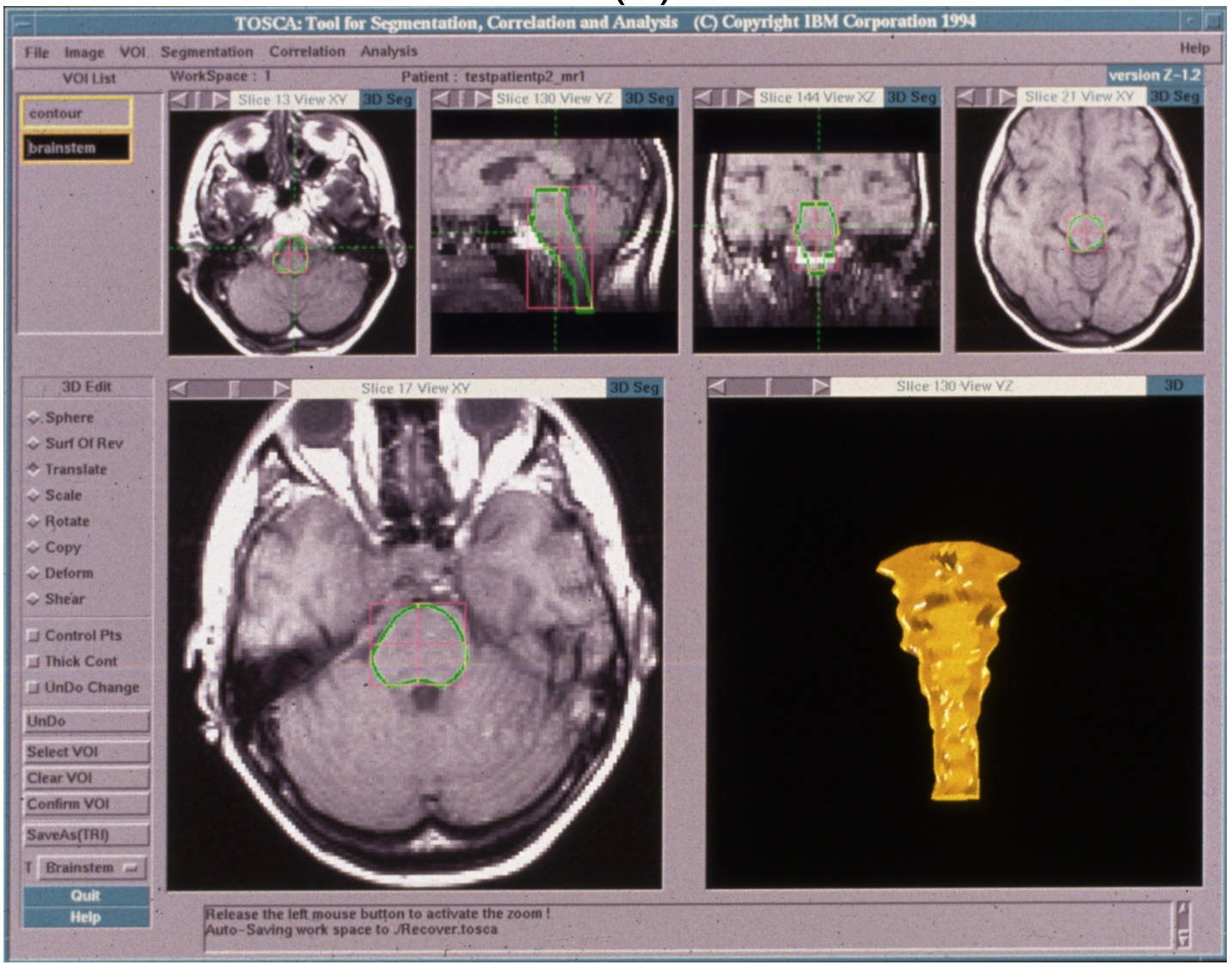
Model Guided Volumes (2)



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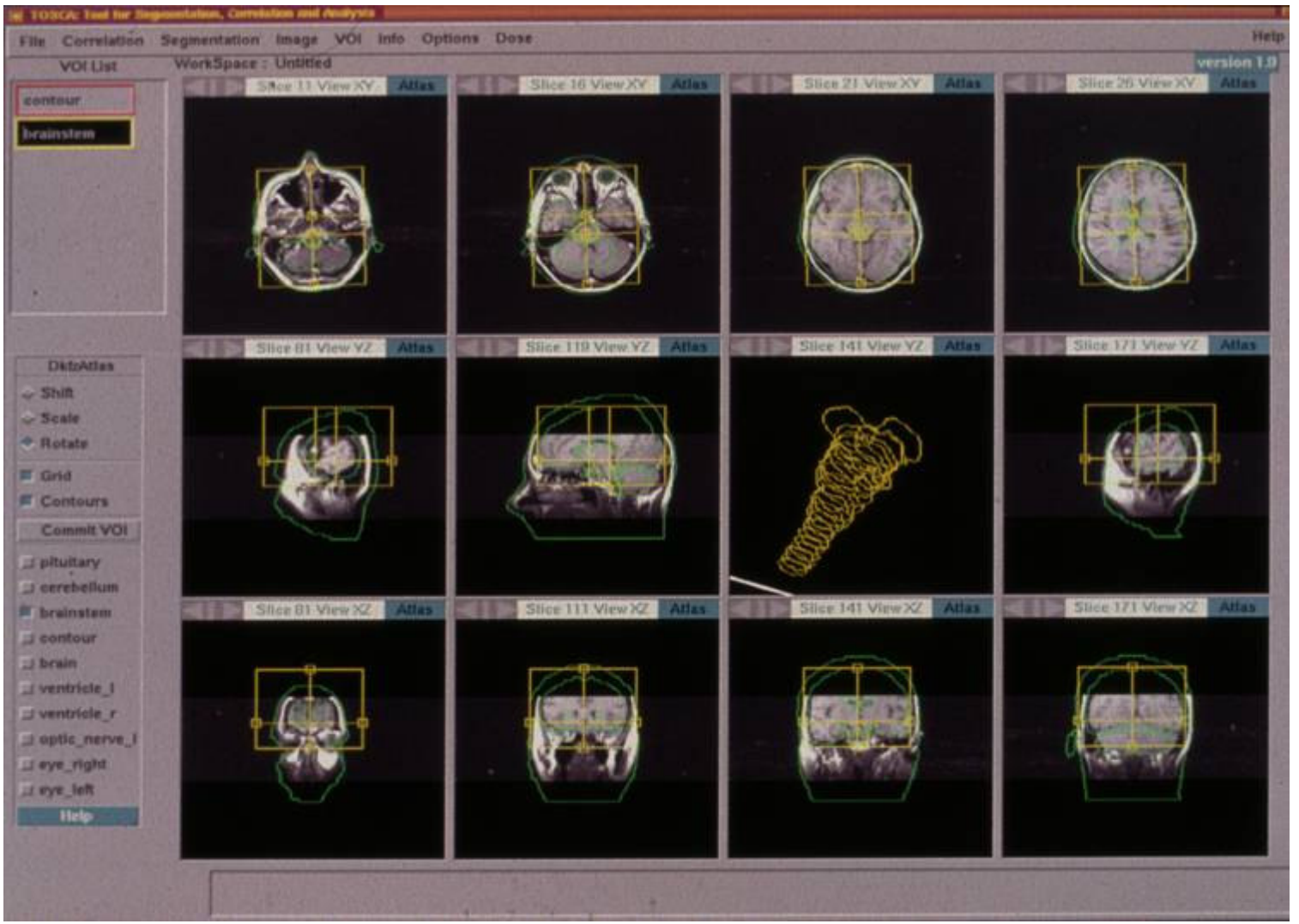
Model Guided Volumes (3)



