

Seg3D Demo

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Image Segmentation Tool

- Image segmentation organized in projects
- Layers and Tools (similar to Photoshop)
- ITK-based filters
- Provenance record
- Volume renderer
- Command and Scripting (coming soon)
interfaces

Project Wizard

The screenshot shows the Seg3D 2.1.4 software interface. A central window displays the Seg3D 2.1 logo and a list of recent projects. The 'Quit' dialog box is open, showing a list of recent projects including 'workshop project', 'New Project 20', 'New Project 19', 'New Project 18', 'New Project 35', 'New Project 17', 'New Project 16', 'retina', 'New Project 14', 'New Project 13', 'New Project 11', 'test nifti', 'test_ism', 'New Project 7', and 'New Project 6'. The dialog box also contains buttons for 'Load Recent Project', 'Open Existing Project', 'Start New Project', and 'Quick Open File'. The main window shows a 3D view of a human torso with a coordinate system (X, Y, Z) and a 'Volume' toolbar. The bottom status bar displays 'X: Y: Z: Value:'.

Seg3D Workspace

The screenshot displays the Seg3D 2.1.4 workspace interface. On the left is the 'Tools/Filters' panel, which includes a 'Curvature AnisoDiff. Filter 0' section with a 'Target Layer' dropdown set to 'CurvAnisoDiff_example_image_data', checkboxes for 'Always use active layer' and 'Preserve data format', and sliders for 'Iterations' (set to 20) and 'Sensitivity Range' (set to 0.20). Below this are other filter options like 'Otsu Threshold 0', 'Paint Brush 0', 'Paint Brush 1', 'Boolean REMOVE 0', and 'Threshold 0'. A red arrow points from the 'Threshold 0' filter to a white callout box labeled 'Tools and Filters'. The central 'Volume View' shows a 3D rendering of a segmented volume with yellow, red, and green components. A red arrow points from this view to a white callout box labeled 'Volume View'. On the right, the 'Layer Manager' panel lists layers: 'ISO' (288 x 416 x 48), 'Left Aorta', 'Right Aorta', 'Right Ventricle', 'Left Ventricle', 'CurvAnisoDiff_example_image_data', and 'example_image_data'. A red arrow points from the 'Left Aorta' layer to a white callout box labeled 'Volume and Mask Layers'. Below the volume view are three 'Slice Views': 'Axial' (25 / 48), 'Coronal' (217 / 416), and 'Sagittal'. A red arrow points from the 'Sagittal' slice view to a white callout box labeled 'Slice Views'.

Tools and Filters

Volume View

Volume and Mask Layers

Slice Views



Provenance Record

The screenshot displays the Seg3D 2.1.4 software interface. The main window shows a 3D volume rendering of a heart with segmented regions in yellow, red, and green. The interface includes a 'Provenance' panel on the left, a 'Layer Manager' on the right, and a 'Provenance Step Detail' panel at the bottom left.

Active Layer Provenance

Timestamp	User	Action
08:13 06-05-12	aylaxhan	ImportSeries
08:35 06-05-12	aylaxhan	CurvatureAnisotropicDiffusionFilter