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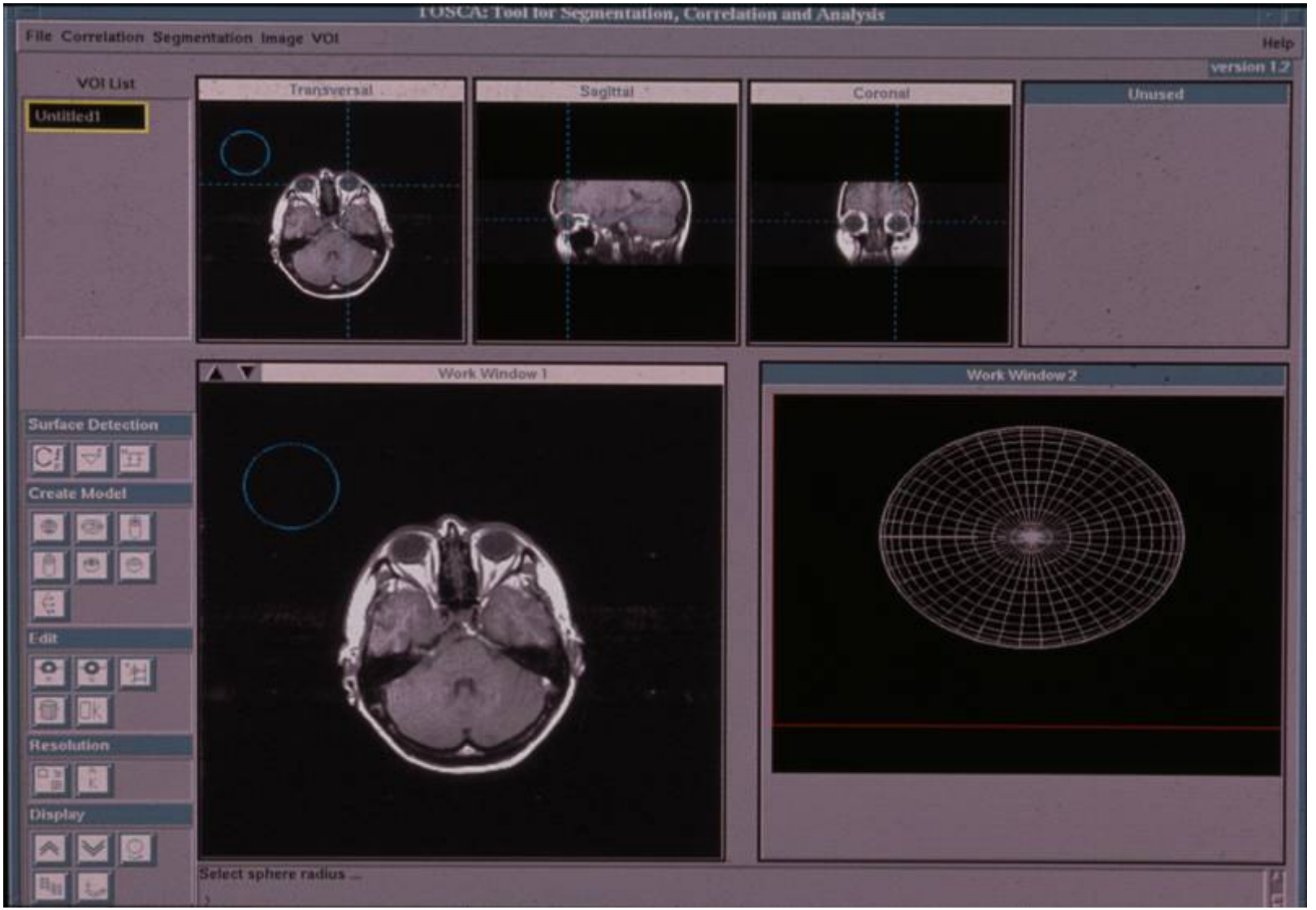
3D Geometric Volume Initialisation



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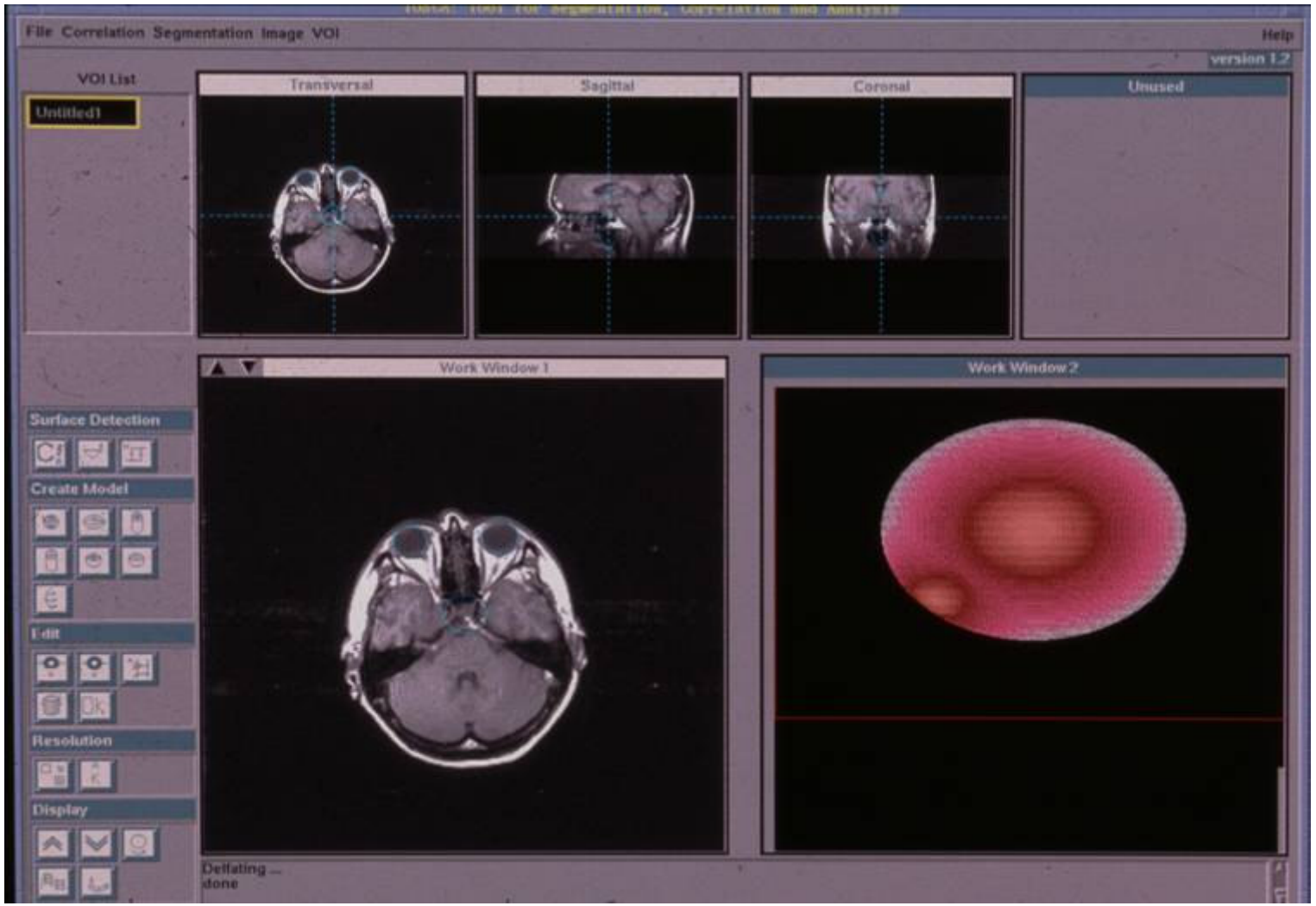