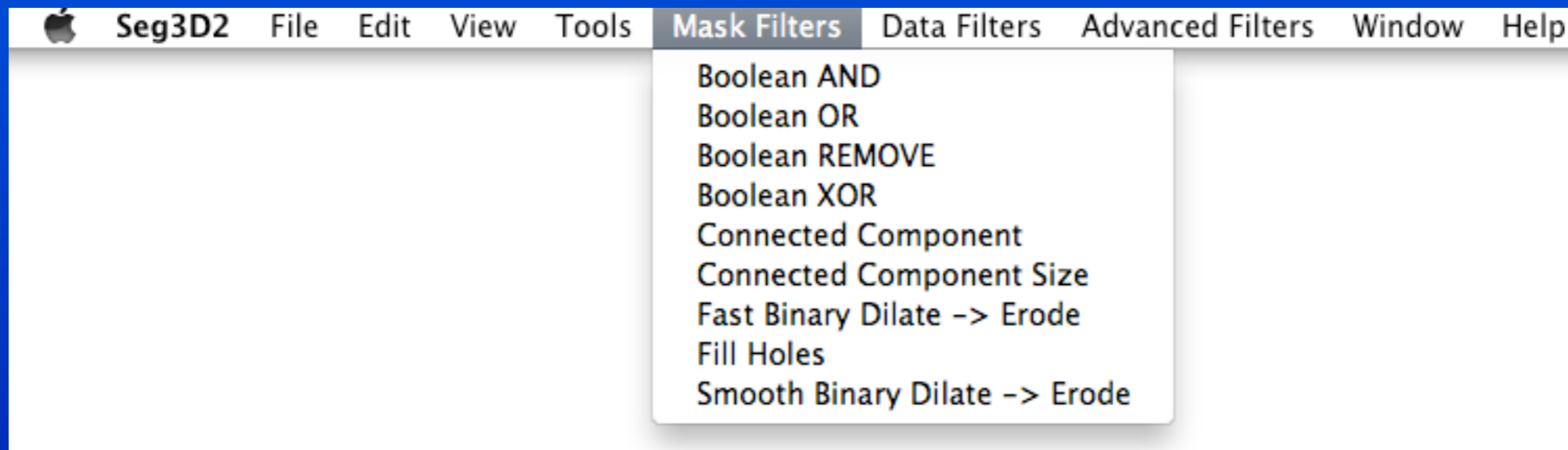
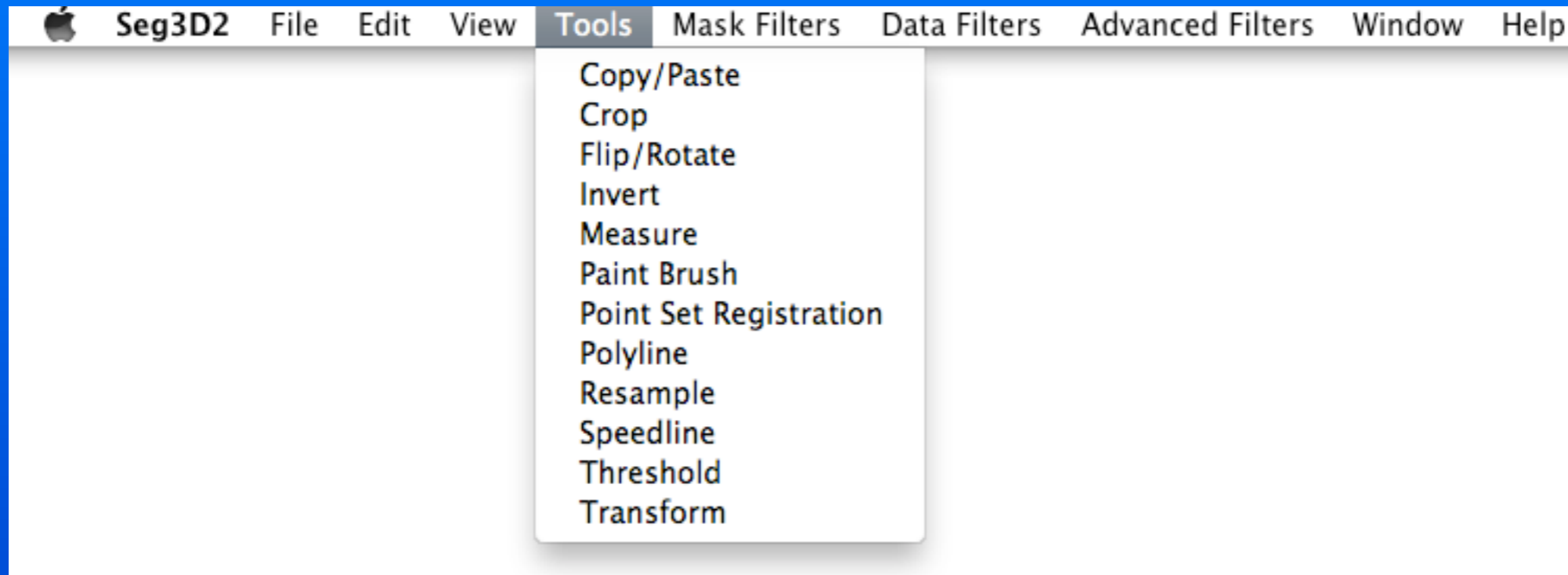
Provenance Step Detail

Timestamp: 08:13 06-05-12
User: aylaxhan
Action: ImportSeries
Parameters:
filenames='[[/Users/aylaxhan/workshop12_neu/software/Seg3D/data/example_image_data/Raw_angio-00.dcm],
[[/Users/aylaxhan/workshop12_neu/software/Seg3D/data/example_image_data/Raw_angio-01.dcm],
[[/Users/aylaxhan/workshop12_neu/software/Seg3D/data/example_image_data/Raw_angio-02.dcm].

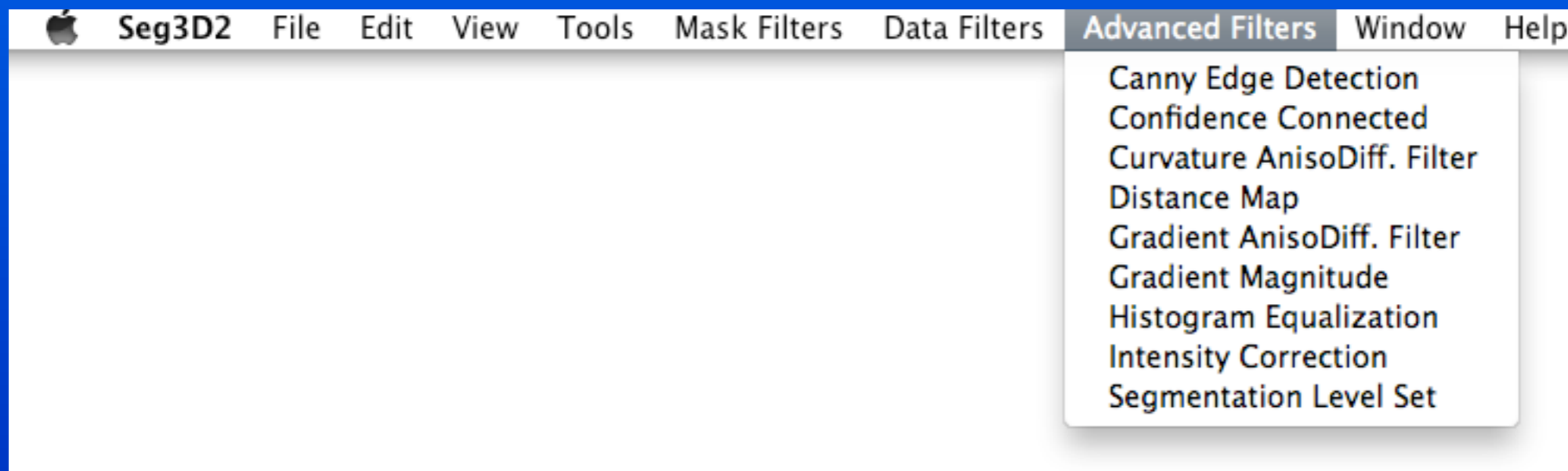
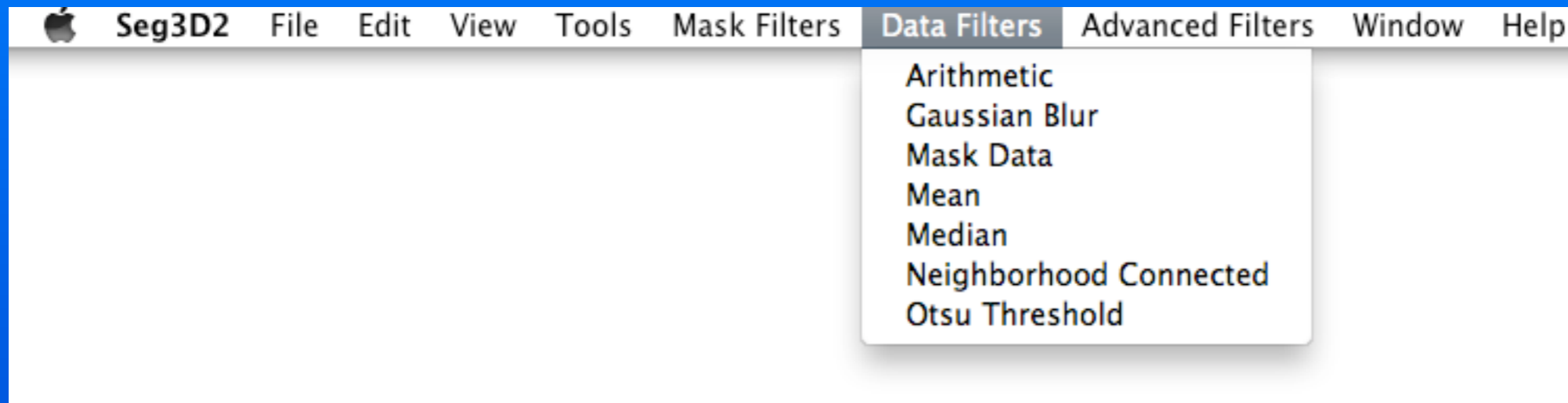
Layer Manager