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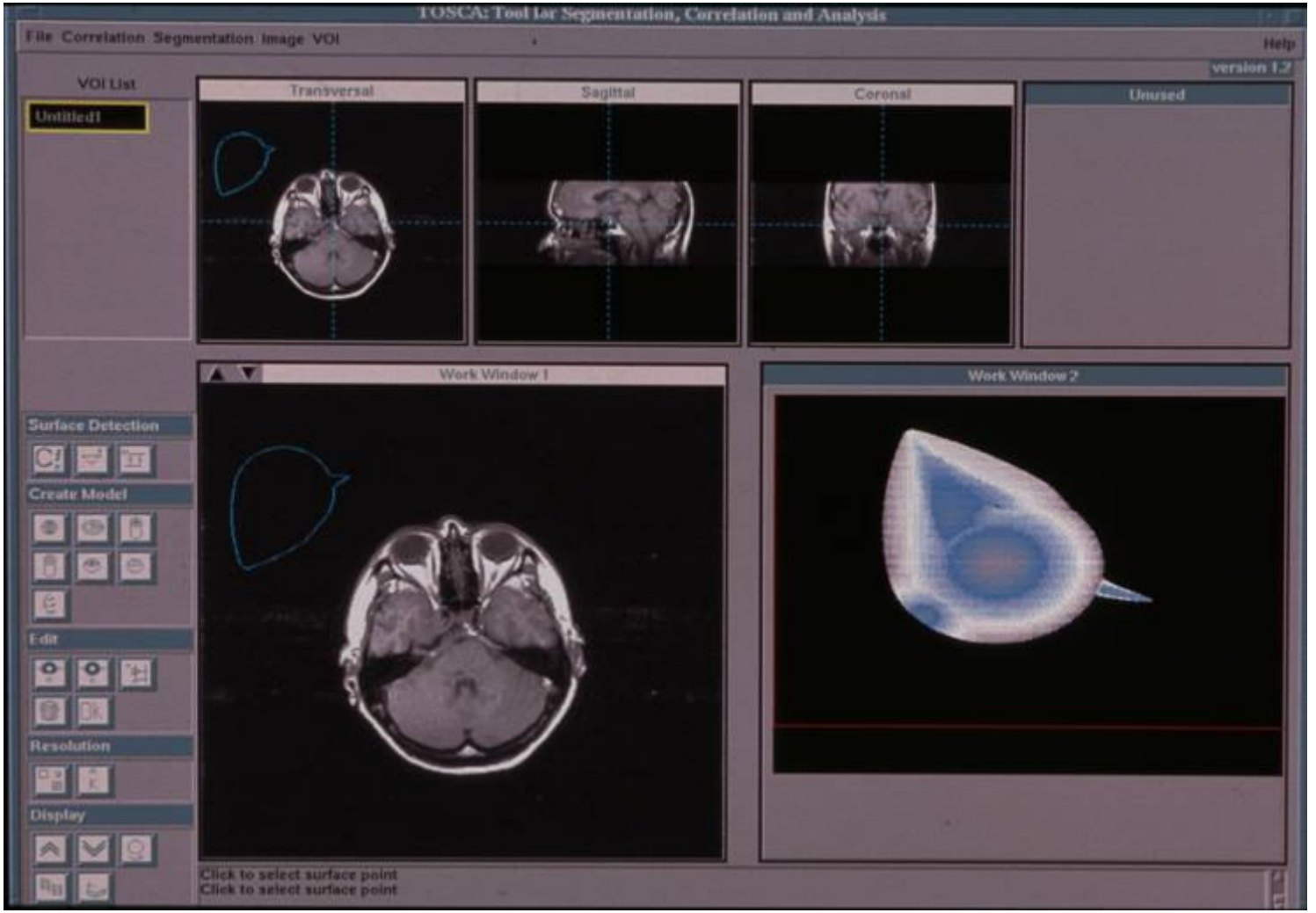

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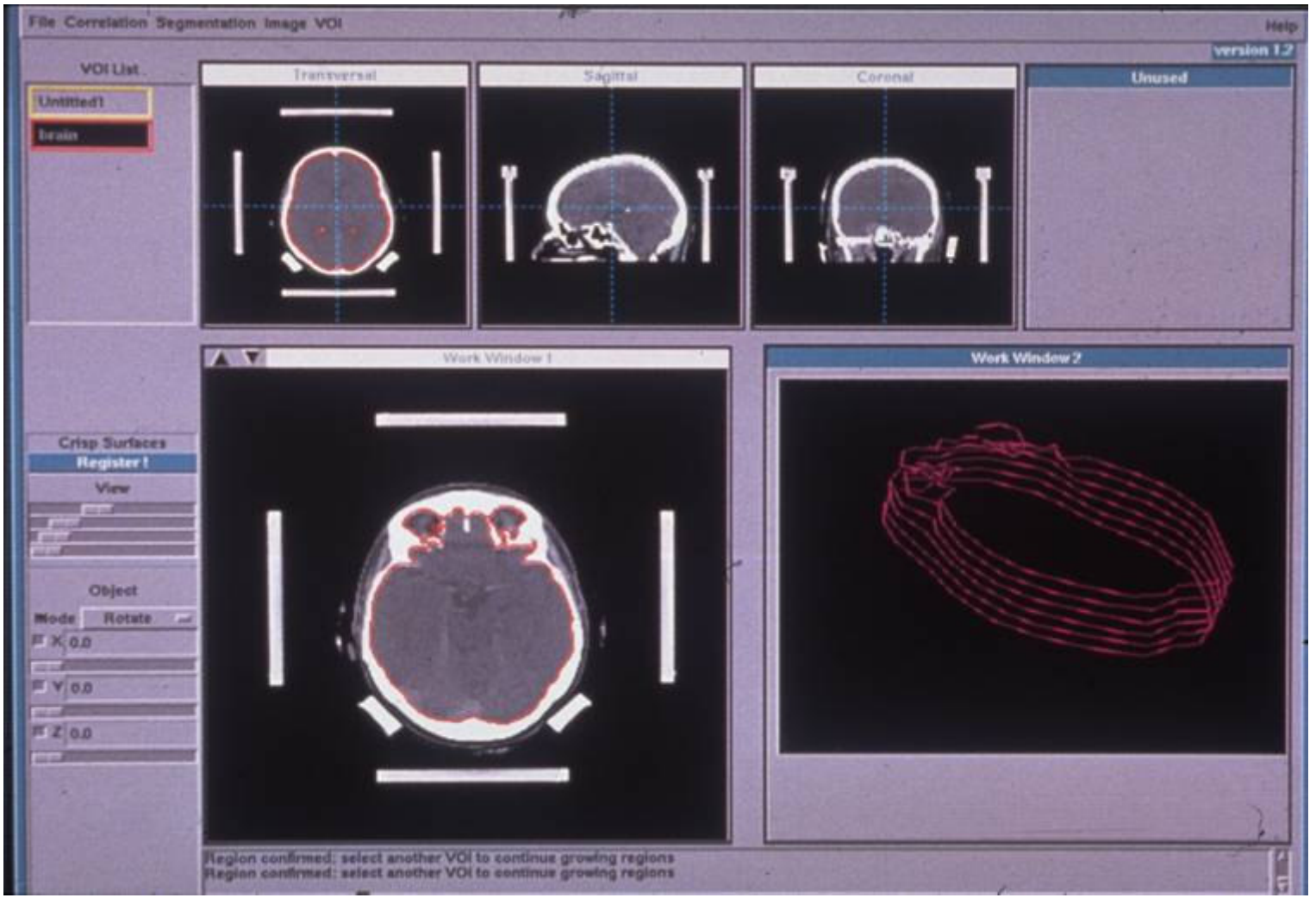