- ISO 288 x 416 x 48
- REMOVE_ConnectedComponent_OtsuTh
- Right Ventricle_1
- ConnectedComponent_OtsuThreshold_0
- OtsuThreshold_CurvAnisoDiff_example_
- OtsuThreshold_CurvAnisoDiff_example_
- OtsuThreshold_CurvAnisoDiff_example_
- OtsuThreshold_CurvAnisoDiff_example_
- OtsuThreshold_CurvAnisoDiff_example_
- threshold
- Left Aorta
- Right Aorta
- Right Ventricle
- Left Ventricle
- CurvAnisoDiff_example_image_data
- example_image_data

Tools and Filters



Tools and Filters



Scripting interface (coming soon)

```
Python 3.2 (r32:88445, Feb 24 2012, 13:07:08)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
>>> print ("hello world");
hello world
>>>
```


Command interface

Controller - Seg3D 2.1.4

Actions State Variables Event Log Undo/Redo Buffer

Action History:

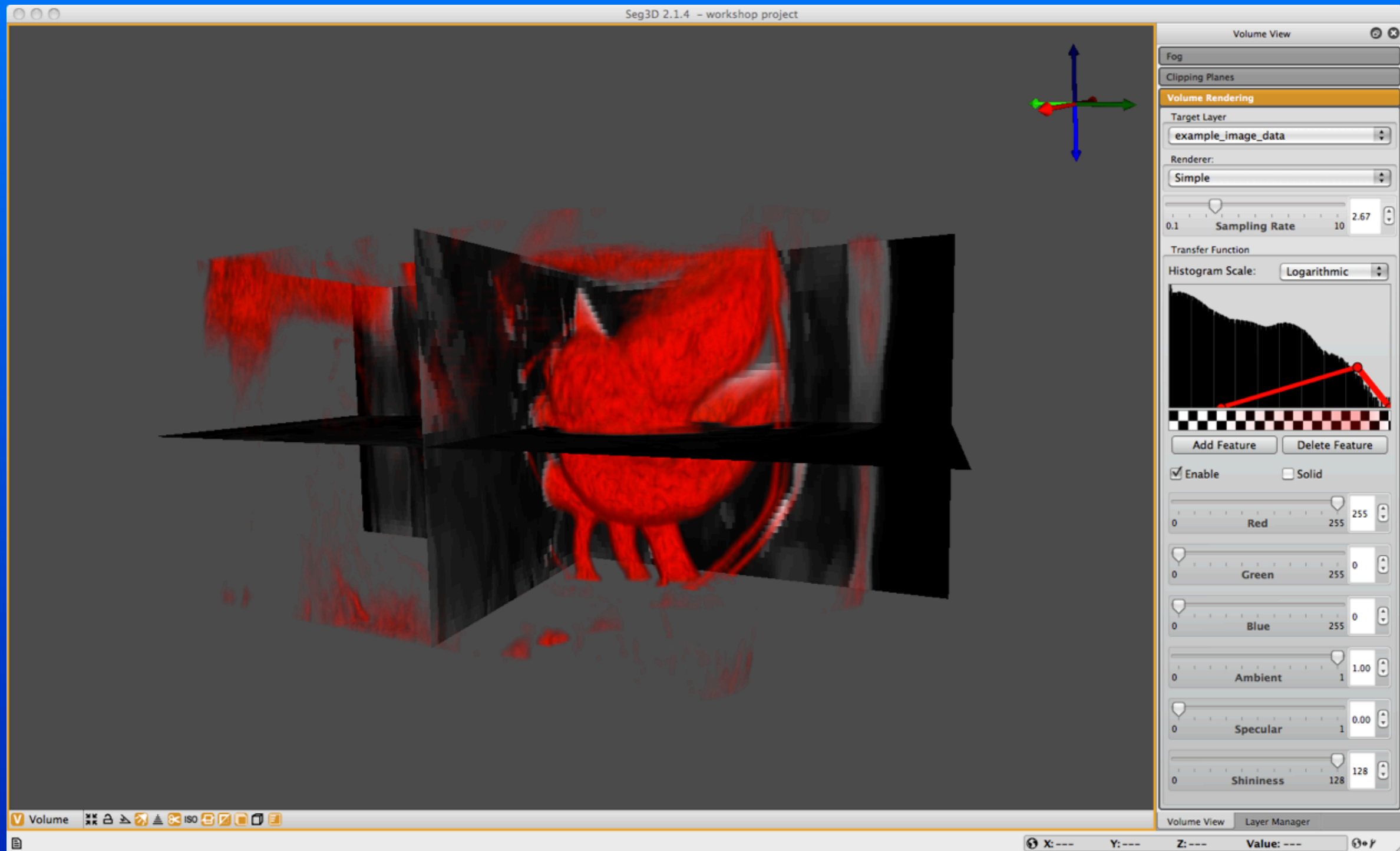
Action	Result
Set stateid='layer_3::visible' value='false'	
Set stateid='layer_2::visible' value='true'	
Set stateid='layer_2::visible' value='false'	
Set stateid='layer_1::visible' value='true'	
Set stateid='layer_2::visible' value='true'	
Set stateid='thresholdtool_0::lower_threshold' value='268.8'	
Set stateid='thresholdtool_0::lower_threshold' value='275.52'	