Core Diagnostic Data



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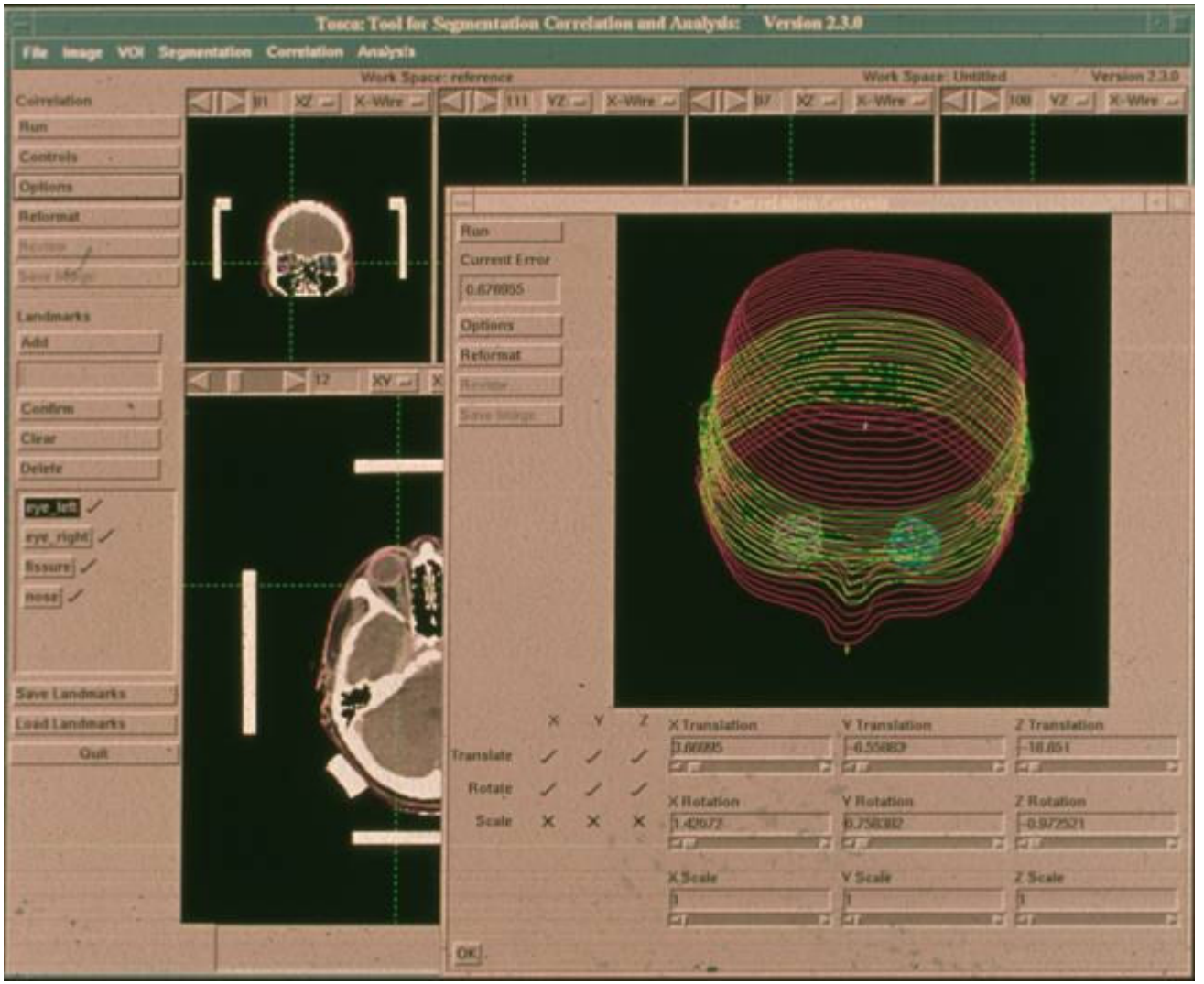
Combining Data



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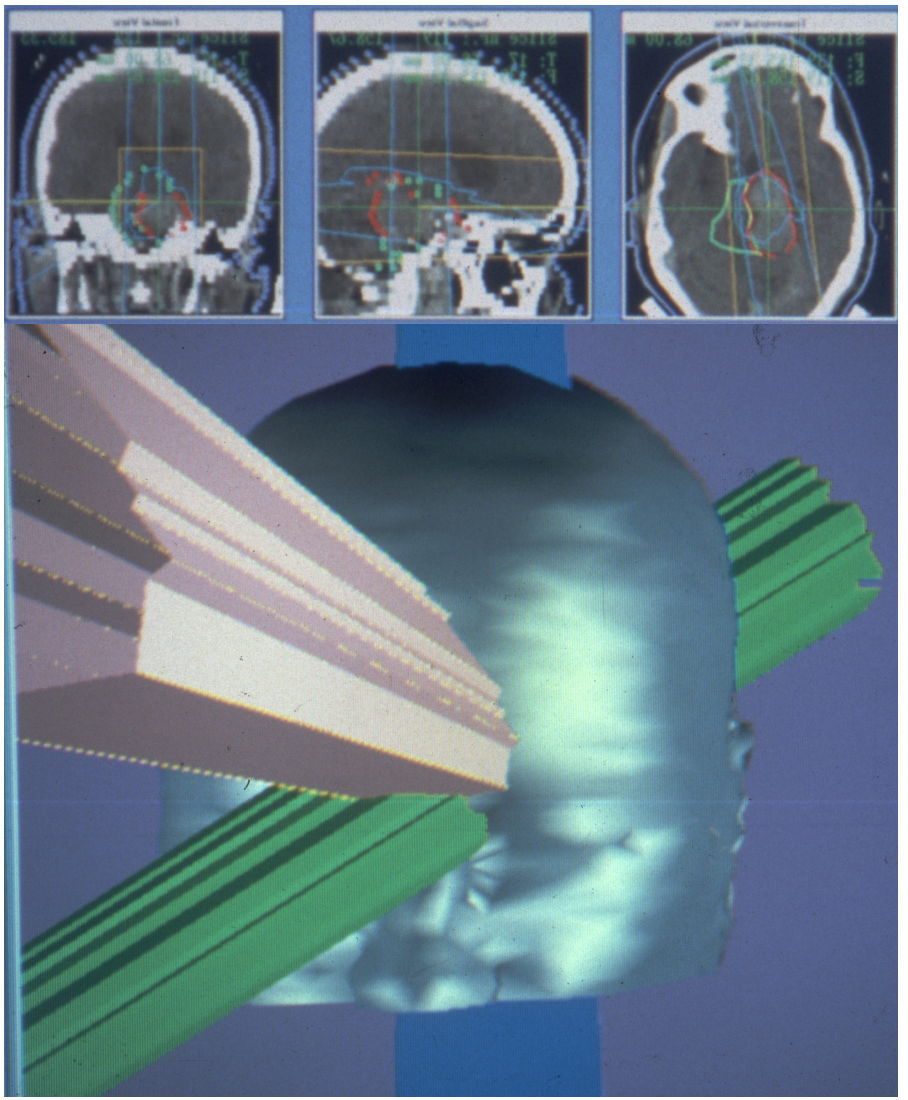