Set stateid='thresholdtool_0::lower_threshold' value='282.24'	
Set stateid='thresholdtool_0::lower_threshold' value='288.96'	
Set stateid='thresholdtool_0::lower_threshold' value='295.68'	
Set stateid='thresholdtool_0::lower_threshold' value='302.4'	
Set stateid='thresholdtool_0::lower_threshold' value='295.68'	
Set stateid='thresholdtool_0::lower_threshold' value='288.96'	
Set stateid='thresholdtool_0::lower_threshold' value='295.68'	
Set stateid='layer_3::visible' value='true'	
Set stateid='layer_4::visible' value='true'	
Set stateid='thresholdtool_0::upper_threshold' value='672'	
Set stateid='thresholdtool_0::lower_threshold' value='302.4'	
Set stateid='thresholdtool_0::lower_threshold' value='309.12'	
Set stateid='thresholdtool_0::lower_threshold' value='315.84'	
Set stateid='thresholdtool_0::lower_threshold' value='322.56'	
Set stateid='thresholdtool_0::lower_threshold' value='315.84'	
Set stateid='interface::python_console_visibility' value='true'	
Set stateid='interface::python_console_visibility' value='false'	
Set stateid='interface::controller_visibility' value='true'	

Action Run action from command line: ActivateTool toolid=thresholdtool_0

Status:

Usage:

Volume Rendering



Four Heart Chambers