Planning Treatment



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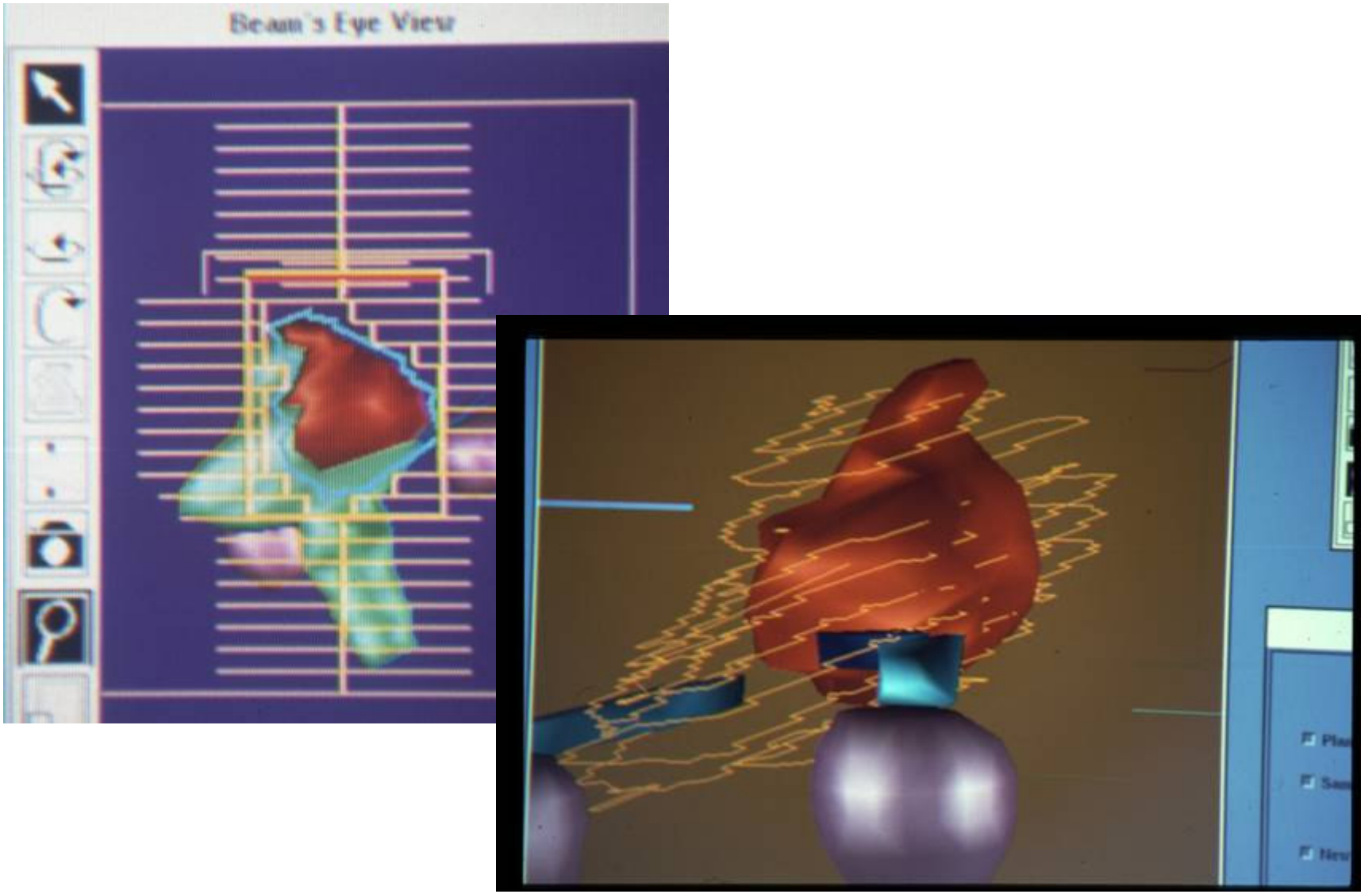
Planning Treatment (2)



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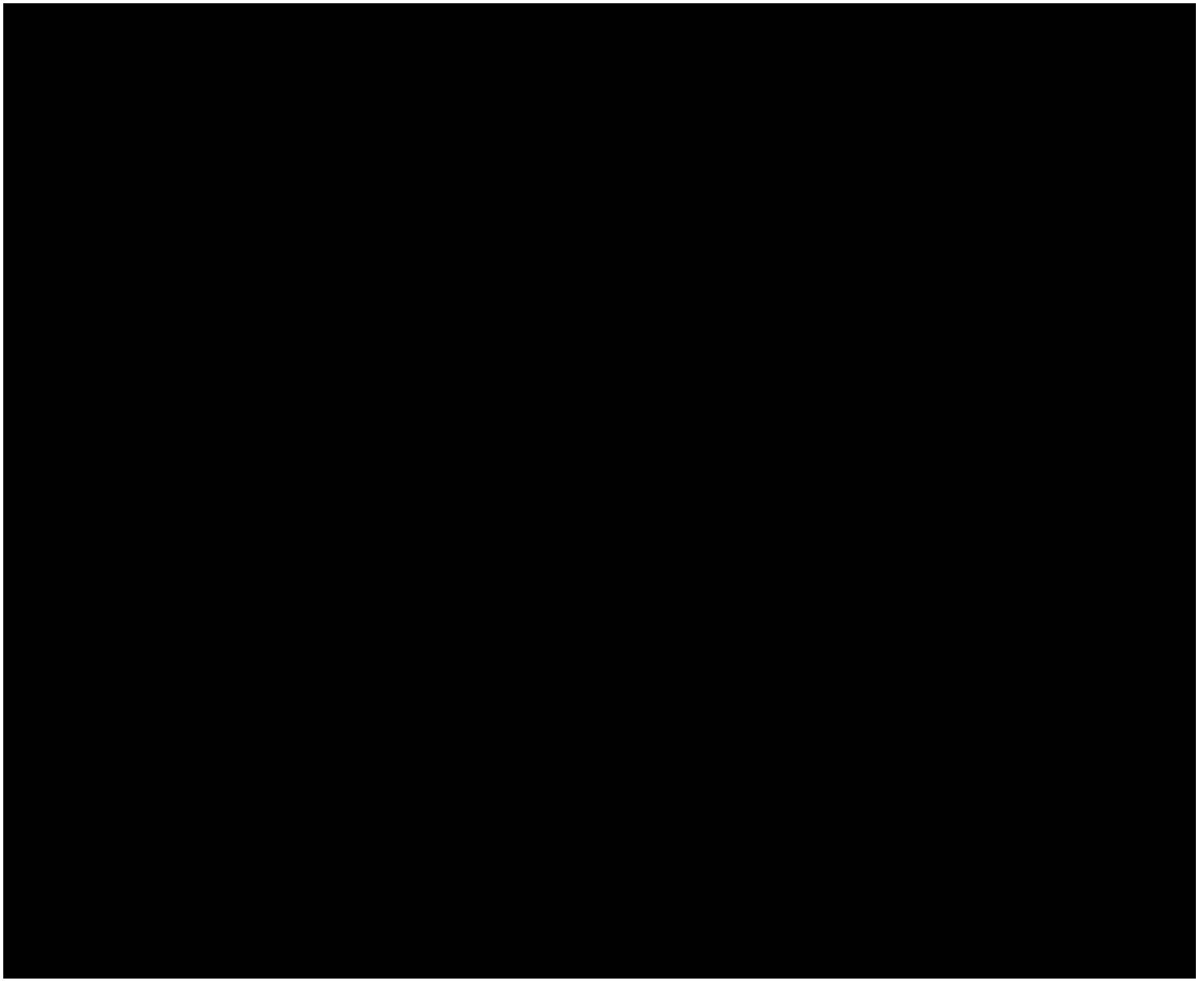
Tosca



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Conclusions

- **Simple things mean a lot**
- **Get to know your users well**
- **Application development is assisted by scientific background**
- **Emerging Component technology and Role based development make the barriers lower**

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Backup Slides ….

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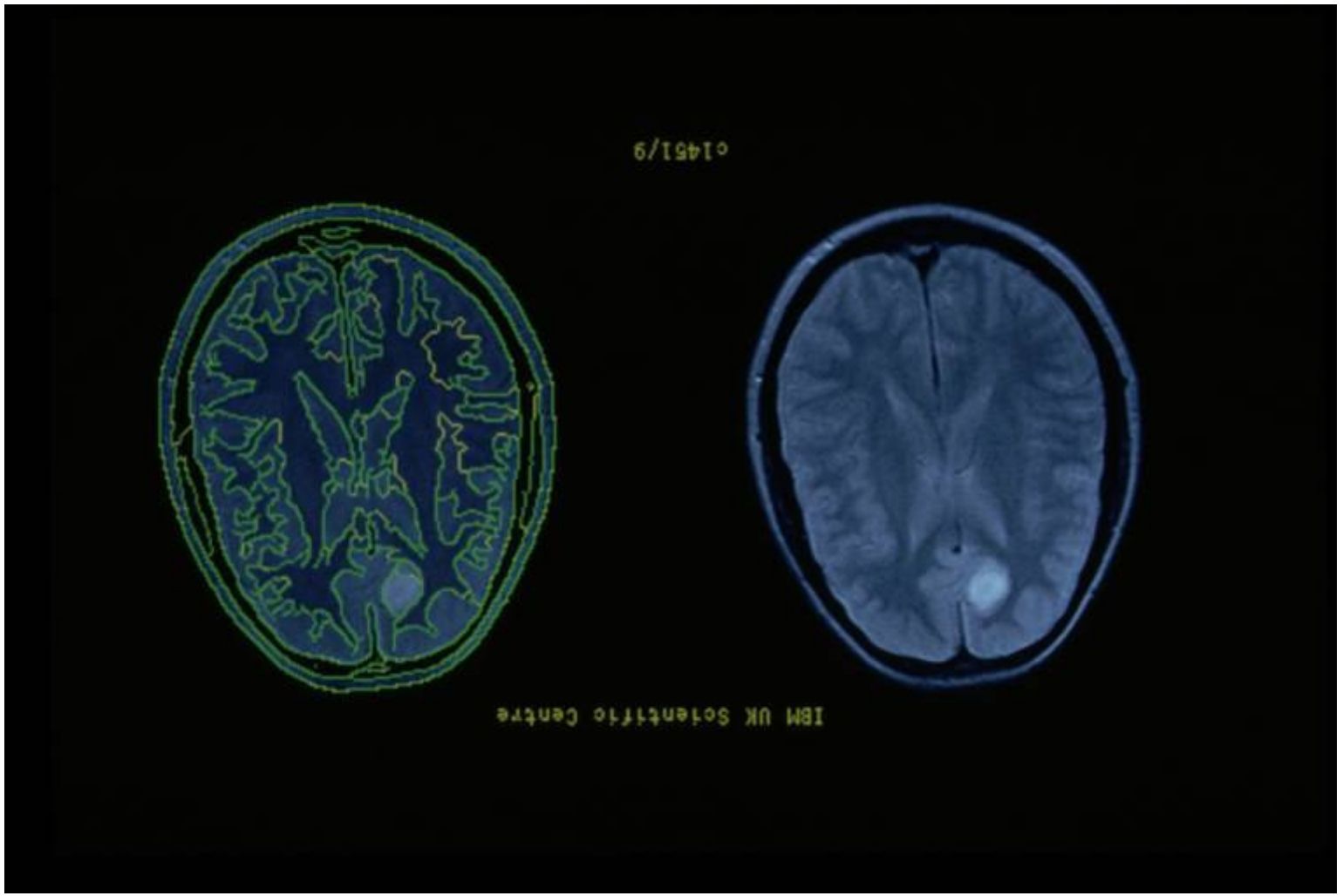

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